

Under the Resource Management Act 1991
In the matter of Notices of Requirement to enable the construction, operation and
maintenance of the City Rail Link

Between

Auckland Transport

Requiring Authority

And

Auckland Council

Consent Authority

Statement of Evidence of Ian David Clark

QUALIFICATIONS AND EXPERIENCE

1. My full name is Ian David Clark and I live in Auckland. I am a director of Flow Transportation Specialists Limited, which was established in February 2005. Prior to this I was the Manager of the Transportation Planning Section at the Auckland office of Opus International Consultants Ltd. I was employed by Opus for eight years.
2. I hold a Bachelor of Arts in Geography from the University of Wales and a Master of Science in Transportation from the University of London. I am a member of the Chartered Institute of Logistics and Transport, the Chartered Institution of Highways and Transportation and the Australian Institute of Traffic Planning and Management. I am also an affiliate member of the Institution of Professional Engineers of New Zealand, a board member of the Trips Database Bureau and Chairman of the New Zealand (Transport) Modelling User Group.
3. My work experience includes 25 years in transport planning, working in both New Zealand and the United Kingdom.
4. My experience in New Zealand includes responsibility for the transportation planning, traffic modelling and economic evaluation of numerous major transport schemes, including the Manukau Harbour Crossing, the Eastern Transport Corridor, the Upper Harbour Motorway, the SH1 Esmonde Interchange, the SH1 to Waiouru Peninsula connection, and elements of the North Shore Busway, all in Auckland¹.
5. My experience in the U. K. between 1988 and 1990 included involvement in the planning of the Limehouse Link, a cut and cover four lane road connecting the City of London with London Docklands. This work included assessments of the proposed temporary road closures during construction.
6. My local experience of relevance to this case includes the following:

¹ These projects are all road based, but many include a public transport component

- (a) I have been involved in the planning of the transport response to the proposed development of the Wynyard Quarter, within the Auckland City Centre, since 2005 to the present, originally for the former Auckland City Council and more recently for Auckland Transport;
 - (b) I have been involved in assessing several of the proposed projects identified in Auckland Council's City Centre Masterplan, including Quay Street, Federal Street, Fanshawe Street and the Victoria Street Linear Park, during 2011 and 2012, for Auckland Transport²;
 - (c) As part of the projects noted in items (a) and (b) above, I have developed SATURN traffic models of the City Centre;
 - (d) I was previously involved in reviewing the effects of the (then) proposed Victoria Park Tunnel project, for the former Auckland City Council. This included assessments relating to the temporary works along Victoria Street (between Union Street and College Hill) and the temporary closure of the Wellington Street on ramp;
 - (e) I was responsible for the traffic modelling undertaken as part of the 2010 study into the potential additional Waitemata Harbour Crossing, for the New Zealand Transport Agency;
 - (f) I am currently involved in the transport planning and particularly the transport modelling of a potential rail route to the Auckland International Airport.
7. I have undertaken many peer reviews and have presented evidence at several council and Environment Court hearings, either relating to major transportation proposals or proposed developments.
8. I understand the City Rail Link (CRL) project to be a 3.4km underground passenger railway (including two tracks and three underground stations) running between Britomart Station and the

² The final City Centre Masterplan was published in 2012, but the draft was published in 2011.

North Auckland Line (NAL) in the vicinity of the existing Mount Eden Station. CRL also requires an additional 850m of rail modifications within the NAL. The stations included in the CRL NoR have been temporarily named Aotea Station, Karangahape Station and Newton Station.

9. I am very familiar with the project area, and have carried out a number of site visits, and have observed traffic conditions on the network at different times of the day and week.
10. I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this hearing was before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are 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.

SCOPE OF EVIDENCE

11. My evidence will address the following:
 - (a) Background and role in the Project;
 - (b) The methodology for the Integrated Transport Assessment, including a brief summary of the traffic and transport modelling undertaken to support the assessment;
 - (c) The strategic transport direction for Auckland;
 - (d) The long term operational transport effects (predominantly positive effects), following the completion of the physical works associated with the CRL project;
 - (e) The temporary adverse transport effects during the construction of the CRL project;
 - (f) Measures proposed to mitigate the above temporary adverse effects;
 - (g) Response to submissions;
 - (h) Response to Planner's Report; and
 - (i) Proposed conditions.

SUMMARY OF EVIDENCE

12. The key conclusions of my evidence are as follows:
 - (a) The CRL ("the Project") will significantly improve the Auckland rail network. It will also offer significant transport benefits for the City Centre, as it will increase the capacity for trips to and from the Centre;
 - (b) There is the potential for significant adverse traffic and transport effects during construction of the CRL;

- (c) It is primarily the effects during construction along the sections of the Project that are not to be constructed by mined tunnel (particularly along Albert Street), that need to be mitigated. This mitigation is proposed in a variety of means and a key component is that essential access will be maintained during the construction period;
- (d) Table 15.2 of the Planner's Report requested further information on six transport related matters. I have provided information on each of these matters, as requested. I accept that clarification of some of these matters will further assist the Commissioner's understanding of the effects of the Project;
- (e) I recommend that modifications are made to a few of the proposed conditions, in order to provide greater certainty over the likely effects during the construction of the Project; and
- (f) If the measures I propose are adopted, in my opinion there is no traffic related reason why the Notices of Requirement relating to the City Rail Link project cannot be confirmed.

BACKGROUND AND ROLE

13. I was appointed by Auckland Transport in February 2012 to prepare the Integrated Transport Assessment to support the Notices of Requirement. My role has been as follows:
- (a) Involvement with the project team as the scheme has evolved. This has included involvement in the consideration of alternatives relating to various aspects of the scheme, project optimisation, and advice on measures to mitigate the potential effects during construction;
 - (b) Preparation of a draft Integrated Transport Assessment (ITA);
 - (c) Review of documents prepared by the project team, such as the Concept Design Report;
 - (d) Traffic modelling to quantify the potential traffic effects, primarily during construction; and

- (e) Revision to the ITA, in response to the evolution of the scheme.

THE METHODOLOGY OF THE INTEGRATED TRANSPORT ASSESSMENT

- 14. The methodology used was set out at Section 4 of the ITA, and it was noted that the ITA referred extensively to the following key documents:
 - (a) The CRL Concept Design Report³;
 - (b) The Draft Integrated Transport Plan: Appendix E: City Centre Transport Response⁴;
 - (c) The City Centre Masterplan (CCMP)⁵.

- 15. Section 4 of the ITA referred to the “City Centre Future Access Study” (CCFAS), which was underway at that time. This study, which was completed in December 2012⁶, was commissioned to develop a robust and achievable multimodal programme for transport into the Auckland City Centre. The CCFAS focussed on a number of multimodal transport options, based around a series of “headline” public transport modes, namely underground rail infrastructure, surface bus infrastructure and underground bus infrastructure. I set out the key conclusions of this study at paragraphs 22-23 below.

- 16. The ITA set out the following:
 - (a) The strategic transport direction for Auckland;
 - (b) The future “Do Minimum” scenario (ie the City Centre in the future, without CRL);
 - (c) The operational impacts (ie the City Centre in the future with CRL); and

³ Aurecon (2012), “City Rail Link: Concept Design Report” (NOR Appendix 13)

⁴ Auckland Transport (2012), “Draft Integrated Transport Plan”

⁵ Auckland Council (2012), “City Centre Masterplan”

⁶ SKM (2012), “City Centre Future Access Study”

- (d) The construction impacts (ie the impacts during construction)/
17. The ITA was informed by the following traffic and transport models:
- (a) The Auckland Passenger Transport (APT) Model was used to provide forecasts of the demand for the CRL⁷; and
 - (b) The City Centre SATURN traffic model was used, primarily to assess the traffic effects of the CRL during construction⁸.
18. The CCFAS provided an updated assessment of the anticipated patronage of the CRL, which was based on new runs of the Auckland Regional Transport (ART)⁹, APT and SATURN models.

THE STRATEGIC TRANSPORT DIRECTION FOR AUCKLAND

19. The ITA summarised the strategic transport direction for Auckland as set out in the following:
- (a) The Regional Land Transport Strategy¹⁰;
 - (b) The Auckland Plan¹¹; and

⁷ The APT model is operated by Auckland Transport. It was designed to assess the impact of a variety of schemes to improve the public transport system throughout the Auckland region. The forecast models have been used in the assessments of a wide range of projects

⁸ The City Centre SATURN model is a traffic assignment model. It was originally developed by Flow in 2010 for the former Auckland City Council and it has been subject to peer review. The model was expanded in 2012 and has been used by Flow to assess the traffic effects of numerous projects in the City Centre, for Auckland Transport, including projects for Quay Street, Federal Street, Victoria Street, Wynyard Quarter and the CRL. The version of the model used for the CRL assessment was the 2021 forecast model

⁹ The ART model is operated by Auckland Council and is a strategic model which covers the whole region. Its primary purpose is to develop trip forecasts by each mode. The ART3 model generates outputs based on defined land use scenarios; these outputs then feed into the APT model

¹⁰ Auckland Regional Council (2010), "Auckland Regional Land Transport Strategy 2010-2040"

- (c) The Regional Policy Statement¹².
20. The key aspects of these documents are:
- (a) The desire for greater intensity of activity within the main centres, and within the Auckland City Centre in particular;
 - (b) Targets for increasing the public transport mode share, again for trips to/from the Auckland City Centre in particular, where increases in trips are expected to be accommodated by public transport, walking and cycling.
21. These two aspects are closely related, as the aim is to encourage a significant proportion of development in the areas that are best served by public transport, in order to reduce the adverse effects of development on the transport system and to realise the full benefits of infrastructure investments.

THE NEED FOR THE CITY RAIL LINK

22. The need for the CRL was considered by the CCFAS. This study concluded that the Auckland City Centre will face significant access issues across all entry points from as early as 2021 (if the CRL or other significant transport investment does not proceed): It states:

“This constrained access will limit Auckland’s potential growth through:

- *Increasing travel times for commuters trying to access employment in the City Centre.*
- *Reducing the efficiency for freight and commercial road users who need to access the port, move around the City Centre, or just pass through using the Central Motorway junction.*
- *Pushing employment to locations other than the City Centre which will reduce productivity and lead to a less competitive economy.*

¹¹ Auckland Council (2012), Auckland Plan

¹² Auckland Regional Council, “Auckland Regional Policy Statement”

By 2041, constrained City Centre access to the south, west and east will

- *Fail to deliver 15,200 employees and students who would otherwise have come into the City Centre. This is the equivalent of removing all the employment presently catered for on the Terrace, Molesworth Street and Hawkestone Street in Wellington.*
- *Increase car commuting times for those that do go to the City Centre by 30-50%.*
- *Reduce speeds in the City Centre for commuter, freight and commercial vehicles by 75%”¹³.*

23. The CCFAS stated that none of the three “headline” options tested fully addresses City Centre access. However, the study concluded that:

“Taking an Integrated option of the Underground Rail option and filling in gaps with the best operational aspects of the surface bus option will effectively address City Centre Access for the next 30 years and beyond from the south, east and west as well as the central and southern isthmus”¹⁴.

THE LONG TERM OPERATIONAL EFFECTS (following the completion of the project)

24. The CRL will significantly improve the Auckland rail network and the Project is expected to offer the following benefits:
- (a) It will address the existing capacity constraints at Britomart, and will enable future increases in rail service frequencies across the whole rail network, allowing Auckland Transport to realise the full benefits of the existing and committed investment in the rail network;

¹³ SKM (2012), *City Centre Future Access Study (CCFAS)*, page 7

¹⁴ CCFAS, page 7

- (b) It will enable the addition of new rail lines that may be added to the network in the future (such as rail to the Airport and/or rail to the North Shore);
- (c) It will enable the majority of the Auckland City Centre to be within a short walk of a railway station, while enabling many more rail trips across Auckland to take place as a continuous ride, without needing to transfer;
- (d) It will significantly reduce travel times to and through the City Centre and people will have rail access to more parts of the City Centre;
- (e) The CRL will provide a significant increase in the transport capacity for trips to/from and within the City Centre. This is consistent with the growth aspirations for the city, as expressed in the Auckland Plan;
- (f) It will also help reduce the growth of congestion in the central city road network and on key bus corridors. This supports the planned refocusing of the bus network in outer areas to act as feeders to the Rapid Transit Network;
- (g) The CRL will lead to the removal of two level crossings along the Western Line, between Newmarket and Eden Terrace. Grade separated crossings are to be provided at Normanby Road and Porters Avenue.
- (h) In addition, the CRL will improve transport choices in and around the Auckland City Centre and will assist in reducing the environmental impact of the transport system, which is currently heavily dependant on private vehicles, by providing a reliable alternative. This is consistent with the aim expressed in the Regional Land Transport Strategy and the Auckland Plan, of increasing the public transport mode share for trips entering the City Centre.

25. While the CRL clearly relates to substantial investment in the rail system, it will also be necessary to ensure that the CRL project fully

integrates with the adjacent transport networks, in the vicinity of each of the stations, in order to optimise the benefits of the CRL. This means:

- (a) The provision of facilities for pedestrians and cyclists in the vicinity of each of the new rail stations, to respond to the significant increases in pedestrian activity, with a particular emphasis around the proposed Aotea station, as this is anticipated to be the busiest of the new stations. This will need to include safe and convenient pedestrian crossings to the station entrances. In theory these crossings (including additional crossings at certain important intersections) could adversely affect conditions for traffic, but the ITA indicated that these adverse effects would generally be minor;
- (b) The provision of convenient bus stops or interchanges (where appropriate) and taxi facilities at each of the new rail stations. It is likely that this may include changes to the future bus services to respond to the CRL, including reductions in some services where decreases in demands are predicted as a result of the CRL, and increases to services that need to complement or interchange with the CRL.

26. Paragraph 24 (a) above referred to the effect of CRL removing the bottleneck at the Britomart station, while paragraph 24 (d) referred to the expected improvements in travel times. Significant investment has been made and is continuing to be made in the rail network, but the capacity of the rail network will be significantly inhibited by the capacity of the Britomart station, which can accommodate no more than 20 trains per hour. The CRL will therefore allow Britomart to operate as a through station by providing an extension of the rail network under the City Centre connecting with the existing North Auckland Line (NAL). This will allow higher train frequencies across the entire rail network. Reductions in travel times will be possible due to the following:

- (a) The provision of services to a greater proportion of the City Centre (see below);

- (b) The removal of the current requirement to turn services around on the Western Line at Newmarket in order to get to Britomart;
 - (c) A reduction in the need to transfer (e.g. between rail and bus) at Britomart, to head up town.
27. Paragraph 24 (c) above referred to the fact that the CRL allows the majority of the City Centre to be within a short walk of a rail station. This is shown indicatively at Figures 1 and 2, attached to the rear of my evidence. The rings around each station show areas within 400m and 800m of a station entrance, for the scenarios without the CRL (Figure 1) and with the CRL (Figure 2). 400m is generally assumed to be the walk catchment for a bus stop in Auckland, while 800m is taken to be the walk catchment for a stop on the Rapid Transport Network (generally defined as the rail network plus the Northern Busway)¹⁵. These distances equate with walk times of around 5 and 10 minutes respectively.
28. I accept that, in reality, the size of walk catchments is affected by delays that can be expected to be incurred during a trip, such as waiting at signalised intersections. I also accept that some people's ability or inclination to walk 800m will be affected by topography and the weather. However, research by Auckland Transport indicates that the existing walk catchment for the Britomart rail station is greater than 800m. As a result, I consider that Figures 1 and 2 reasonably reflect the extent of the City Centre that will be within walking distance of rail, before and after the completion of the CRL, thus demonstrating the effect of the CRL in increasing rail's penetration within the City Centre. The main area to come within the catchment of the rail network as a result of the CRL will be the central city, between around Wellesley Street in the north and the motorway ring around the City Centre, to the west, south and east.

¹⁵ Auckland Regional Council (2010), "Auckland Regional Land Transport Strategy 2010-2040", page 31

29. The only area of the City Centre¹⁶ not to fall within the future catchment of rail, following the completion of the CRL, will be Wynyard Quarter (west of Halsey Street and north of Fanshawe Street), which is to be served by bus.
30. The ITA provided a summary of the effects of the CRL, in terms of changes in transport demands, but it acknowledged that these predictions would be updated through the CCFAS. That Study concluded that the CRL (as part of the “Integrated Option”) will lead to an increase in public transport patronage of 8,800 trips in the two hour morning peak period in 2021, rising to 15,800 by 2041¹⁷.
31. The modelling of the CRL option in the CCFAS assumed the inclusion of the Inner West Interchange, which is now not included in the NoR. However, it is not sufficient just to rerun the model without the Interchange, as the train plan assumed for that scenario was designed, in part, around the Interchange. Therefore Auckland Transport has rerun the modelling to reflect the Project as now proposed (ie without the Inner West Interchange) and with a different train plan. It should be stressed that this is only one of several potential train plans that could be adopted in the future.
32. The results of the CCFAS scenario and also a scenario with an alternative train plan which excludes the Inner West Interchange are summarised in Appendix A. These results indicate that the CRL is predicted to increase rail patronage into the City Centre by between 11,000 and 13,000 people, during the two hour morning peak period in 2041.

¹⁶ For this paragraph, I have defined the City Centre as the area within the motorway “ring road” around the Centre, i.e. the Northern Motorway, the Central Motorway Junction and State Highway 16 along Grafton Gully

¹⁷ CCFAS, page 191. These increases include the predicted effects on rail, bus and ferry patronage

33. Appendix A also provides updated predictions of the numbers of persons predicted to be using each station in 2041, during the two hour morning peak period. Key points to note about these predictions are as follows:
- (a) The number of persons predicted to alight at the Britomart station is predicted to decrease slightly, from around 13,000 persons without the CRL to 12,400 persons with the CRL, in the two hour morning peak period. This still represents a high number of people using the station with the CRL, even though the Project will provide alternative, more convenient, stations within the CBD;
 - (b) The Aotea station is predicted to be the busiest of the three new stations, with patronage numbers similar to those predicted at Britomart with the CRL in place, at around 13,000 persons alighting in the morning peak period;
 - (c) The patronage at the Karangahape Road and Newton stations is predicted to be more modest, but two way numbers of around 4,300 at Karangahape Road and 4,400 at Newton in the morning peak demonstrate the need for these additional stations.
34. Paragraph 24 (f) referred to the refocusing of the bus network. The bus network is currently being restructured, and the new network will be implemented by Auckland Transport by 2016, i.e. irrespective of the CRL. The Draft Public Transport Network Plan (RPTP) states that the CRL will enable further changes to be made to the wider public transport network¹⁸, including:
- (a) Increased frequencies, where appropriate, including Isthmus cross-town routes, Henderson to Constellation orbital route, Albany to Highbury, Albany to Takapuna, Bucklands Beach to Botany, New Lynn feeder routes, Manurewa feeder routes and Flat Bush to Otara;

¹⁸ Auckland Transport (October 2012), "Draft Auckland Regional Public Transport Plan 2012", page 57

- (b) Changes to western bus routes to better integrate with rail services, including New North Road frequent services terminating at a new Inner West Interchange, and western peak services terminating at nearby rail stations¹⁹.

- 35. During 2013, my company has been involved in assisting Auckland Transport to assess likely bus interchange requirements within the City Centre. This work has highlighted the challenges that are likely to be faced in accommodating the numbers of buses anticipated. These challenges emanate from the need for road space for bus stops, and the need to ensure reliability of service times within the City Centre. The outcomes of this study are consistent with the conclusions of the CCFAS on this matter, namely:
 - (a) By 2021, most bus networks approaching the City Centre, as well as within the City Centre itself, will be at capacity and some will be over capacity in terms of what can physically be provided for within the existing road corridor. In other words, it is not just a matter of providing additional buses on existing roads;
 - (b) By 2041, the bus network will be significantly over capacity²⁰.

- 36. Therefore, the CRL will increase the capacity for trips to, from and within the City Centre.

- 37. As a result of the above, I conclude that the works are reasonably necessary to give effect to the project objectives.

¹⁹ I am aware that the Inner West Interchange is no longer included within the NORs, so I expect New North Road bus services to terminate elsewhere along the route

²⁰ CCFAS, pages 10 and 11

THE TEMPORARY ADVERSE EFFECTS (during the construction of the CRL project)

38. There is the potential for significant adverse traffic and transport effects during construction of the CRL.
39. Much of the project is to be built underground, significantly reducing the extent of temporary adverse effects. However, underground construction is not practical at a number of locations, particularly along Albert Street, between the Downtown Shopping Centre and Wellesley Street, where cut and cover is proposed. The main transport effects during construction will therefore be along Albert Street.
40. Other locations where there will be potential adverse effects during construction will be:
 - (a) Queen Street at Britomart, between Quay Street and Customs Street;
 - (b) Along Galway Street and Tyler Street (one at a time), adjacent to Britomart;
 - (c) Beresford Street, where access onto Pitt Street is to be closed;
 - (d) Mercury Lane;
 - (e) Ngahura Street is to be closed, to accommodate the tunnel staging area; and
 - (f) There will be temporary restrictions on Normanby Road, Mount Eden Road and Porters Avenue, in the Eden Terrace area.
41. The effects on the road network during construction around the proposed Karangahape Road and Newton Stations are expected to be modest, due to the proposed mined construction methodology. This methodology will require truck movements to/from the construction sites at these stations, but there will be relatively modest surface works in these areas.

42. The ITA identified the quantum of truck movements that can be expected to/from each of the construction sites. The numbers of trucks assumed in the traffic modelling were taken from conservative estimates provided by Aurecon, and Mr Newns has recently reviewed these figures. The two sets of figures are set out in Table 1.

Table 1: Predictions of Daily Truck Movements to CRL Construction Sites

	Numbers assumed in ITA	Mr Newns Revised Estimates
Britomart, Downtown Shopping Centre and Albert Street Construction Sites	256	250
Aotea Station	91	150
Karangahape Road Station	94	100
Newton Station	100	100
Eden Terrace Construction Site	667	400

43. It should be noted that the above numbers relate to trucks, and therefore the number of truck movements will be double these numbers (as each truck will need to approach and exit the relevant site). I comment on the likely routes to be used by these trucks, at paragraphs 142-147 below, in response to the Council's Section 42a report.
44. It can be seen that Mr Newns' revised estimates include lower truck numbers at the Eden Terrace construction site, but higher numbers at the Aotea construction site, compared with the estimates provided previously. The increase at the Aotea construction site is primarily due to the potential shorter construction sequence discussed at paragraphs 55-58 below

45. The truck numbers are based on a number of variables and the indicative construction programme that will be subject to change as the project develops. However, I understand that these are conservative estimates for the following reasons:
- (a) I have conservatively assumed in the traffic modelling that all truck movements will all be occurring over the same period of time. As noted in the evidence of Mr Newns, the construction is likely to take place over 5-6 years, but the work is to be staged, and activity is likely at only some of the construction sites at any point in time;
 - (b) It is currently assumed that removal of all spoil will be by road. This is probably the most likely scenario, but alternative methods should be considered. Removal of some spoil from the Downtown construction site by barge may be possible, although I recognise that the benefits of this potential option in terms of the reduction in truck movements will need to be weighed against the adverse environmental impact on the Auckland Waterfront area, and the effects of getting spoil across Quay Street and onto the barges. Removal of some spoil from the Eden Terrace construction site by rail may also be considered.

Measures proposed to mitigate the above temporary adverse effects

46. The first and primary mitigation of effects during construction is through the construction methodology, with the majority of the CRL project to be built underground, without affecting the surface transport networks.

47. The main transport effects during construction will be along Albert Street, between the Downtown Shopping Centre and Wellesley Street, where cut and cover is proposed²¹. The construction effects along and across this route are to be mitigated by the development and implementation of a Construction Environmental Management Plan (CEMP). The management of the transport effects that will occur during the construction phase will be outlined in the detailed Traffic Management Plans (TMP) which will support the CEMP. The details of the TMPs will be provided at that time, but it is recommended that the CEMP should generally address the following:
- (a) Local access will be retained along Albert Street, with left in, left out access to properties on the eastern side, from the southbound carriageway, and left in, left out access to properties on the western side, from the northbound carriageway;
 - (b) Restrictions at the intersections serving the major east-west routes crossing Albert Street (Customs Street, Victoria Street and Wellesley Street) are to be phased, to reduce the potential adverse effects to east-west traffic movements. Further details on this are set out in paragraphs 52-70 below;
 - (c) During the construction phase, travel demand management initiatives will be required, to seek to reduce the demand for travel to and within the City Centre by private vehicles, and therefore to avoid further effects;
 - (d) Some temporary rerouting of bus services will be required during the construction of Britomart and Aotea Stations;

²¹ Paragraph 70 below notes that an alternative construction methodology was previously proposed which would have extended the section of the Project to be built by mined construction further to the north along Albert Street, to between Victoria Street and Customs Street

- (e) The temporary works on the roads crossing the North Auckland Line (NAL) through Eden Terrace, namely Normanby Road, Mount Eden Road and Porters Avenue) are to be undertaken one at a time;
 - (f) It may be necessary to defer aspects of certain projects which are identified in the City Centre Masterplan, namely the Quay Street Boulevard (west of Queen Street) and the Victoria Street Linear Park (either side of Albert Street). These projects are expected to lead to reductions in capacity in the longer term, within the predicted area of temporary effects during the construction of the CRL.
48. The following priority will be given to movements within the City Centre during the construction phase:
- (a) Pedestrians and public transport will be afforded highest priority, along with other essential movements, including emergency services;
 - (b) Essential vehicle access to properties within or adjacent to the construction areas will be given second priority; such vehicles would include service and delivery vehicles;
 - (c) Private car travel will be given lower priority, particularly extraneous traffic which should be encouraged to avoid passing through the City Centre.
49. The ITA did not refer to cyclists in the above list and I suggest that these road users should be included in the second category. Clearly cycling is an important mode of transport, but I suggest that in the areas around the main Albert Street construction works, pedestrians and public transport and essential services should be given higher priority.

ASSESSMENT OF EFFECTS DURING CONSTRUCTION

50. Details of the potential range of construction scenarios, and the likely timeframes for each of these scenarios, are set out in the evidence of Mr Bill Newns.
51. An assessment of the likely traffic effects during construction, including the mitigation measures proposed, has been undertaken using the City Centre SATURN traffic model. This model was used to establish the likely reassignment of traffic, the effects on journey times along key routes, and the effects on total travel times.

Albert Street

52. As noted at paragraph 47 above, the nature of the proposed cut and cover construction method along Albert Street means that there will be temporary traffic effects in this area, until the lid is in place.
53. The works along Albert Street will clearly have significant temporary effects on the operation of that route. However, the works will only actually take place on one north-south route²². The Hobson Street/ Nelson Street one way pair to the west of Albert Street currently has spare capacity and will be able to accommodate some of the north-south traffic that currently uses Albert Street. Also, if works are undertaken at some location along Albert Street, this affects the capacity of the entire route, so to undertake further works along Albert Street, at a second location, will have little extra impact on north-south traffic;
54. On the other hand, there are three important east-west routes which cross Albert Street, namely Customs Street, Victoria Street and Wellesley Street. Quay Street to the north and Cook Street/Mayoral Drive to the south are also important east-west routes, but the potential temporary effects of the CRL on east-west movement across the City Centre could be quite substantial if not carefully managed.

²² I accept that the construction of the CRL will also affect Queen Street, between Customs Street and Quay Street, but this section of Queen Street is used by buses and local egress only from Galway Street and Tyler Street.

55. The ITA set out the results of four potential construction scenarios. Further work has been undertaken and the results were summarised in the supplementary report circulated to Auckland Council (and all submitters) in May 2013 (the Supplementary Document)²³.
56. The modelling undertaken to support the ITA was carried out on the basis that the three main Albert Street intersections (ie the intersections with Customs Street, Victoria Street and Wellesley Street) could be partially closed, one quadrant at a time, allowing at least a single lane of traffic to pass through each intersection from each direction.
57. I have been advised by Mr Newns that there are significant advantages for construction in terms of the effects arising from utility diversions and for construction of the CRL structures overall, if the key intersections are able to be completely closed. The Supplementary Document set out results of a second series of tests, examining various scenarios which included full intersection closures. These tests were undertaken in January-February 2013 in order to assist Auckland Transport to develop a more detailed understanding of the sensitivity of the local network to draft conditions that set the parameters for a range of temporary traffic measures that could be implemented at the time of construction. The broad outcomes are set out below.
58. I understand that that the main advantage of fully closing intersections is a more efficient construction methodology option in terms of both time and cost. This method could reduce the construction period (and in particular the potential disruption) along Albert Street by around 6-12 months, when compared with the option of closing one quadrant of an intersection at a time. The modelling indicates that the overall effects may be of a similar scale to those under the previous proposal, partly as closing one quadrant of an intersection would leave a very inefficient layout, with a significant reduction in capacity.

²³ Flow Transportation Specialists (2013), "City Rail Link Supplementary Report: Traffic Modelling of Alternative Construction Scenarios"

59. The conclusions of the Supplementary Document were as follows:
- (a) Full closure of intersections along Albert Street may be acceptable from a traffic/transport perspective, but no more than one of the three main intersections (Wellesley Street, Victoria Street and Customs Street) should be closed at any one time;
 - (b) There would be merit in maintaining some capacity along Customs Street (ie while the Albert Street/Customs Street intersection is closed to turning traffic) if practicable, and this option should be considered at the time the Construction Environmental Management Plan (CEMP) is being prepared;
 - (c) Consideration needs to be given to providing for the east-west bus route through the City Centre, which is to become more important over the next few years. It is currently proposed that significant numbers of buses are to use Wellesley Street, although it may be reasonable to assume that these can divert via Victoria Street during part of the CRL construction. This should also be considered at the time the Construction Environmental Management Plan is being prepared;
 - (d) The ITA noted the various local access points along Albert Street, and the construction phasing will need to demonstrate how local access is to be retained. Consideration needs to be given to these matters at the time the Construction Environmental Management Plan is being prepared, although paragraph 73 below considers in particular the retention of access for traffic with origins/destinations in the Durham Street area, and those properties with access to Albert Street between Customs Street and Wellesley Street;
 - (e) Auckland Transport needs to consider how Albert Street buses are to be accommodated during the CRL construction, either via Queen Street or via Hobson Street/Nelson Street, at the time the Construction Environmental Management Plan is being prepared;

(f) The tests indicate that there would be merit in reopening the Albert Street/Wyndham Street intersection as soon as reasonably possible, to reduce the effects of the closure of adjacent intersections along Albert Street, and consideration of this should also be included in the Construction Environmental Management Plan.

60. While the additional tests have made use of an updated version of the City Centre SATURN model used to inform the ITA, two key assumptions from the previous work have been retained:

(a) It has been assumed that no trip suppression will have occurred as a result of the temporary reductions in traffic capacity. In reality, some reductions can reasonably be expected, either due to change of mode, change of trip times, or change in destination, with for example, some people choosing to park away from the Albert Street area;

(b) The ITA noted the numbers of truck trips likely to be required to head to and from each of the CRL construction sites. All model tests assume that trucks are heading to all of these sites at the same period of time.

61. The above both represent a conservative approach to assumptions.

62. The Code of Practice for Temporary Traffic Management (COPTTM)²⁴ makes the following brief reference to the maximum delay anticipated as a result of temporary traffic management:

“Traffic Management Plans (TMPs) must address any delays anticipated by worksite activities, including simple calculations to determine if delays of more than the maximum time allowed by the Road Controlling Authority (RCA) are likely (normally five minutes).”

²⁴ New Zealand Transport Agency (2012) “Code of Practice for Temporary Traffic Management (COPTTM)”

63. The COPTTM threshold is just a guideline, and it is very difficult to determine what level of increase in journey times should be considered acceptable in this specific situation. That is to say, the COPPTM guideline should not be taken to mean that a predicted temporary increase in travel times of, say, four and half minutes is necessarily acceptable on one particular route, or that an increase of, say five and a half minutes is unacceptable on the next route. In my view, the following issues need to be taken in account:
- (a) The length of time over which each particular construction scenario is expected to be experienced (eg six weeks or six months);
 - (b) The ability to implement an alternative scenario (ie a scenario that could reduce the predicted temporary impacts) and the additional cost of implementing that alternative;
 - (c) The time period in which effects are predicted to be experienced. For example, a poor level of service may be considered acceptable in the Auckland City Centre in the commuter peaks, for a short period of time, so long as other conditions are met. These conditions could include a satisfactory level of service being maintained for public transport during the peak periods, and for general traffic outside of these peaks. I return the matter of the importance of the inter peak period, at paragraphs 66-67 below.
64. The full results of the tests on the full closure of the intersections of Albert Street with Customs Street, Victoria Street and Wellesley Street, one at a time, were set out in Tables 2 to 10 of the Supplementary Report of May 2013. The results are summarised below. It should be noted that travel times can not, by definition, be provided for the full length of Albert Street and the east west route to be severed in each test²⁵:

²⁵ I acknowledge that the Supplementary Report of May 2013 did give predicted times along parts of Albert Street and I note that conditions are predicted to be congested within the single service lanes along Albert Street, in each direction

- (a) **Closure of Albert Street/Wellesley Street intersection²⁶**: the evidence of Mr Newns states that this intersection may be closed for some 12 months. The greatest effects of this closure are predicted westbound along Victoria Street, where increases of three and over seven minutes are predicted in the morning and evening peaks, respectively. Increases of two and a half minutes are predicted westbound along Customs Street, in the evening peaks, while increases of over two minutes are predicted northbound on Nelson Street in the morning peak and southbound on Hobson Street in the evening peak.
- (b) **Closure of Albert Street/Victoria Street intersection²⁷**: the evidence of Mr Newns states that this intersection may be closed for some 16-18 months. The greatest effects of this closure are predicted along Queen Street, where increases of between four and five minutes are predicted in the evening peak, in both directions. This results in part from the assumption that Albert Street buses will be rerouted via Queen Street. Increases of two and three minutes are predicted westbound along Wellesley Street, in the morning and evening peaks, respectively, while increases of four minutes are predicted southbound on Hobson Street in the evening peak.
- (c) **Closure of Albert Street/Customs Street intersection²⁸**: the evidence of Mr Newns states that this intersection may be closed for some 6-9 months. The greatest effects of this closure are predicted southbound along Queen Street and westbound along Victoria Street, where increases of almost six minutes are predicted in the evening peak. Increases of five to five and half minutes are predicted westbound along Quay Street, in the morning and evening peaks, while increases of three minutes are predicted northbound on Nelson Street in the morning peak.

²⁶ Closure of the Albert Street/Wellesley Street intersection was described as Test 5 in the Supplementary Report of May 2013

²⁷ Closure of the Albert Street/Victoria Street intersection was described as Test 4 in the Supplementary Report of May 2013

65. It is worth noting that the closure of the Albert Street/Victoria Street is predicted to have the lowest overall impact on peak hour travel times of the three construction scenarios and this is the closure that is to be place the longest.
66. Paragraph 63 above referred to the importance of the inter peak period. The peak models relate to the single morning and evening peak hours (i.e. 8 to 9 am and 5 to 6 pm) and these models could conservatively be assumed to relate to the two hour peak periods (7 to 9 am and 4 to 6 pm). These periods are clearly important in terms of daily commuter travel, but they only relate to a total of four hours per day. The inter peak period relates to the rest of the working day, from 9 am to 4 pm (and maybe 6 to 7 pm), i.e. 8 hours per day, and this is the period when most business, delivery and retail trips are made. Thus while I accept that it is common practice to undertake traffic modelling for the peak hours (or the peak periods), to assess the worst case scenario, in the context of a city centre location and for the assessment of the overall effects of the proposed temporary works along Albert Street, I consider that the operation of the network in the inter peak period is very important.
67. Also, I am aware that traffic flows and conditions most weekends are more similar to those in the weekday inter peak than the weekday peaks. Thus the inter peak model results represent a significant proportion of time throughout the week.
68. The Supplementary Report of May 2013 set out the effects of closing the Albert Street/Customs Street in the inter peak period and I have since run the inter peak model with either the Albert Street/Victoria Street or the Albert Street/Wellesley Street intersections closed. The results are as follows²⁹:

²⁸ Closure of the Albert Street/Customs Street intersection was described as Test 6 in the Supplementary Report of May 2013

²⁹ As with the results at paragraph 64, these results exclude times along Albert Street, as the route is assumed to be severed with these tests. Conditions are predicted to be congested within the single service lanes, in each direction

- (a) **Closure of Albert Street/Wellesley Street intersection:** the most significant effects are predicted to be increases of around two to two and a half minutes in both directions along Victoria Street. Increases of less than one minute are predicted along Queen Street and negligible changes in times are predicted along Nelson Street and Hobson Street.
- (b) **Closure of Albert Street/Victoria Street intersection:** the most significant effects are predicted to be increases of less than one minute in both directions along Queen Street. Increases of around half a minute are predicted in both directions along Wellesley Street and southbound along Hobson Street.
- (c) **Closure of Albert Street/Customs Street intersection:** the most significant effects are predicted to be increases of around three and a half minutes westbound along Quay Street and one and half to two minutes in both directions along Victoria Street. Increases of less than one minute are predicted along Queen Street and negligible changes in times are predicted along Nelson Street and Hobson Street.

- 69. As was predicted for the weekday peaks, the closure of the Albert Street/Victoria Street intersection is predicted to have the lowest overall impact on inter peak travel times of the three construction scenarios and this is the closure that is to be place the longest.
- 70. As noted at paragraph 47 above, the temporary effects along Albert Street relate to the cut and cover construction methodology proposed from just north of Wellesley Street through to the Downtown Shopping Centre. A number of submitters have questioned why Tunnel Boring Machine cannot be extended down Albert Street. Cut and cover is necessary through the Aotea station and the northern end of Albert Street, so any potential change in construction methodology as the project evolves can relate only to the section of Albert Street between Victoria Street and south of Customs Street. That is to say, temporary works would still be required at the intersections of Albert Street with Wellesley Street, Victoria Street and Customs Street, even if a Tunnel Boring Machine was to be used along Albert Street, north

of Victoria Street (but not as far north as Customs Street). This mined approach would reduce the local access effects over this limited section of Albert Street, but the main temporary effects, through the key intersections along Albert Street would generally be as for the cut and cover method, as set out in paragraphs 64 and 68 above.

Access along Albert Street

71. As noted at paragraph 47 (a) above, it is essential that access to properties is maintained along Albert Street during the construction period. Left in, left out access is to be provided to properties on the eastern side from the southbound carriageway, and left in, left out access to properties on the western side is to be provided to properties from the northbound carriageway. However, the issue of access is complicated by the proposal to close the three key intersections along Albert Street, one at a time. The effects of this are summarised at Figures 4 to 13.
72. I set out the proposed access issues for most of the key sites along Albert Street in my response to submissions, at paragraphs 105-107 below, but I note that Figures 4 to 13 are intended to demonstrate at a conceptual level the ability for traffic to get in and out of all sites along Albert Street. The blue lines show routes into the sites, while the red lines show the routes for traffic leaving the sites. Traffic entering and exiting the sites will do so from the single traffic lane proposed along Albert Street in one direction, but the red and blue lines are not overlain on each other, for illustrative purposes.
73. Figures 4 to 13 indicate the key access challenges arising from the potential full closure of certain intersections, which are as follows:
 - (a) All access to and from the Crowne Plaza hotel and the access to the Sky City Grand will need to be via the Albert Street/Wellesley Street intersection while the Albert Street/Victoria Street intersection is closed (see Figure 12), and vice versa (with all access via the Albert Street/Victoria Street intersection while the Albert Street/Wellesley Street intersection is closed (see Figure 13);

- (b) The left turn movement from Customs Street (from the east) to Albert Street will need to be retained while the Albert Street/ Customs Street intersection is otherwise closed, to ensure that access can be provided into Mills Lane, Stamford Plaza and Quay West (see Figure 4);
- (c) The left turn movement from Customs Street (from the west) to Lower Albert Street will also need to be retained while the Albert Street/Customs Street intersection is otherwise closed, to allow vehicles to exit the Downtown car park, to provide access to the CRL construction site at the Downtown Shopping Centre, and to allow some buses from the North Shore to turnaround;
- (d) The left turn from Durham Street to Queen Street needs to be reopened while the Albert Street/Victoria Street intersection is closed, to allow egress from the block bounded by Albert Street/Victoria Street/Queen Street/Durham Street (see Figure 10);
- (e) Two way access is to be allowed within the short section of the single service lane along the western side of Albert Street, between 87 Albert Street (Albert Plaza) and Kingston Street, while the Albert Street/Victoria Street intersection is closed, in order to provide access to the Albert Plaza site (see Figure 11).

74. Figures 4 to 13 are intended to be indicative only. More detailed plans showing the proposed layout along Albert Street are provided with the evidence of Mr Newns. On a point of detail I note that Mr Newns is suggesting that Mills Lane and Swanson Street (east) should both be temporarily converted to one way operation, with left turns only into Mills Lane from Albert Street, and left turns out only onto Albert Street from Swanson Street. This is partly to ensure that trucks can safely turn into and out from these streets.

75. It is apparent that the function of Albert Street will change during the construction period. It will cease to act as a through route, if any one intersection along its length is fully closed and it will not be able to act as a bus route. Instead its temporary function will be solely to provide local access and it can be expected to operate with a low speed. It may be desirable to undertake further measures to seek to minimise the possibility of extraneous traffic being able to use the route during the construction period. For example, the traffic modelling which was undertaken for the Supplementary Document of May 2013 suggested that access between Kingston Street and Wolfe Street onto Albert Street could be temporarily closed, with traffic from sites on these streets instead exiting to Federal Street³⁰.
76. As a result of the above analysis, I conclude that:
- (a) There is the potential for there to be quite substantial temporary effects in the Albert Street area, if the works are not managed carefully;
 - (b) The greatest effects that need to be mitigated relate to east-west movements across Albert Street and the retention of local access to properties along Albert Street itself;
 - (c) The effects are to be mitigated by the staging of the works along Albert Street, with no more than one of the key intersections to be closed at a time and with the east-west movements retained at the other two intersections, and by the temporary access arrangements proposed, which will ensure that local access is retained throughout the construction period as much as practically possible.

³⁰ This is not intended to contradict the statement at paragraph 73 (e) above that traffic would be able to use Kingston Street to access 87 Albert Street, while the Albert Street/Victoria Street intersection is closed

Eden Terrace

77. Temporary works will be required on the roads crossing the NAL through Eden Terrace (Normanby Road, Mount Eden Road and Porters Avenue).
78. Existing traffic flows on these three routes, during the weekday morning and evening peak periods, are summarised at Table 2, based on traffic counts undertaken during May-June 2013.

Table 2: Existing Traffic Flows crossing North Auckland Line (vehicles/hour)

	AM Peak northbound	AM Peak Southbound	PM Peak Northbound	PM Peak Southbound
Porters Avenue	150	130	110	150
Mount Eden Rd	580	350	450	480
Normanby Road	600	420	550	520

79. Mount Eden Road currently passes over the North Auckland Line (NAL) rail corridor on a four lane bridge. At the general location of the railway bridge, Mount Eden Road carries two northbound lanes, with the kerbside lane operating as a bus lane between 7 and 9 am, with parking allowed at other times, and the second lane being for general traffic. Southbound, Mount Eden Road has a single traffic lane, in addition to a parking lane. On the railway bridge itself parking is prohibited, but northbound and southbound bus stops are provided, serving Mount Eden Station.

80. The draft CRL conditions indicate that temporary restrictions are to be required on the Mount Eden railway bridge, with only a single lane of traffic operating in each direction during the construction period. The restriction is expected to be applied only to the length of Mount Eden Road immediately adjacent to the railway bridge.
81. In terms of southbound traffic, the restrictions will require the temporary relocation of the existing southbound bus stop, in turn requiring the loss of some adjacent on street parking. No traffic effects beyond this are expected.
82. In terms of northbound traffic, the restrictions will close a short section of bus lane, requiring buses to merge with general traffic in advance of the Mount Eden railway bridge. This may cause some minor delay to both buses and general road traffic in the morning peak, but will result in no effects at other times. The northbound bus stop will similarly have to be temporarily relocated, causing the loss of some on street parking spaces (outside the hours of operation of the bus lane, when parking is prohibited).
83. West of Mount Eden Road and east of Dominion Road, Porters Avenue provides a level crossing across the NAL rail corridor, linking New North Road to View Road via Wynyard Road. I have not undertaken surveys to assess the origins and destinations of vehicles using the Porters Avenue level crossing, but I consider that the crossing serves only a local traffic function.
84. The draft CRL conditions propose temporary closure of the Porters Avenue level crossing during the construction period. Given the low flows currently using the crossing, the effects should be quite modest. It is possible that traffic will reroute either to Dominion Road or Mount Eden Road (see Figure 14), and if one assumes a 50/50 split of diverted traffic, this indicates a maximum increase of 80 vehicles, northbound in the morning peak, on each of these routes.
85. Normanby Road crosses the NAL rail corridor at a level crossing to the east of Mount Eden Road. The crossing operates with a single traffic lane in each direction.

86. Normanby Road is fairly short, running from Mount Eden Road in the south through to the Boston Road/Nugent Street roundabout in the north. Any temporary closure of Normanby Road can therefore be expected to have the following effects:
- (a) A significant proportion of traffic that currently turns into Normanby Road from Mount Eden Road can be expected to continue along Mount Eden Road (termed route 1 in Figure 15);
 - (b) Some of this traffic may continue north along Mount Eden Road and this would affect the operation of the Mount Eden Road/New North Road/Symonds Street intersection. However, a reasonable proportion of traffic diverting via Mount Eden Road can be expected to head back to Nugent Street/Boston Road via the western leg of Boston Road, which connects with Mount Eden Road at a signalised intersection (this is termed route 2 in Figure 15);
 - (c) Normanby Road is also fed via Clive Road to the south east. Some of this traffic may divert via Normanby Road/Mount Eden Road, but a reasonable proportion is likely to reroute, perhaps via Mountain Road (see route 3 in Figure 153) or further afield via Gillies Avenue;
 - (d) Local traffic (with an origin or destination off Normanby Road, between the NAL and Mount Eden Road) is likely to need to reroute, eg travel south to head north. (This is termed route 4 in Figure 15).
87. The draft CRL conditions refer to the Normanby Road grade separation being undertaken at a time when vehicles, pedestrians and cyclists can be managed and accommodated either on a temporary level railway crossing, or on Dominion Road, Mount Eden Road and Porters Avenue. Since I am now advised that a temporary level crossing will not be possible, it would appear essential that the temporary closure of Normanby Road should take place while both Porters Avenue and Mount Eden Road are fully operational.

88. The traffic modelling I have undertaken indicates that the following intersections would operate at or near capacity due to the temporary closure of the Normanby Road level crossing:
- (a) **Mount Eden Road and Normanby Road:** The closure would result in increased right turning traffic from Normanby Road, as well as increased through traffic on Mount Eden Road. As a result, the Normanby Road approach would not operate satisfactorily during either peak period. Signalising this intersection is predicted to significantly improve its performance. However, if signalised, the intersection is still predicted to operate at capacity during both peak periods;
 - (b) **Mount Eden Road and Enfield Street:** The level crossing closure would similarly increase the volume of right turning traffic from Enfield Street, as well as the volume of through traffic on Mount Eden Road. As a result, large delays are predicted for right turning traffic from Enfield Street. Signalising the intersection of Mount Eden Road and Normanby Road would however provide an alternative route for citybound traffic, reducing the right turn demand at the Enfield Road priority intersection, and allowing it to operate satisfactorily;
 - (c) **Mount Eden Road and Boston Road:** increased through traffic on Mount Eden Road, as well as between Boston Road and Mount Eden Road (south) is predicted to result in this intersection operating at or near capacity during the evening peak period. This intersection is currently marked with a single, 5.3m wide approach lane on Boston Road. During periods of high demand however it operates informally as a two lane approach. Formalising this operation by shifting the centreline a short distance to the north and marking a second traffic lane, and extending the length of no parking restrictions within Boston Road, should be considered;

- (d) **Mount Eden Road, New North Road and Symonds Street:**
increased northbound traffic from Mount Eden Road would have effects during the morning peak period. This in turn is predicted to result in increased 'rat running' of northbound traffic through Burleigh Street to Khyber Pass Road.

89. I draw the following conclusions from the above analysis:

- (a) The effects of reducing the Mount Eden Road bridge to a single traffic lane in each direction would appear to be modest;
- (b) The effects of temporarily closing the Porters Avenue level crossing would also appear to be modest, due to the low flows using that route;
- (c) The effects of temporarily closing Normanby Road have the potential to be more significant. As a result, I recommend that this closure should take place while the Mount Eden Road bridge is not affected by temporary lane closures and it would be preferable for the Porters Avenue crossing also to be available at that time. In addition, signalisation of the Mount Eden Road/Normanby Road intersection, plus slight changes to the Boston Road approach to Mount Eden Road, would appear to be required to mitigate the temporary effects of the closure of Normanby Road.

90. I address the more detailed effects around the temporary closure of the Normanby Road level crossing in my response to submissions, at paragraphs 114-122 below.

RESPONSE TO SUBMISSIONS

91. This section of my evidence responds to submissions on the ITA or the traffic and transport implications of the Project. These predominantly relate to the effects during construction, so the following paragraphs go along the route of the Project, from Britomart through to the tie into the North Auckland railway line.

Submissions relating to effects during construction around Britomart area

92. Submissions 54 and 116 refer to access to 148 Quay Street, which fronts Quay Street, Commerce Street and Tyler Street and it expresses opposition to the closure or partial closure of Tyler Street. The submission seeks modification of the NoR to maintain access to the parking areas of 148 Quay Street at all times, and reinvestigation to reduce construction times.
93. Submission 81 relates to the traffic issues affecting a number of sites owned by Precinct Properties NZ Ltd, but 21 Queen Street and 188 Quay Street in particular. The submission seeks the following:
- (a) Access to all of Precinct's properties to be maintained at all times;
 - (b) Appropriate loading spaces to be available;
 - (c) Pedestrian access to be retained, commensurate with the current access;
 - (d) That the intersection of Albert Street and Customs Street West never be closed completely;
 - (e) Provision of footbridges over Albert Street to allow pedestrian access between the AMP Centre and PWC Tower and Queen Street, and between ANZ Centre and Queen Street;
 - (f) Advance notice of any road closures or diversions;
 - (g) Alternative parking (such as within Auckland Transport owned facilities) in the event that access to off street parking spaces is restricted;
 - (h) The removal of early bird parking at Auckland Transport's parking facilities.

Response to these submissions

94. Some of the above issues are covered in the proposed conditions:

- (a) Landowners and occupiers are to be given advance notice of any temporary road closures or diversions;
 - (b) Pedestrian and cycle access to properties is to be maintained at all times.
95. In terms of the other suggestions in these submissions:
- (a) No new pedestrian footbridges are required or to be provided. However, pedestrian access across Albert Street is to be provided adjacent to the Quay Street and Customs Street intersections, and under condition 17 (e), as a minimum, one safe crossing is to be retained between Customs Street and Victoria Street. Also, condition 17 (d) refers to retaining pedestrian and cycle access through Lower Queen Street;
 - (b) The ITA specifically referred to the need for parking management during construction and it postulated changes to early bird parking incentives. That is to say, I support measures of this nature, which are designed to reduce the need for non essential trips to be travelling within the area around Albert Street during the CRL construction period;
 - (c) I am advised that Auckland Transport will offer alternative parking in the event that access to sites is not provided for a period longer than 12 hours (see paragraph 149 below).
96. As a result, while I understand the concerns of these submitters, relating to the temporary effects during construction, I consider that the traffic related impacts of the Project are to be mitigated as much as reasonably possible.

Submissions relating to effects during construction around Albert Street

97. Submission 36 states support for the Project, but expresses concern about traffic flow on Albert Street. The submission seeks a specific plan for the car parks exiting onto Durham Lane through the construction period.

98. Submissions 71 and 74 relate to the operation of the Stamford Plaza hotel and they seek conditions to mitigate the temporary adverse road transport effects during construction, including:
- (a) Maintenance of vehicular and pedestrian access to the hotel at all times;
 - (b) Maintenance of east-west movements across Albert Street;
 - (c) Advance notice of any road closures or diversions;
 - (d) Measures to reduce congestion along Albert Street.
99. Submission 95 relates to access restrictions for vehicles and pedestrians across Albert Street around the ANZ Centre, and construction traffic on Swanson Street, Federal Street and Wolfe Street. The submission seeks the following conditions:
- (a) Continual vehicular access between the ANZ Centre and Hobson Street and continual flow of traffic along Albert Street;
 - (b) Prohibition of construction traffic on Swanson Street, Federal Street and Wolfe Street, between Albert Street and Hobson Street;
 - (c) Maintenance of east-west pedestrian movements across Albert Street;
 - (d) Advance notice of any road closures or diversions in the vicinity of the ANZ Centre.
100. Submission 118 expresses concern that the construction works along Albert Street will jeopardise the timely delivery of goods required for the Foodstuffs New World supermarket on Queen Street, and that the trenching of Albert Street will create a physical barrier for pedestrians wishing to cross that street. The submission seeks that deliveries should be given equal importance as movement by pedestrians and public transport.

101. Submissions 141 and 144 refer to adverse traffic effects around the Chifley Suites at 74 Albert Street.
102. Submission 226 relates to the retention of access to the Quay West complex, off Albert Street, through either Mills Lane or Swanson Street.
103. Submission 230 relates to a property at 105 Albert Street and it expresses a wish that safe access for pedestrians and vehicles into the car park is ensured. It also requests an effective communication system.
104. Submission 236 relates to the need to retain access to the Albert Plaza building at 87 Albert Street.

Response to these submissions

105. Several of the above issues are covered in the proposed conditions:
 - (a) Vehicle access is generally to be retained to properties along Albert Street, although condition 17 (c) notes that this may be limited to left in, left out movements;
 - (b) Landowners and occupiers are to be given advance notice of any temporary road closures or diversions;
 - (c) Through traffic movements along Albert Street will be affected by the proposed intersection restrictions noted at paragraphs 52-70 above, and referred to in condition 17 (a);
 - (d) Pedestrian and cycle access to properties is to be maintained at all times;
 - (e) As noted above, under condition 17 (e), as a minimum, one safe crossing is to be retained between Customs Street and Victoria Street.
106. Figures 4 to 13 were referred to within paragraphs 71-74 above, and several of these figures show proposed access to or from the submitters referred to above:

- (a) Figures 4 and 8 show how access is to be provided to Mills Lane (which provides access for vehicles serving the New World supermarket in Queen Street), the Stamford Plaza hotel, and Quay West. The key point to note here is that while my evidence has referred to the temporary full closure of the Albert Street/Customs Street intersection, the left turn from Customs Street to Albert Street will need to be retained during this period, in order to facilitate left turn access to these sites;
- (b) Figures 7 and 11 show how access is to be provided to 87 Albert Street. The vehicular access to this site is very close to the Albert Street/Victoria Street intersection, and it is proposed that the short section of service lane along Albert Street between Kingston Street and 87 Albert Street operates under two way operation, serving only that car park, during the period of construction when the Albert Street/Victoria Street intersection is closed;
- (c) Figures 6 and 10 show how access is to be retained for the properties with access from the Durham Street area. The main challenge for these sites relates to the period of the closure of the Albert Street/Victoria Street intersection, for vehicles exiting these sites, as the existing service lane to Albert Street from Durham Street provides the only exit from this area³¹. The existing exits from two public car parks to Albert Street will also need to be closed during the construction period. Egress is also to be provided by temporarily converting Durham Street from one way to two way operation. Durham Street is currently fed by a left turn from Queen Street. A left turn onto Queen Street could be provided, if the kerb build out on the corner is removed. Durham Street itself is 5.1m wide, which is quite narrow, but it is wide enough to allow two way traffic at slow speeds. The length of the street and the confined width will be sufficient to ensure that speeds are low.

³¹ I note that the capacity of this existing service lane up to Albert Street is currently very constrained, due to the close proximity to the Albert Street/Victoria Street intersection

It may be that trucks entering this area will need to approach via Albert Street and leave via Durham Street onto Queen Street, to avoid the possibility of trucks travelling in both directions along Durham Street.

107. As a result, while I understand the significant concerns of these submitters, relating to the temporary effects during the construction of the Project along Albert Street, I consider that the traffic related impacts of the Project are to be mitigated as much as reasonably possible, with access to be retained throughout the construction period.

Submissions relating to effects during construction around Karangahape Station

108. Submission 89 refers to a number of properties in Symonds Street Karangahape Road, Mercury Lane and Canada Street. The submission refers to disruption either of businesses located in premises to be designated, or those that are very close to designated properties. It refers to retailers failing due to loss of foot traffic and direct vehicle access, giving properties along the southern side of Beresford Square as an example.
109. Submissions 139, 140, 142, 143, 245 and 246 relate primarily to noise and vibration effects around The Chatham premises in Pitt Street, but refers also to construction workers disturbing customers and residents, and most of these submissions refer specifically to the effects of the Project on traffic flow in the surrounding area.

Response to these submissions

110. As noted in paragraph 41 above, the effects of construction activity are generally likely to be relatively modest in the vicinity of the proposed Karangahape station. However, there will be local effects to consider, in terms of access to Beresford Square and Samoa House Lane, along with potential temporary road lane reductions along Pitt Street and Mercury Lane. These effects are acknowledged in condition 18, which notes that:

- (a) One traffic lane per direction is to be retained along Pitt Street;
 - (b) Pedestrian and cycle access to properties is to be maintained at all times, with specific reference to properties at the eastern end of Beresford Street and the northern end of Mercury Lane;
 - (c) Vehicle access is generally to be retained to properties, although condition 18 (c) notes that this may be limited to a turn in and out in the same direction;
 - (d) Landowners and occupiers are to be given advance notice of any temporary road closures or diversions.
111. Again, while I understand the concerns of these submitters, relating to the temporary effects during the construction of the Karangahape Road station, I consider that the traffic related impacts of the Project are generally likely to be quite modest, and that these effects are to be mitigated as much as reasonably possible.

Submissions relating to Normanby Road

112. Submissions 73 (Tram Lease) and 109 (Dilworth Trust) relate to access off Normanby Road. Both submissions state that the designations will adversely affect the surrounding road network serving the subject site, will have an adverse effect on site access, and will prevent reasonable use of the subject sites.
113. Submission 98 (Department of Corrections) relates to the Mount Eden Corrections Facility. The submission refers to the construction of a new grade separated crossing of the railway at Normanby Road/Boston Road, replacing the existing level crossing. It notes the potential effects on access to the site and seeks either that the NoR is declined or that conditions are imposed to address these matters.

Response to these submissions

114. Lauder Road, which serves the Mount Eden Correction facility, and the sites owned by Tram Lease and the Dilworth Trust, are situated very close to the Normanby Road level crossing.

115. There are clearly safety issues relating to many of the 48 level crossings of the rail network in and around Auckland, and the intention is to reduce the number of these crossings over time. Safety and access or capacity issues will be compounded with the anticipated increase in train frequencies, as this will increase the number of times that the barriers need to be lowered. As a result, it is quite possible that the that grade separation of the Normanby Road crossing may be progressed prior to the construction of CRL should it be required from a safety perspective and I understand that this crossing currently sits at number 6 in Auckland Transport's priorities for grade separation³².
116. The closure of the Normanby Road crossing is required specifically in the context of the CRL to allow the NAL to be lowered by about 4m. I am advised that a temporary crossing is not now considered to be possible.
117. Once the grade separation of Normanby Road is completed, this will significantly improve the reliability of access between these submitters sites and the north and it will also significantly improve safety in the area by removing the possibility of conflicts and incidents involving trains with vehicles, pedestrians or cyclists. As a result, I consider that the long term outcome, following the completion of the grade separation, will be of significant benefit to these submitters, from a safety perspective. This is particularly the case for the Tram Lease site, as access to this site is extremely close to the level crossing. Vehicles turning right into this site have to give way to northbound traffic, meaning that these right turning vehicles face the possibility of queuing back across the level crossing. The grade separation removes any conflicts and incidents involving trains with vehicles queuing.

³² Auckland Council (2013), Transport Committee agenda, 16 April 2013. Page 287 refers to a study by Auckland Transport in 2012, which identified the most important locations where existing level crossings should be considered for grade separation, for the scenario without CRL.

118. Therefore I conclude that the primary concern of the submissions on site access and the prevention of reasonable use of the sites, relates generally to the temporary effects during the closure of Normanby Road. However, I understand that access is to be maintained between Normanby Road, south of the crossing, and Lauder Road, and to the sites owned by Tram Lease and the Dilworth Trust, during the closure of the crossing itself.
119. In terms of the Tram Lease site, I note that the proposed designation extends across part of the existing car park. This is in order to allow the existing ramp down into the site from Normanby Road to be extended, given that the level of Normanby Road, across the railway, is to be raised by about 2m.
120. I understand that the provision of this ramp into the site may reduce the number of car parking within the site. In order to investigate the significance of this issue, I arranged for parking occupancy surveys to be undertaken, during a weekday and a Saturday. The maximum occupancy on the weekday was found to be 22 out of 43 spaces, while the maximum figure on the Saturday was about 14 spaces.
121. I consider that the detailed design of the CRL should seek to minimise the loss of parking within the Tram Lease site, so that the Project does not prevent the reasonable use of the site.
122. Again, while I understand the concerns of these submitters, relating primarily to the temporary effects during the construction of the Normanby Road crossing, but also relating to the improved grade separated route following completion of the Project, I consider that the traffic related impacts of the Project are to be mitigated as much as reasonably possible.

Submissions relating to NAL Construction Area

123. Submission 103 relates to disruption to the business at 120 New North Road, both for pedestrians and customers who park and drive near to the store. Concerns expressed include loss of parking on Mount Eden Road and effects of the construction yard opposite to the business.

124. Submission 114 raises concerns about access to 1 Ngahura Street and seeks clarification regarding proposed access to the Area A construction yard.
125. Submission 221 expresses concerns relating to the Bear Park early childhood centre at 32 Akiraho Street, as it is located close to the construction site.

Response to these submissions

126. Matters in this area are covered in conditions 19 and 20, and the following measures are noted:
- (a) Pedestrian and cycle access to private property is to be maintained at all times, particularly referring to Symonds Street and Dundonald Street (condition 19 (c)). Vehicle access is to be generally maintained, although some movements may need to include a turn in and out in the same direction;
 - (b) Pedestrian and cycle access to private property is to be maintained at all times, and vehicle access is to be generally maintained, particularly referring to New North Road, Ruru Street, Korari Street, Flower Street, Nikau Street, Ngahura Street, Porters Avenue, Mount Eden Road, Normanby Road, Boston Road, Nugent Street, and Shaddock Street (condition 20 (b));
 - (c) Landowners and occupiers are to be given advance notice of any temporary road closures or diversions;
 - (d) Consideration is to be given to traffic turning right out from Ruru Street onto New North Road;
 - (e) At least two traffic lanes (one in each direction) are to be retained on Mount Eden Road during the construction of the replacement Mount Eden Road bridge;
 - (f) Accessibility along Mount Eden and Normanby Road is to prioritise buses, emergency services (which presumably includes important movements to/from the Prison), access to properties for pedestrians and cyclists;

- (g) Grade separation of Porters Avenue is to be undertaken at a time when vehicles, pedestrians and cyclists can be managed and accommodated on Dominion Road, Mount Eden Road and Normanby Road;
 - (h) Grade separation of Normanby Road is to be undertaken at a time when vehicles, pedestrians and cyclists can be managed and accommodated either on Dominion Road, Mount Eden Road and Porters Avenue.
127. Again, while I understand the concerns of these submitters, relating to the temporary operation of the Eden Terrace construction site, I consider that the traffic related impacts of the Project are to be mitigated as much as reasonably possible.

Submissions relating to effects during construction - general

128. Submission 107 suggests conditions to allow greater flexibility in the construction of the Project, for example, to allow a longer bored tunnel along Albert Street, if practicable and to allow the possibility of full closure of some transport links for shorter periods of time. The submission also suggests that it may be sensible to undertake other City Centre transformation projects at the same time as the CRL and it refers to suitable consideration of cyclists at stations, and pedestrian friendly environments around stations.
129. Similarly Submission 108 refers to provision for cyclists during the CRL construction and at stations.

Response to these submissions

130. As noted at paragraphs 52-70 above, closure of some intersections along Albert Street is now proposed, partly to facilitate a shorter and more cost effective construction.
131. I agree that it would be desirable to consider whether reinstatement of roads affected by CRL related construction works can be undertaken in a manner that is consistent with the aspirations of the City Centre Masterplan, if that is deemed appropriate.

132. I also note that the cut and cover construction methodology for Albert Street that has been assessed represents the worst case in terms of adverse traffic effects. I accept that flexibility in construction methods should be retained to cover the possibility of an alternative method proving to be viable.
133. Matters relating to cyclists have been addressed in response to the more geographically specific submissions (see paragraphs 94, 105 and 110 above).

Submissions relating to effects CRL Operational Phase

134. The following submissions relate to the longer term effects of the Project, following completion of construction, or to matters relating to the form or nature of the Project.
135. Submissions 107 and 108 refers to potential grade separation of pedestrians adjacent to the Newton station.
136. Submission 112 relates to concerns on conditions around the Aotea station and in particular to bus-rail interchange movements in the area surrounding the station.

Response to these submissions

137. The proposal to increase bus frequencies along Wellesley Street is not a requirement of the CRL. Rather it is a proposal arising from the draft Regional Public Transport Plan (RPTP), which seeks to reduce the dependence of the City Centre bus network on transfers in the vicinity of the Britomart station. It seeks to establish greater east-west bus movements through the City Centre, for example to allow services from the North Shore to serve the University, and to allow buses from the south or west to serve the Wynyard Quarter. As noted at paragraph 34 above, the changes arising from the implementation of the draft RPTP are expected to be in place by 2016, before the completion of the CRL³³.

³³ Auckland Transport (2012), "Draft Regional Passenger Transport Network Plan", page 57

138. I accept that grade separated crossings of roads can be of value, if they offer direct connections and if they are well designed. The issue is rarely clear cut:
- (a) Pedestrian movements can be pleasant away from conflict with traffic, or without delay caused by traffic;
 - (b) On the other hand, I am aware that pedestrian underpasses are often perceived as being a poor environment for pedestrians, who may consider them unsafe if there is not enough “passive surveillance”.
139. This issue has also been addressed in Mr Ray’s evidence in relation to Urban Design Principle MC7, which states that above grade options are the preferred solution for CRL. However, provision for an underpass has not been precluded should this be the most suitable outcome at the time of detailed design.

RESPONSE TO PLANNER’S REPORT

140. The Planner’s Report recommended that further information should be provided on a number of transport related matters. Table 15.2 specifically referred to the following matters:
- (a) Movement of construction vehicles (particularly associated with the movement of trucks to and from the main construction site and stations);
 - (b) Temporary loss of vehicle access to properties;
 - (c) Department of Corrections access;
 - (d) Sequencing of at grade crossings;
 - (e) Albert Street intersections (with Customs/Wellesley/Victoria);
 - (f) Permanent closure of Beresford Street.
141. I will respond to each of these in turn.

Movement of Construction Vehicles

142. The expected numbers of construction vehicles were set out at Table 1 above. The aim should be to get these trucks from the construction sites to the strategic road network (i.e. the motorways) via routes that form part of the regional arterial network and/or the overweight/overdimension routes, as much as practically possible. These routes are those where heavy vehicle movements are to be expected, and where truck turning manoeuvres can be expected to be physically accommodated. The District Plan road hierarchy was set out at Figure 11 of the ITA, while the overdimension and freight routes were set out at Figure 14 of the ITA.
143. Figures 16 to 20 set out the expected routes between the various construction sites and the motorway network.
- (a) Figures 16 to 18 show the routes between the Downtown, Aotea and Karangahape Road construction sites and the Hobson and Nelson Street ramps. Hobson Street and Nelson Street both form part of the freight network. From the Hobson Street/Nelson street ramps trucks will be able to travel to and from the City Centre via the Southern or Northwestern Motorways. The latter also provides access to the north, via the Upper Harbour Motorway;
- (b) Figures 19 to 20 show the routes between the Newton and Eden Terrace construction sites and the Newton Road ramps (for both inbound and outbound trucks) and Khyber Pass off ramp (for inbound trucks to the Eden Terrace construction site only). I note that the right turn movement from Symonds Street into Khyber Pass Road is currently banned, so have assumed that trucks leaving these two construction sites will all need to travel via the Newton Road on ramp. The Newton Road ramps only serve the Northwestern Motorway, but the completion of the SH20 Waterview Connection by 2016 will provide a connection between the Northwestern Motorway and the south via the completed Southwestern Motorway.

As noted above, the Northwestern Motorway also provides a route to the north via the Upper Harbour Motorway. Both Newton Road and Khyber Pass Road form part of the overdimension route network.

144. It is too early to be specific around the destinations of these trucks (i.e. the landfill sites), but the above paragraphs show how trucks can head north, south or west, to and from the City Centre, via the motorway network.
145. More locally within the City Centre, the following are the key access points to each of the construction sites:
 - (a) Access to the Downtown construction site is likely to be via Sturdee Street/Customs Street, to the construction site entrance off Lower Albert Street. While there are likely to be significant restrictions on movement through the Albert Street/Customs Street intersection for part of the construction period, I noted at paragraph 73 that the left turn movement from Customs Street into Lower Albert Street is to be retained, and this route is probably preferable to the alternative via Lower Hobson Street and Quay Street. In the reverse direction, the right turn from Lower Albert Street onto Fanshawe Street is currently banned, so I assume these trucks will travel via Quay Street and the Lower Hobson Street viaduct to reach Hobson Street;
 - (b) Access to the Aotea station construction site is to be via Wellesley Street, with egress onto Mayoral Drive. Trucks will therefore approach the site from Nelson Street and Wellesley Street and leave via Cook Street to reach Hobson Street. I understand that access may be provided via Wellesley Street even while the Albert Street/Wellesley Street intersection is closed, but it may be that some trucks enter the construction site via Mayoral Drive. It is likely that some trucks will enter and exit the temporary construction site at the Albert Street/Victoria Street intersection during the period when that intersection is closed to general traffic;

- (c) Access to the Karangahape Road station is to be via Hopetoun Street to the Beresford Street construction site, and via Mercury Lane. Right turns are not permitted from the Nelson Street off ramps to Pitt Street, meaning that trucks will need to continue down Nelson Street to Cook Street, returning to Pitt Street via Hobson Street. Trucks leaving the construction sites can turn left from Pitt Street to join the Hobson Street on ramps, but Mercury Lane is one way only, southbound. This means that trucks exiting the Mercury Lane construction site will need to travel via Canada Lane, Upper Queen Street and Karangahape Road to reach Pitt Street;
- (d) Access to the secondary shaft at the Newton station, which will be the main construction site for that station, is to be via Dundonald Street. Access to the primary shaft at this station is to be off the kerbside lane on Symonds Street. This is currently a parking lane, although it is a clearway during both the morning and evening peak periods. This may mean that this site cannot be served by trucks during the peak periods. Access to this Symonds Street lane is to be via Dundonald Street and Basque Street;
- (e) Access and egress to the main Eden Terrace construction site is shown as being off New North Road, with egress onto Mount Eden Road. Trucks can reach the Newton Road motorway ramps via a short length of Symonds Street and along Newton Road

146. In order to develop the above recommendations regarding truck routing, I have paid regard to the turning requirements of trucks and to the locations where turns may be quite difficult. I am advised by Mr Newns that all construction sites are to be served by rigid trucks, while the Eden Terrace, Aotea and Britomart construction sites may also be served by truck and trailer units. I note that the following turns are quite tight:

- (a) **The left turn from Symonds Street to Newton Road:** Trucks making this turn will need to do so from lane 2 (currently for through traffic along Symonds Street). This will not be a problem, in that the kerbside lane is a short lane for left turning vehicles only³⁴. However, it may be necessary to remove the left filter phase, which currently runs at the same time as the right turn from Newton Road;
- (b) **The left turn into Dundonald Street from Newton Road:** trucks cannot safely make this movement. This is the reason that I recommend that trucks approaching the Newton station should only do so from the Northwestern Motorway (i.e. using the Newton Road off ramp);
- (c) **The left turn from Customs Street to Lower Albert Street:** there is sufficient space to allow trucks to turn left here, even during the closure of most of the Albert Street/Customs Street intersection.

147. I consider that the above paragraphs have shown how construction related trucks will travel, between the motorways and each of the construction sites. I have identified where there are potential issues and how these are to be overcome.

Temporary Loss of Vehicle Access

148. The Planner's Report asks that clarification is provided around temporary loss of vehicle access.

³⁴ I am making the point here that allowing trucks to turn left from lane 2 would be a problem if through and left movements were allowed from lane 1 (i.e. the kerbside lane). This is not the case

149. As noted in paragraphs 94 and 105 above, the conditions (such as condition 17 (c) and 18 (c) refer to providing vehicle access to private property “**as practicably possible at all times, except for temporary closures**”. I understand that it is the term “temporary” which requires clarification and a proposed condition now covers the following:

- (a) Temporary closures in place for less than 12 hours;
- (b) Temporary closures in place for between 12-72 hours;
- (c) Unexpected situations, such as a person finding their vehicle to be blocked in.

Department of Corrections Access

150. The issues relating to the temporary closure of the Normanby Road level crossing were set out at paragraphs 114-122 above. The level crossing is to be closed to allow the NAL to be lowered, with reinstatement to be in the form of grade separation, with Normanby Road to pass over the NAL. I consider that this grade separation will offer a significant improvement, relative to the existing level crossing. Indeed, there has been a desire for some time to remove level crossings in central Auckland and it is likely that grade separation of the Normanby Road crossing would take place at some time in the future even if it was not included within the CRL NoR.

151. The key issue to note, in response to the Planner’s report, is that access is to be maintained between Lauder Road and Normanby Road, south of the crossing, during the construction of the grade separation. Access between Lauder Road and the north, during this period, will be possible either via Enfield Street or Normanby Road and Mount Eden Road.

Sequencing of At Grade Crossings

152. As noted at paragraphs 77-90 above, temporary works are proposed in the vicinity of Eden Terrace, affecting Normanby Road, Mount Eden Road and Porters Avenue.
153. The Planner's Report correctly notes that the traffic model used to assess the effects of the construction of the CRL was cut just to the south of the NAL, so it was unable at that time to assess the effects of the temporary closures. Modifications were made to the model during May/June 2013, to address this issue and this work was based on a number of new traffic counts in the area to properly inform the assessment of the temporary effects.
154. Draft condition 20 (a), as proposed by Auckland Transport, refers implicitly to the possible sequencing of the crossings. However, for the avoidance of doubt, I can advise that the proposal is as follows:
- (a) Closure of Normanby Road and Porters Avenue, plus works that reduce the number of traffic lanes on the Mount Eden Road bridge, are to be undertaken one at a time;
 - (b) The grade separation of Normanby Road is to be undertaken close to the start of the construction of the Project;
 - (c) Once grade separation of Normanby Road is in place, then works will be able to proceed either on Mount Eden Road **OR** on Porters Avenue.

Albert Street Intersections

155. As noted at paragraphs 52-70 above, the possibility of the full closure of some intersections along Albert Street is now proposed to facilitate construction of the CRL. This is to include the temporary full closure of the intersections of Albert Street with Wellesley Street, Victoria Street and Customs Street, with closure of only one of these intersections to be permitted at a time.

156. The Planner's Report notes a slight inconsistency between the proposed condition and a statement in the Assessment of Environmental Effects (AEE), but I note this is an area where the AEE has been superseded by further analysis. The Supplementary Document referred to in paragraph 55 above does not predict that the full closure of the Albert Street/Customs Street intersection will have significantly greater effects than those associated with the full closure of the other two key intersections.
157. Paragraph 64 above noted that closure of the Albert Street/Customs Street intersection is expected to be in place for 6-9 months. It could be that the contractor, in due course, decides not to implement full closure of the intersection, for example if the east-west connection along Customs Street can be maintained for modest cost. However there may be constructability reasons (eg safety) that dictate that the intersection may need to be fully closed, and Auckland Transport wishes to include this scenario in the conditions.
158. I acknowledge that the term "full closure" could be misleading. For example, it could be, in theory, that one of the three key intersections is fully closed, but that all but one movements at the other two intersections could also be closed. This would comply with the conditions as worded, in that only one intersection would be "fully closed", but it would be expected to have significant effects and such a scenario is not being contemplated. As a result, I recommend that the relevant condition should be tightened up to ensure that the east-west movements are maintained in each direction through each of two of the key intersections, while a "full closure" is in place at the third intersection.
159. A further matter to clarify is that while the conditions refer to "full closure" of the key intersections, certain movements need to be retained, in order to provide continuity of access to Albert Street properties. These movements were identified at paragraph 73 and relate to the left turn from Customs Street (east) to Albert Street (south), and the left turn from Customs Street (west) to Lower Albert Street. These need to be retained during the otherwise full closure of the Albert Street/Customs Street intersection.

Permanent Closure of Beresford Street

160. The permanent closure of Beresford Square is proposed to facilitate the main pedestrian entrance to the Karangahape Road station.
161. In order to quantify the effects of the proposed closure, I arranged for traffic counts to be undertaken of the peak period turning movements out from Beresford Square onto Pitt Street, in mid June 2013. The results are set out in Table 3.

Table 3: Existing Traffic Flows turnout out from Beresford Square onto Pitt Street (vehicles/hour)

	Left out	Right Out
Morning Peak	162	23
Evening Peak	58	6

162. Vehicles currently turning left out from Beresford Square can be expected to reassign to turn out onto Pitt Street via Hopetoun Street. The left turn at this intersection is not critical.
163. The above figures indicate that the numbers of vehicles turning right out from Beresford Square are currently very small. Right turns are not permitted from Hopetoun Street onto Pitt Street, meaning that vehicles will need to reassign elsewhere. Vehicles with a local destination (such as along Karangahape Road, east of Pitt Street) may cut through via Hereford Street, but vehicles with a less local destination (say, further to the east, within the City Centre) could divert via Hopetoun Street, Vincent Street and Mayoral Drive. Given the low numbers of vehicles involved, the effects of these diversions will be very minor.

The Technical Specialist Report on Traffic Matters

164. The Technical Specialist Report on Traffic Matters (Attachment H to the Planner's Report) recommended that Auckland Transport should consider conditions relating to the following matters:
- (a) A condition to provide a concept level temporary traffic management and construction staging plans;
 - (b) A condition to provide the minimum level of service during construction which is to be used as a benchmark to monitor the traffic conditions during construction;
 - (c) A condition to provide a temporary bus management plan;
 - (d) A condition to provide the pedestrian crossing facilities recommended by the ITA;
 - (e) Conditions at the Design Management Plan stage relating to issues such as temporary traffic management and bus management.
165. I note that these recommendations did not feed through to the Planner's Report itself, suggesting that the Reporting Planner did not support the recommendations. I too do not support the recommendation for additional conditions, for the following reasons:
- (a) **Construction management plans and construction staging plans:** I consider that sufficient detail is now provided in the proposed conditions (including the proposed modifications set out below) on the main limitations to be in place during construction. I consider it to be too early to provide construction staging plans, as the project could be constructed in a number of ways. I accept that some limitations need to be imposed on staging, and these limitations are included in the proposed conditions;

- (b) **Minimum level of service:** I understand the intent here, but I consider that such a suggestion may be of limited value. Levels of service are defined in the Highway Capacity Manual as from level of service A (good) to F (poor). However, much of the Auckland City Centre already operates at level of service F. For example level of service F at signalised intersections is defined as being more than 80 seconds delay, so this is “achieved” whether the actual delay is 81 or 801 seconds;
- (c) **Bus management plan:** While Auckland Transport wishes to start construction of the CRL by 2016, this depends on several matters, including funding. As such, a long period designation is sought. The current planning has taken into account Auckland Transport’s Draft Regional Public Transport Plan (2012), but it could be that future revisions to the bus network plan are implemented prior to construction of the CRL. As such, I consider it too early to undertake such a plan and it can reasonably be expected that as a responsible road controlling authority, Auckland Transport will develop the required plan in advance of construction of the CRL, when the time comes;
- (d) **Pedestrian crossing facilities:** similar to the above, it can reasonably be expected that as a responsible road controlling authority, Auckland Transport will provide pedestrian crossing facilities that are required, at the time.

PROPOSED CONDITIONS

166. A suite of conditions is proposed and full details regarding the scope and the development of the conditions is provided in the evidence of Ms Blight.
167. The conditions referring to traffic and transport issues relate to managing the effects of the Project during construction. These conditions cover the following topics:
- (a) The Communications and Consultation Plan;

- (b) The processes to be followed to manage the effects during construction, to be managed under the auspices of the Construction Environmental Management Plan (CEMP);
 - (c) Area specific limitations on the construction of the project that may be required to ensure that traffic related effects are un acceptable.
168. A key issue for the transport related conditions is the desire to give a reasonable level of understanding of the likely effects during construction, compared with the desire to give a reasonable level of flexibility to allow the precise details of the construction method to be determined at a later date.

CONCLUSIONS

169. The key conclusions of my evidence are as follows:
- (a) The CRL (“the Project”) will significantly improve the Auckland rail network. It will also offer significant transport benefits for the City Centre, as it will increase the capacity for trips to and from the Centre.
 - (b) There is the potential for significant adverse traffic and transport effects during construction of the CRL;
 - (c) It is primarily the effects during construction along the sections of the Project that are not to be constructed by mined tunnel (particularly along Albert Street), that need to be mitigated. This mitigation is proposed in a variety of means and a key component is that essential access will be maintained during the construction period;
 - (d) Table 15.2 of the Planner’s Report requested further information on six transport related matters. I have provided information on each of these matters, as requested. I accept that clarification of some of these matters will further assist the Commissioner’s understanding of the effects of the Project;

- (e) I recommend that modifications are made to a few of the proposed conditions, in order to provide greater certainty over the likely effects during the construction of the Project;
- (f) If the measures I propose are adopted, in my opinion there is no traffic related reason why the Notices of Requirement relating to the City Rail Link project cannot be confirmed.

Ian David Clark

2 July 2013

FIGURES

Figure 1: 400m and 800m Catchments around existing and proposed rail stations, without CRL



Figure 2: 400m and 800m Catchments around existing and proposed rail stations

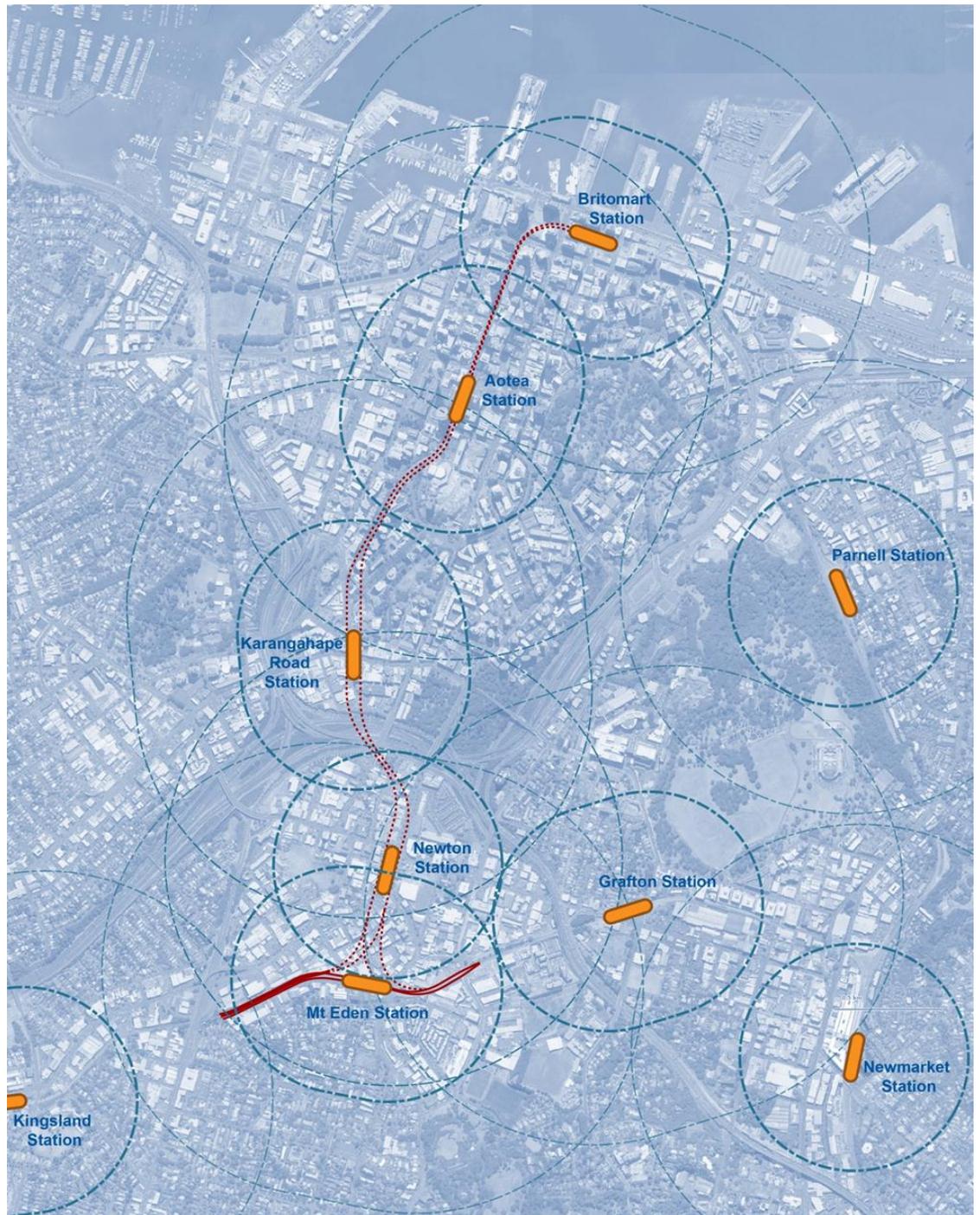


Figure 3: Journey Time Routes used for Assessment of Traffic Effects around Albert Street

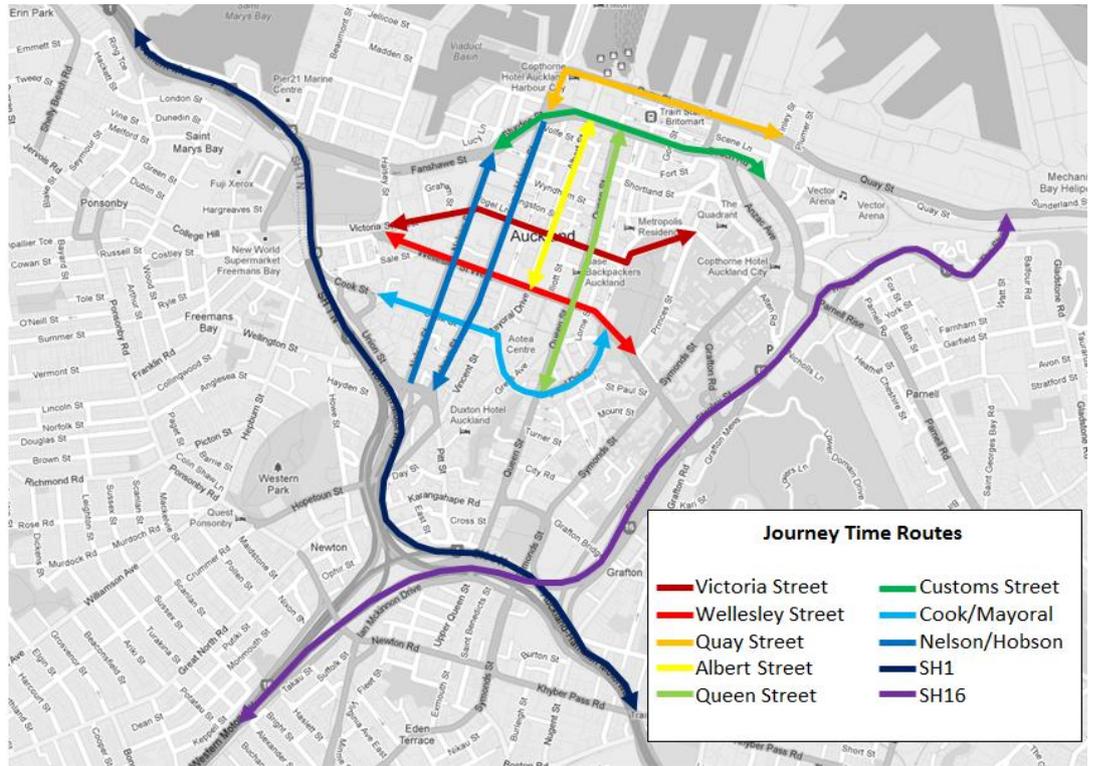


Figure 4: Closure of the Customs Street/Albert Street Intersection: Access to Properties East of Albert Street

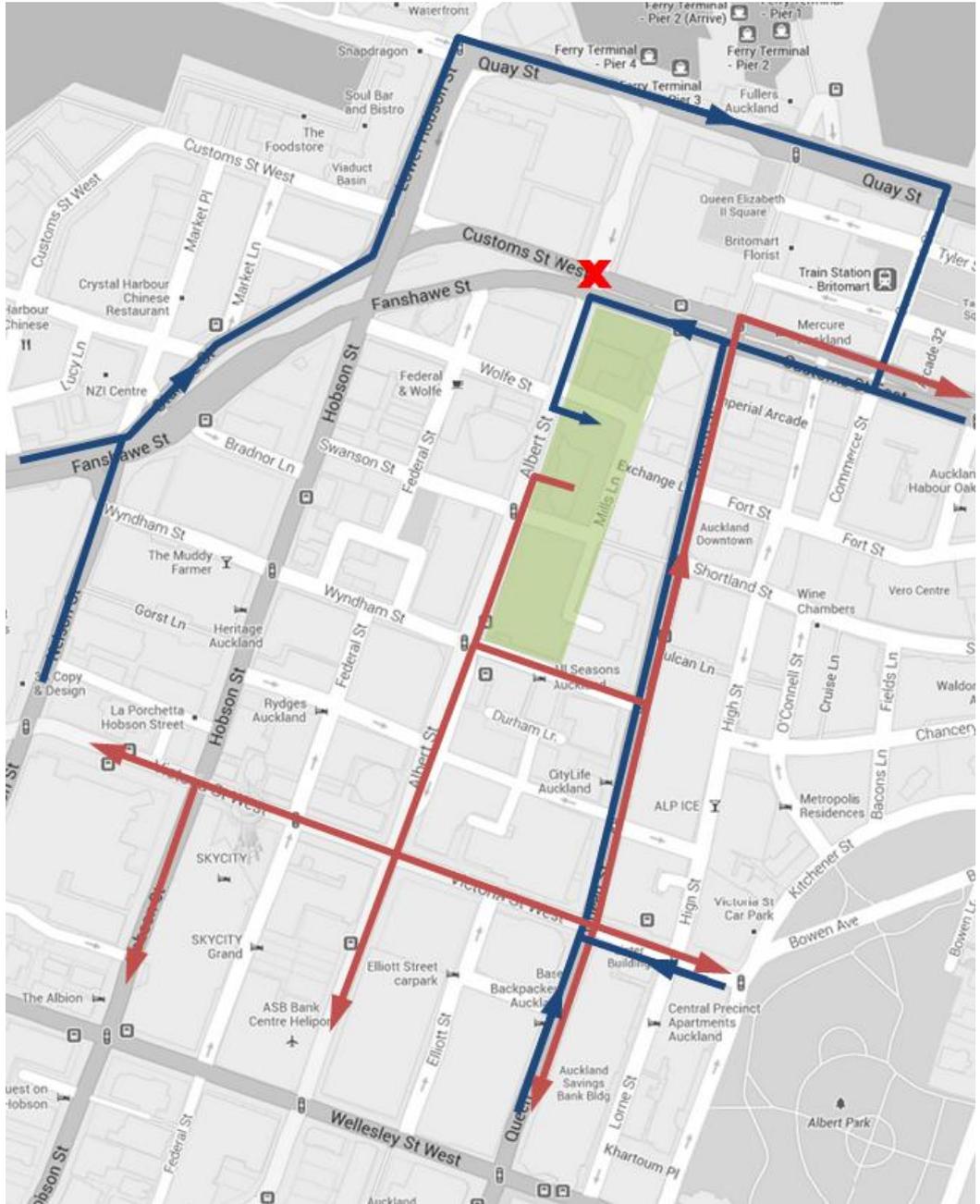


Figure 5: Closure of the Customs Street/Albert Street Intersection: Access to Properties West of Albert Street

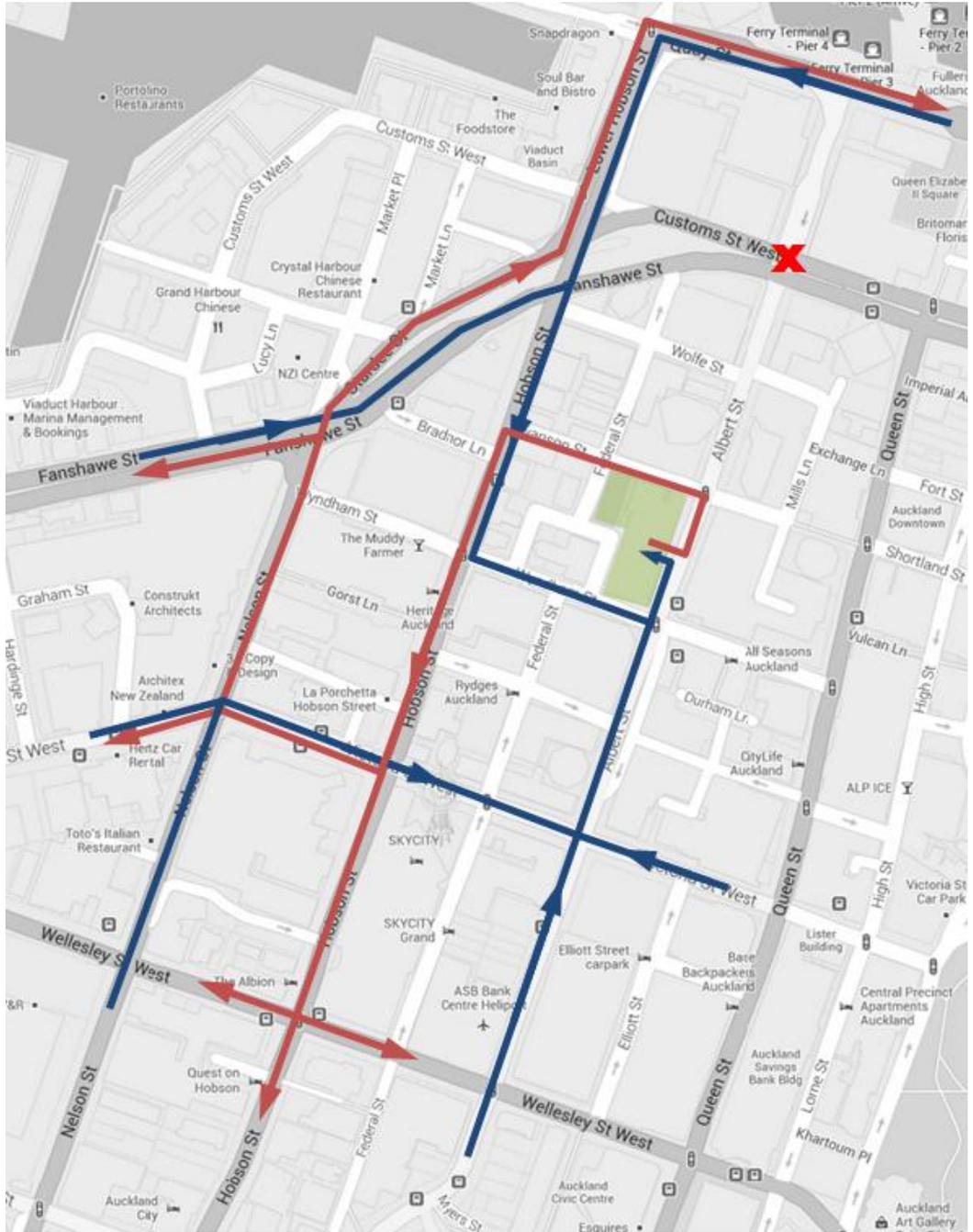


Figure 6: Closure of the Customs Street/Albert Street Intersection: Access to Durham Street Properties

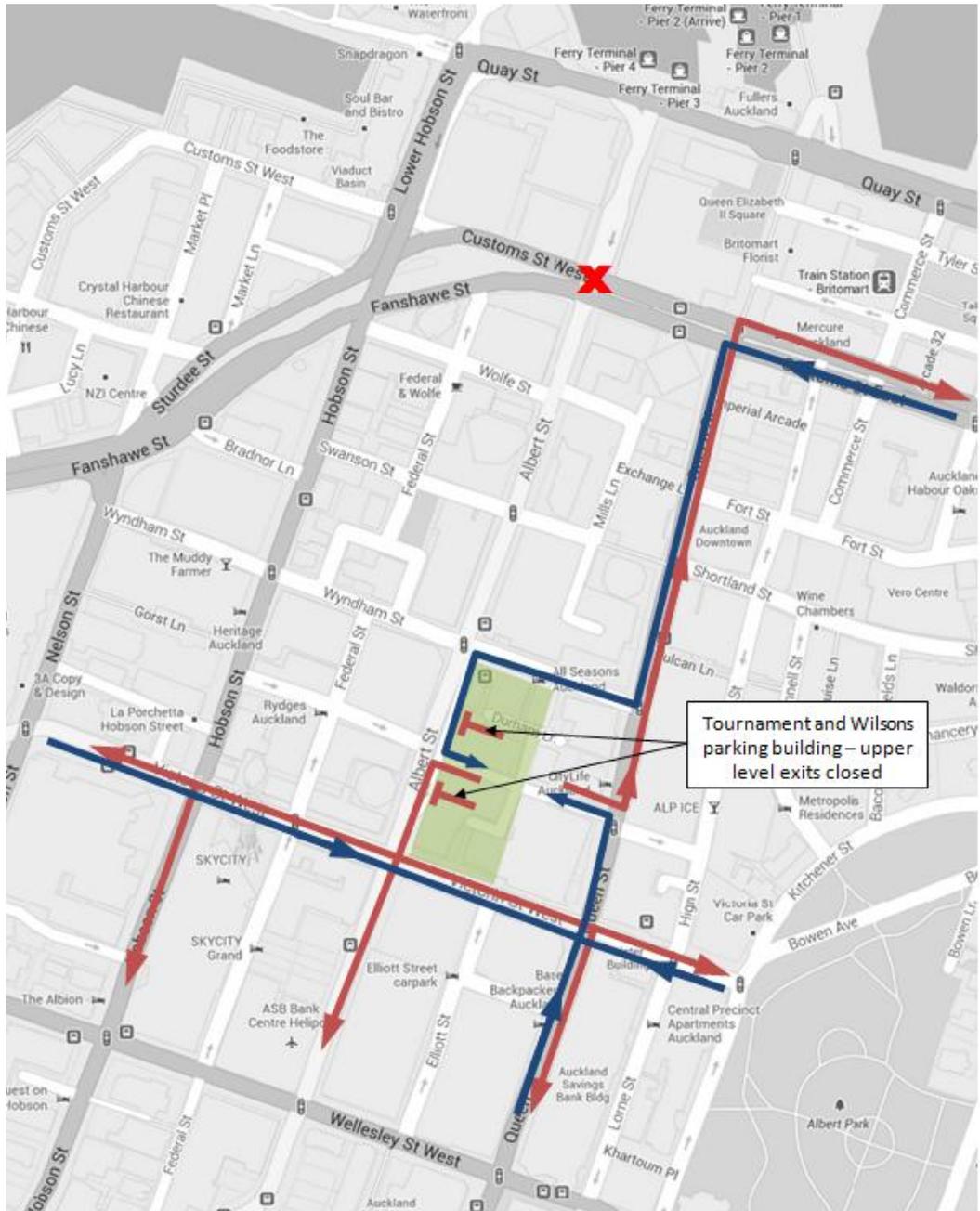


Figure 7: Closure of the Customs Street/Albert Street Intersection: Access to Albert Plaza and Adjacent Properties

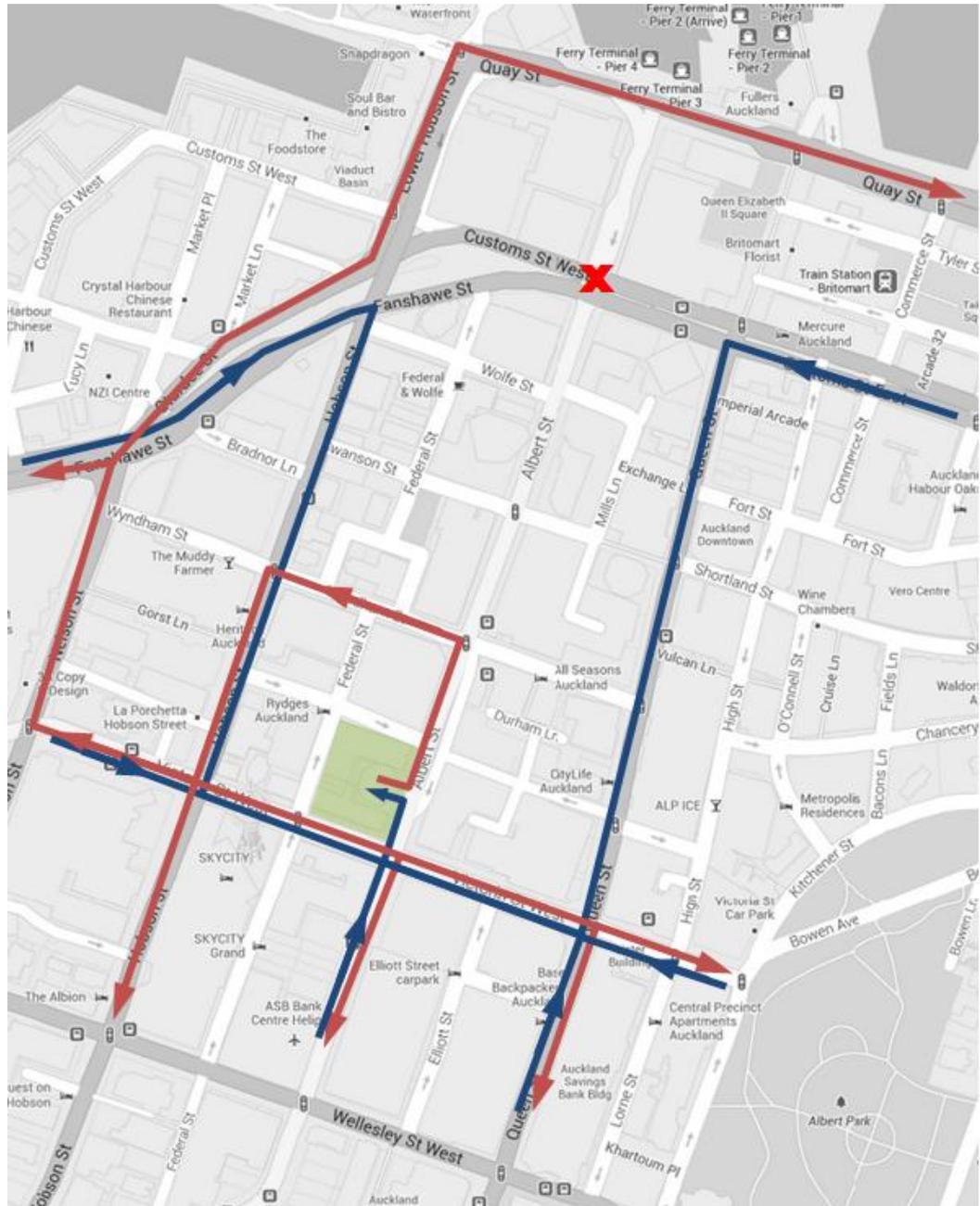


Figure 8: Closure of Victoria Street/Albert Street Intersection: Access to Properties East of Albert Street

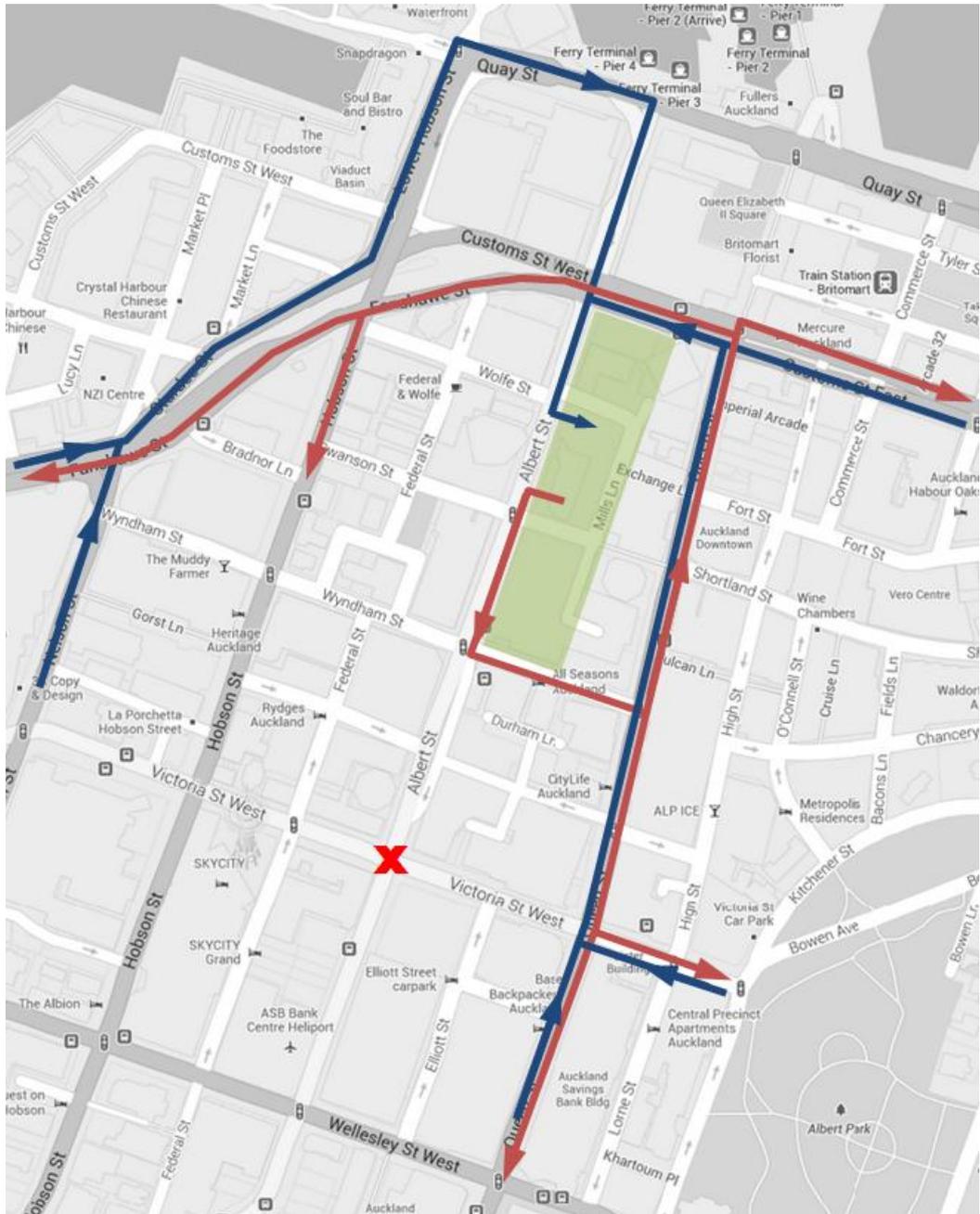


Figure 9: Closure of Victoria Street/Albert Street Intersection: Access to Properties West of Albert Street

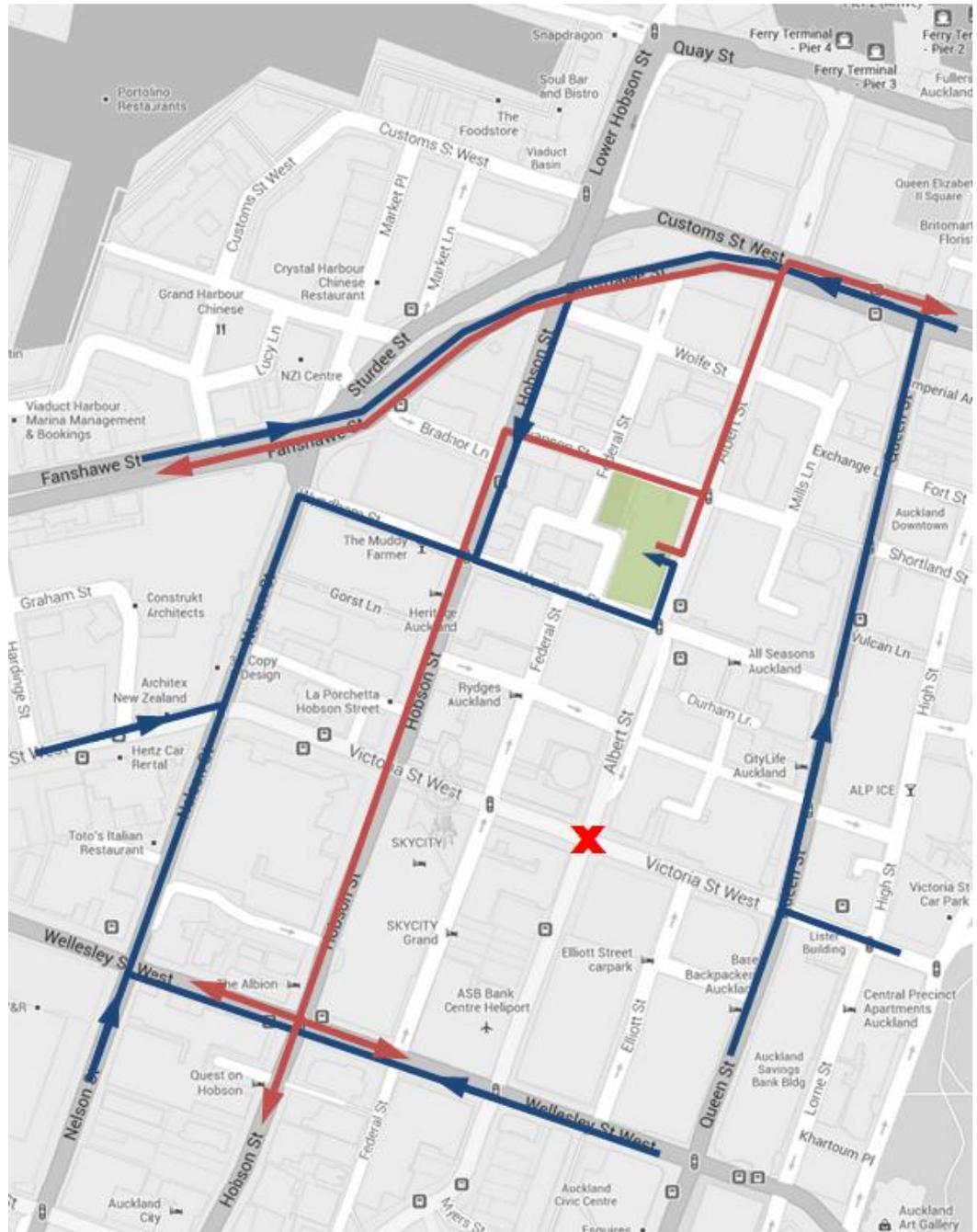


Figure 10: Closure of Victoria Street/Albert Street Intersection: Access to Durham Street Properties

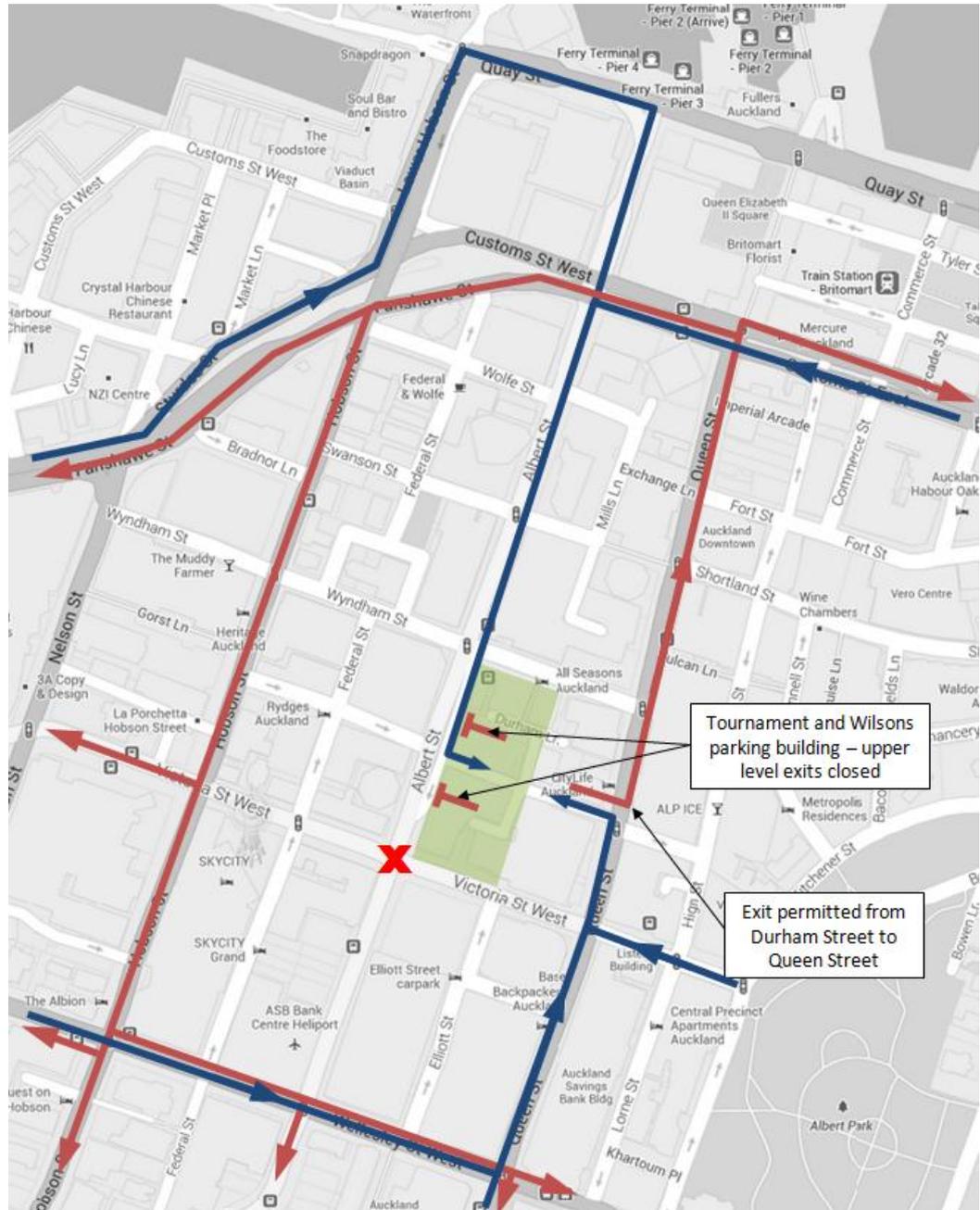


Figure 11: Closure of Victoria Street/Albert Street Intersection: Access to Albert Plaza and Adjacent Properties

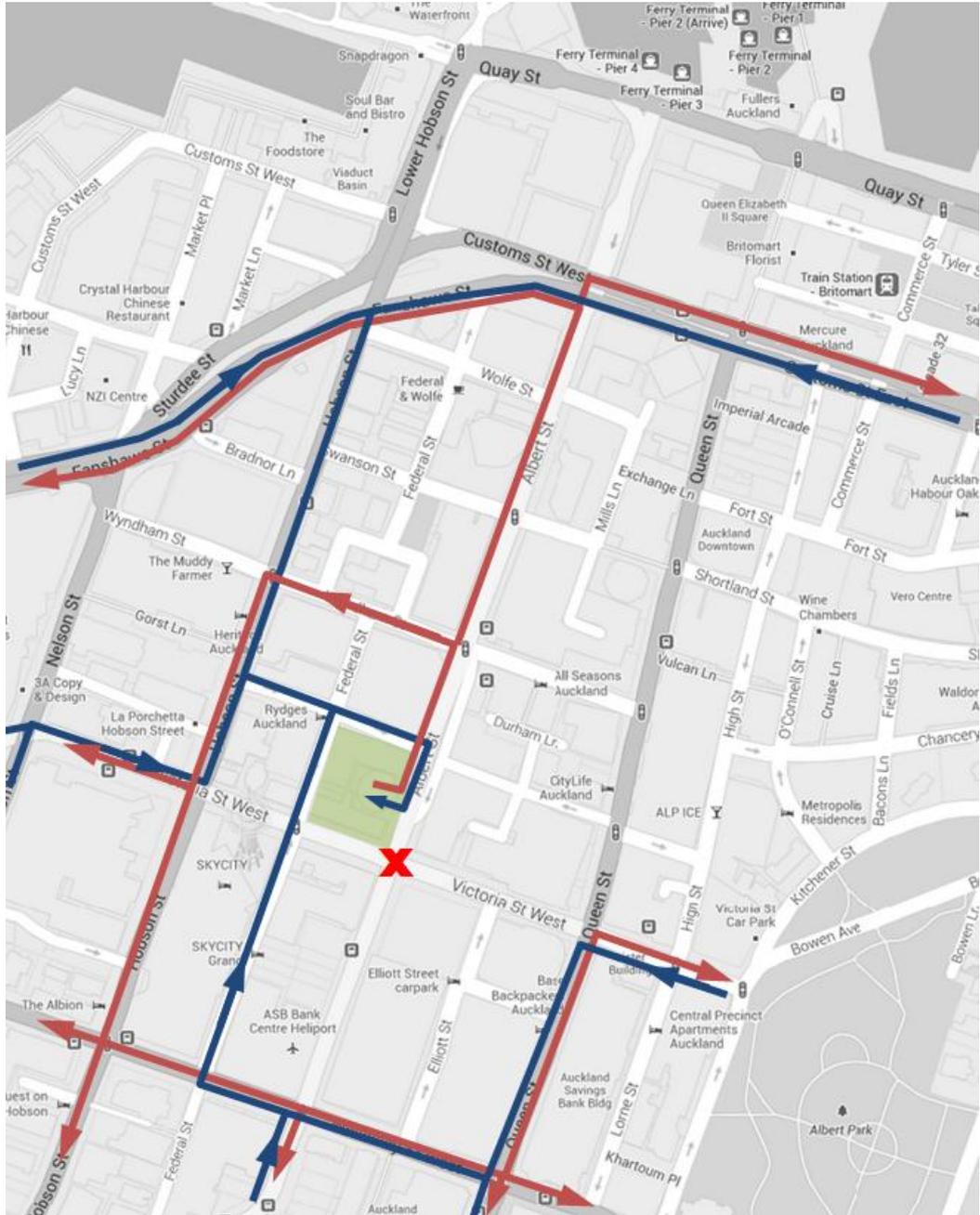


Figure 12: Closure of Victoria Street/Albert Street Intersection: Access to Crowne Plaza Hotel and Sky City Grand

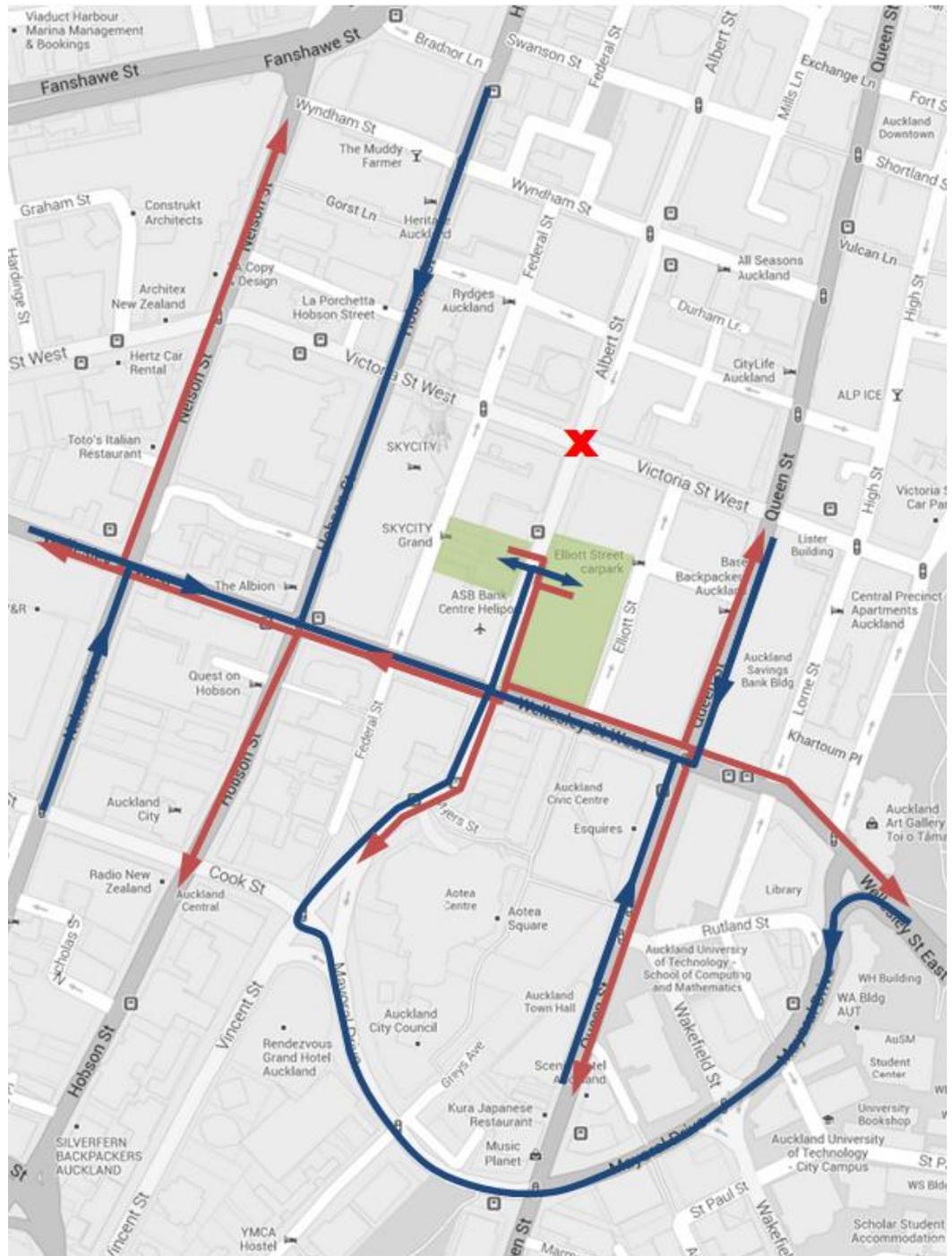


Figure 13: Closure of Wellesley Street/Albert Street Intersection: Access to Crowne Plaza Hotel and Sky City Grand

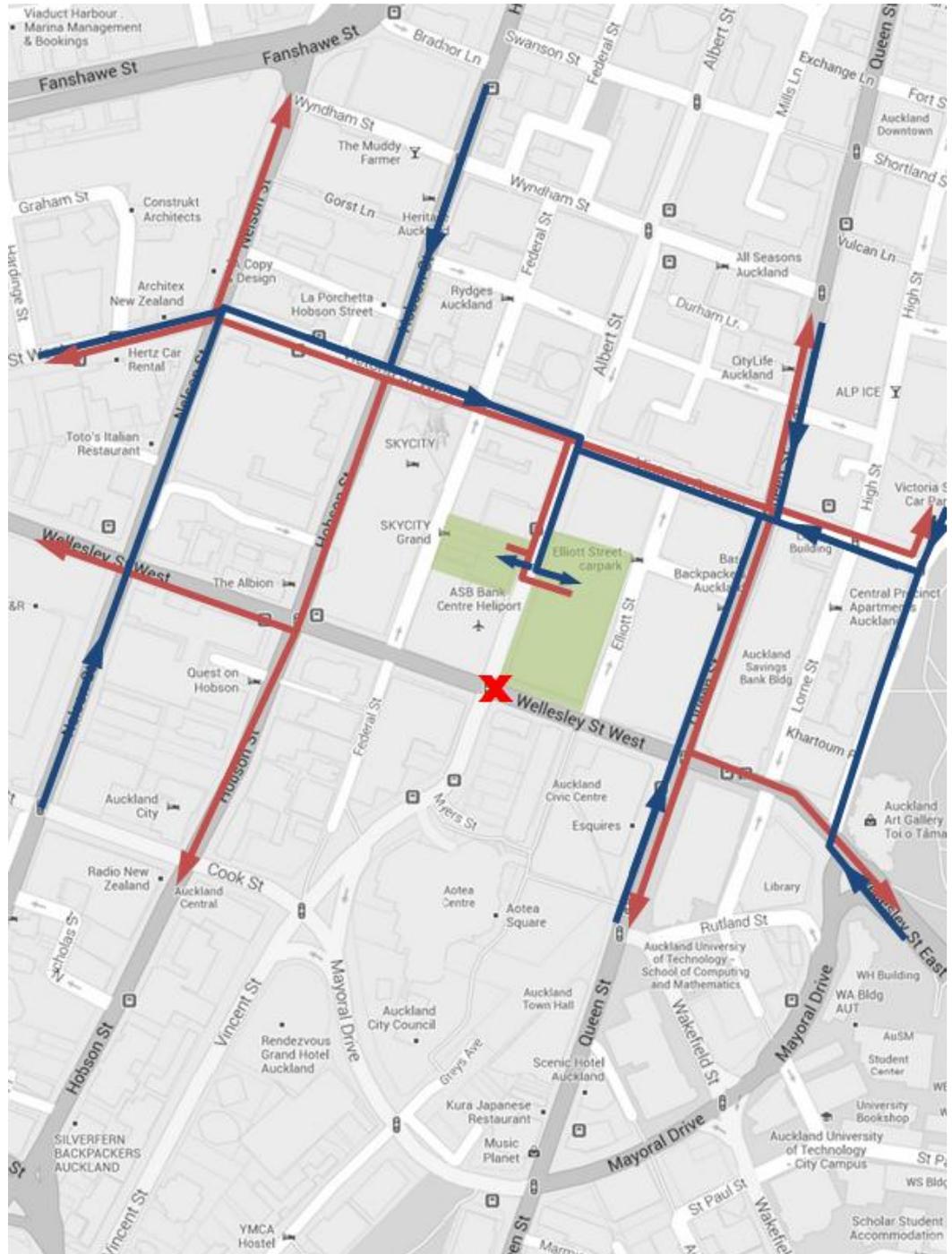


Figure 14: Porters Avenue level crossing: alternative routes during temporary closure of crossing

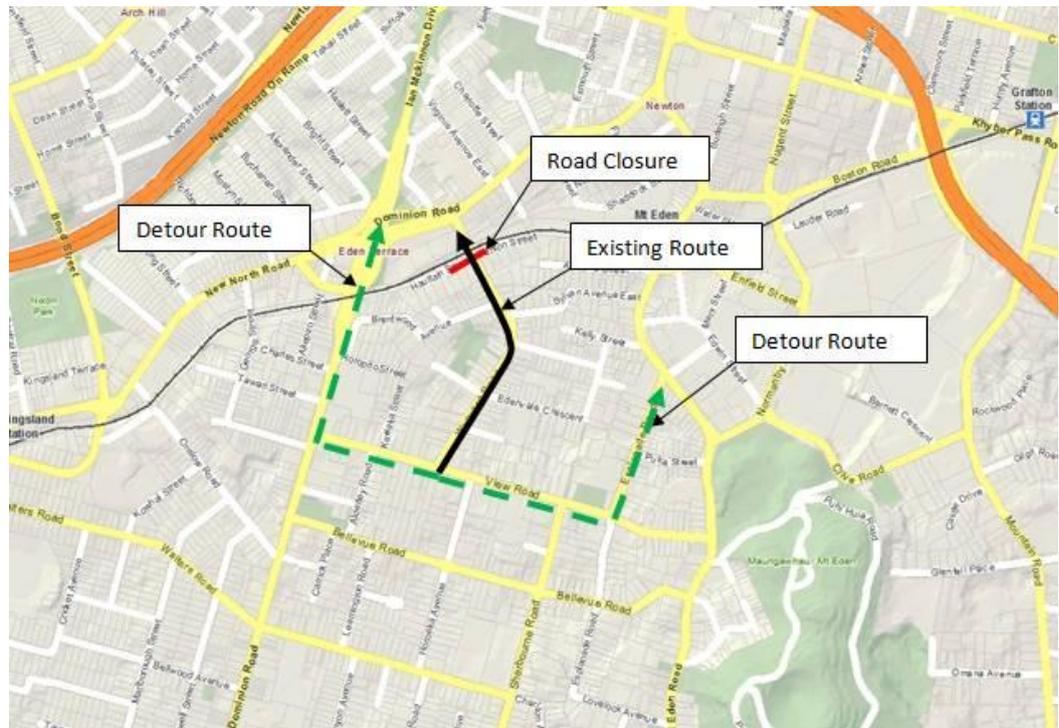


Figure 15: Normanby Road level crossing: alternative routes during temporary closure of crossing

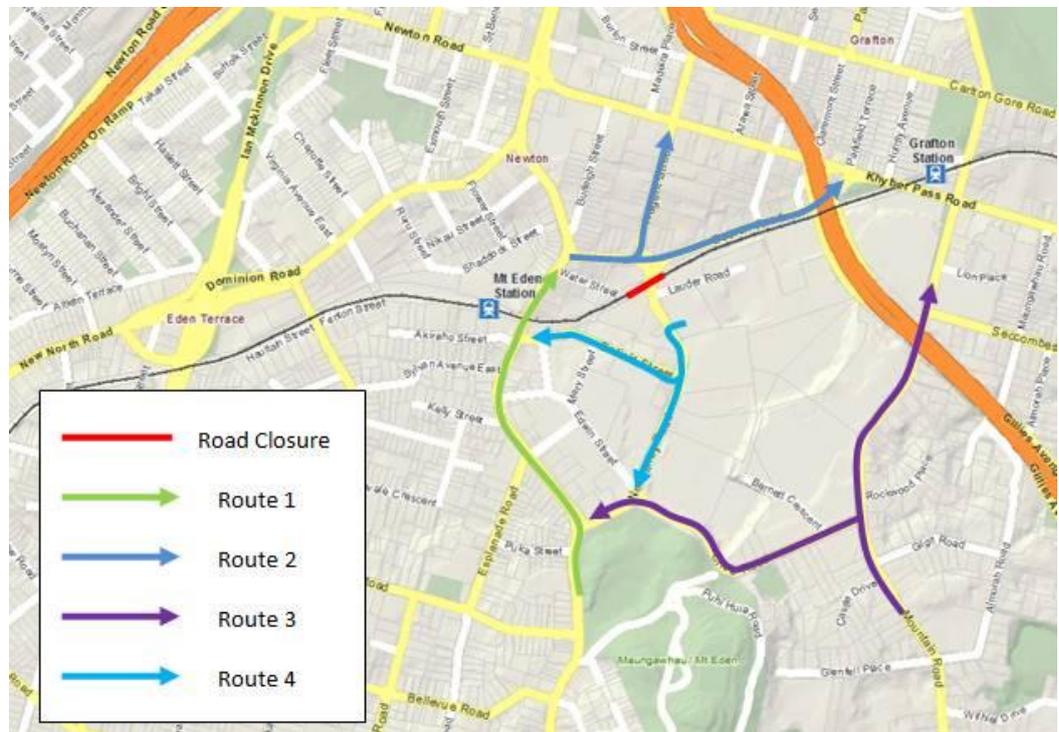


Figure 16: Construction Traffic Routes: Downtown Shopping Centre Construction Area

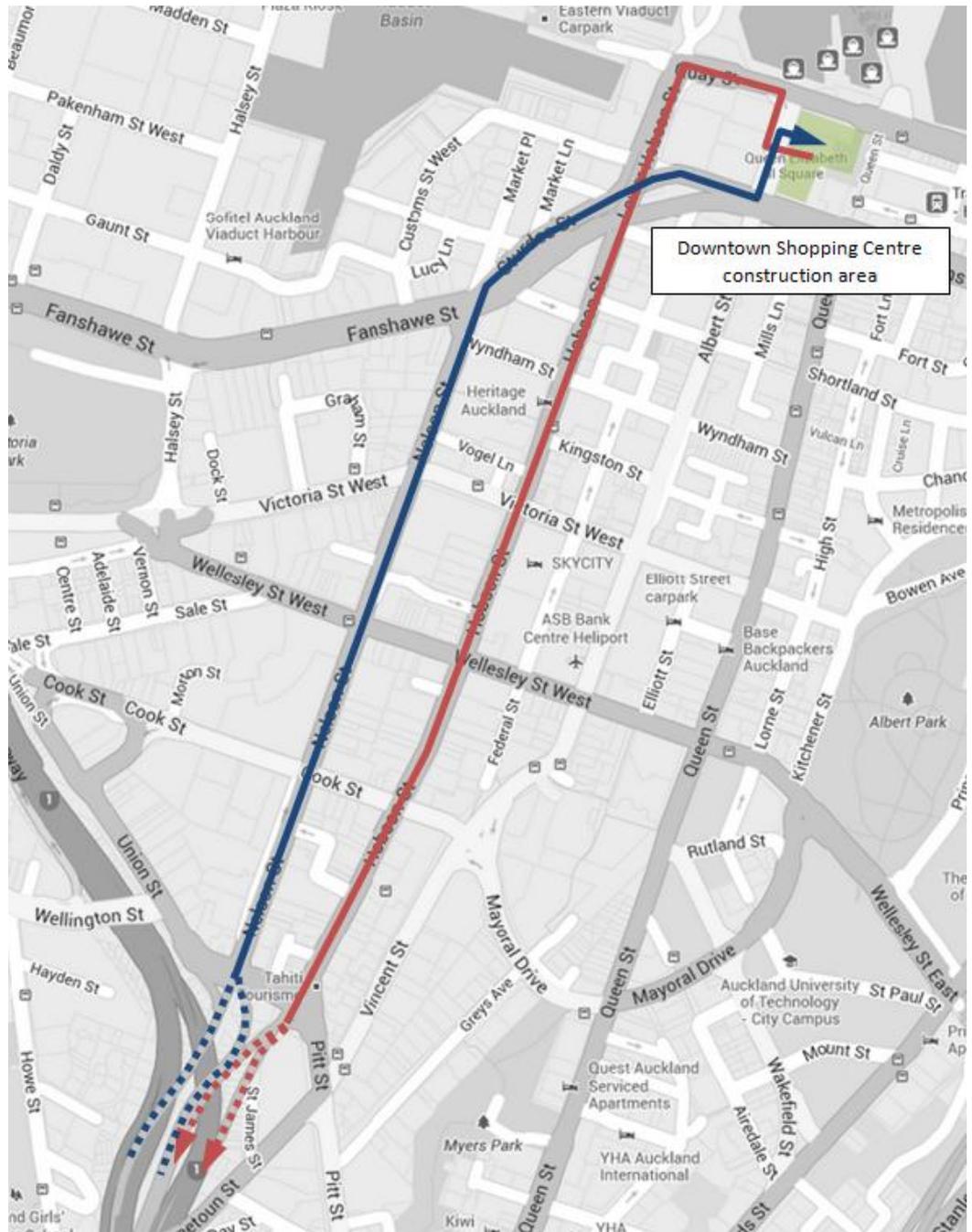


Figure 17: Construction Traffic Routes: Aotea Station Construction Area

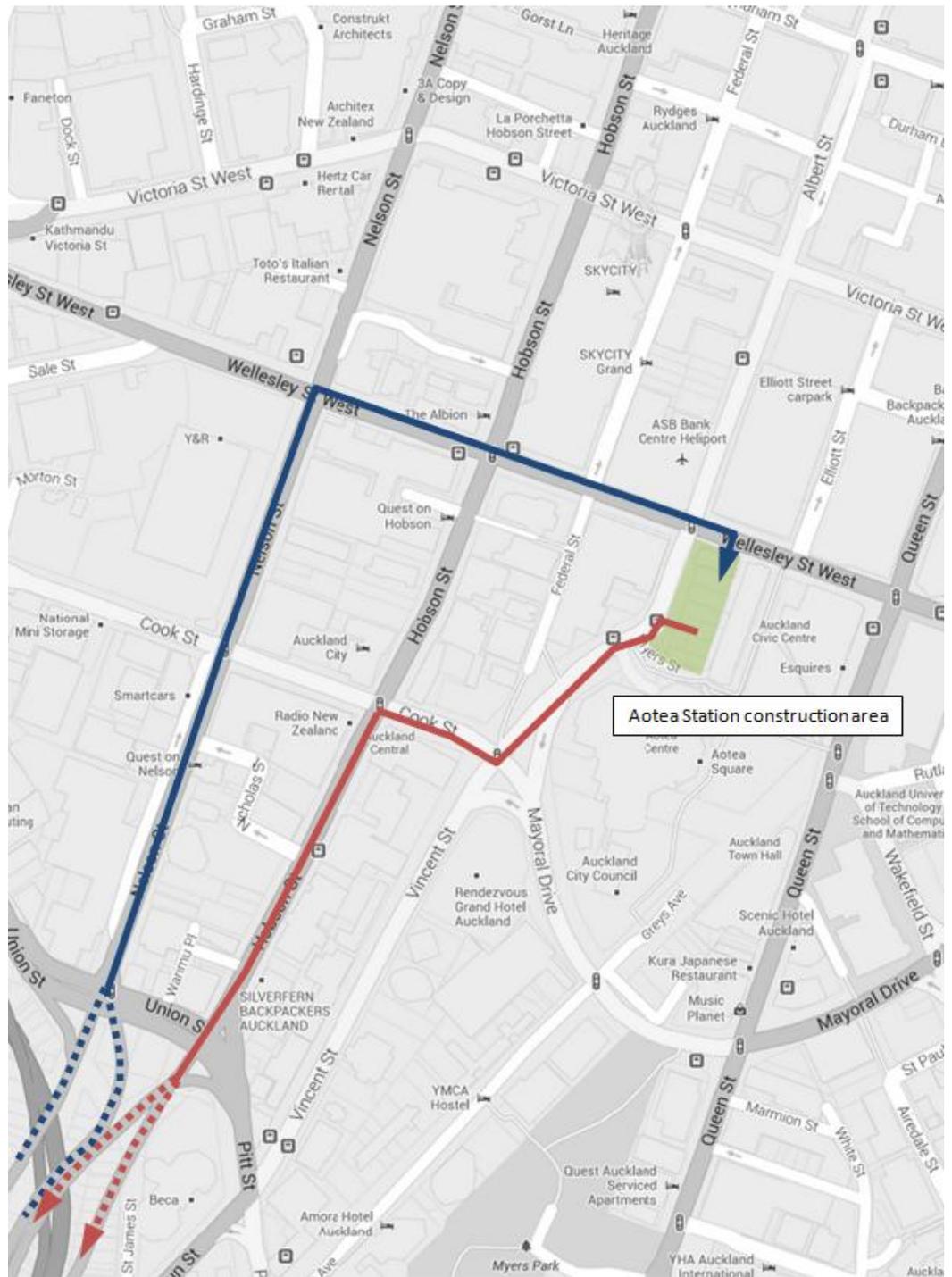


Figure 18: Construction Traffic Routes: Karangahape Station Construction Area

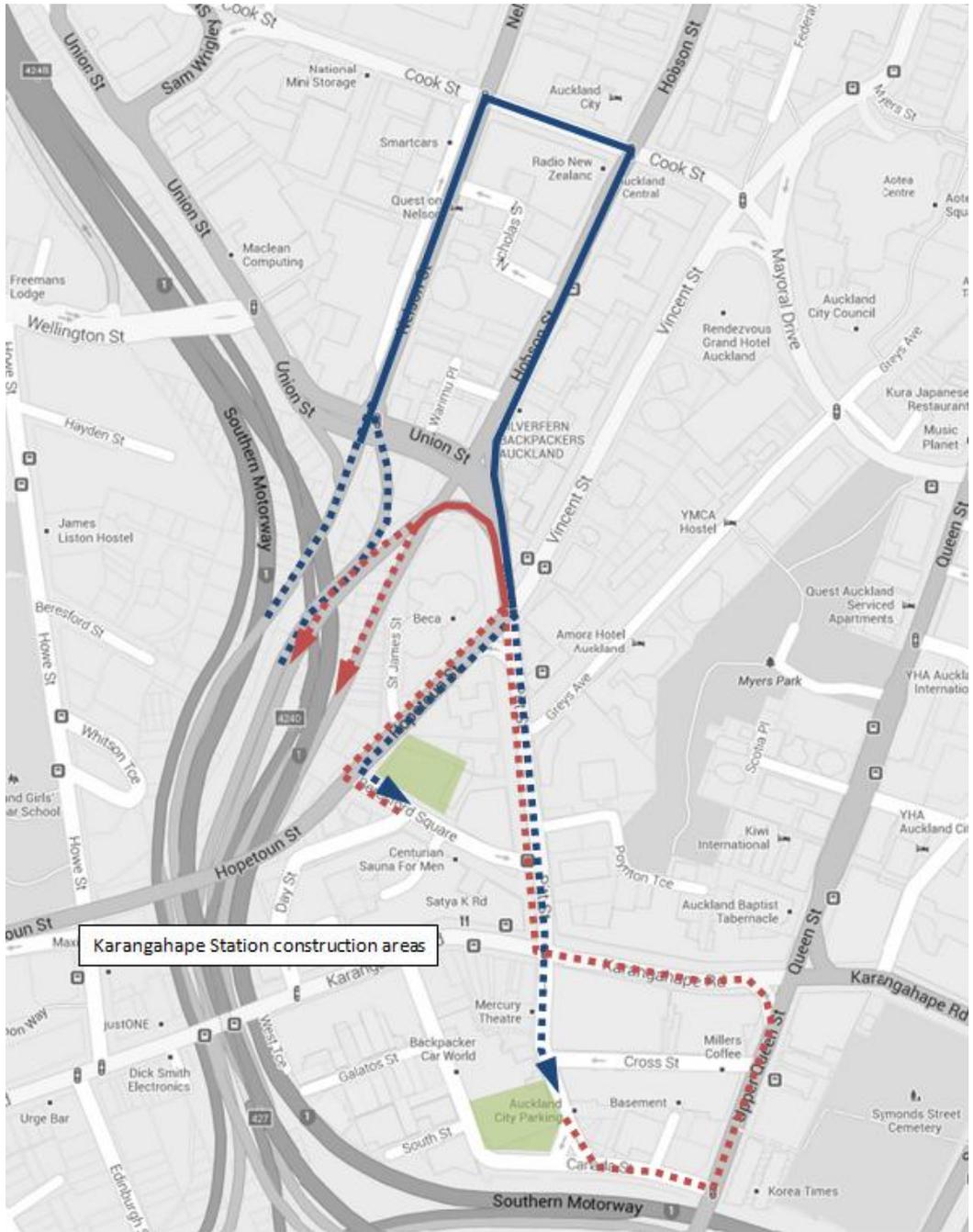


Figure 19: Construction Traffic Routes: Newton Station Construction Area (station site)

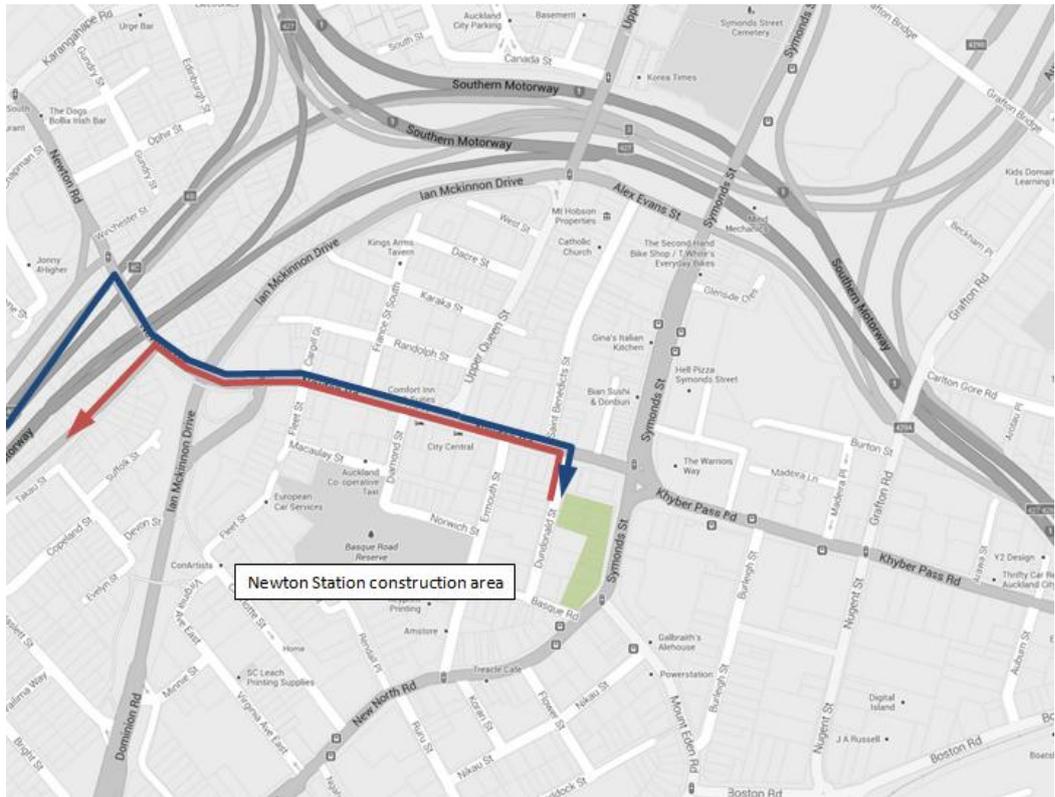
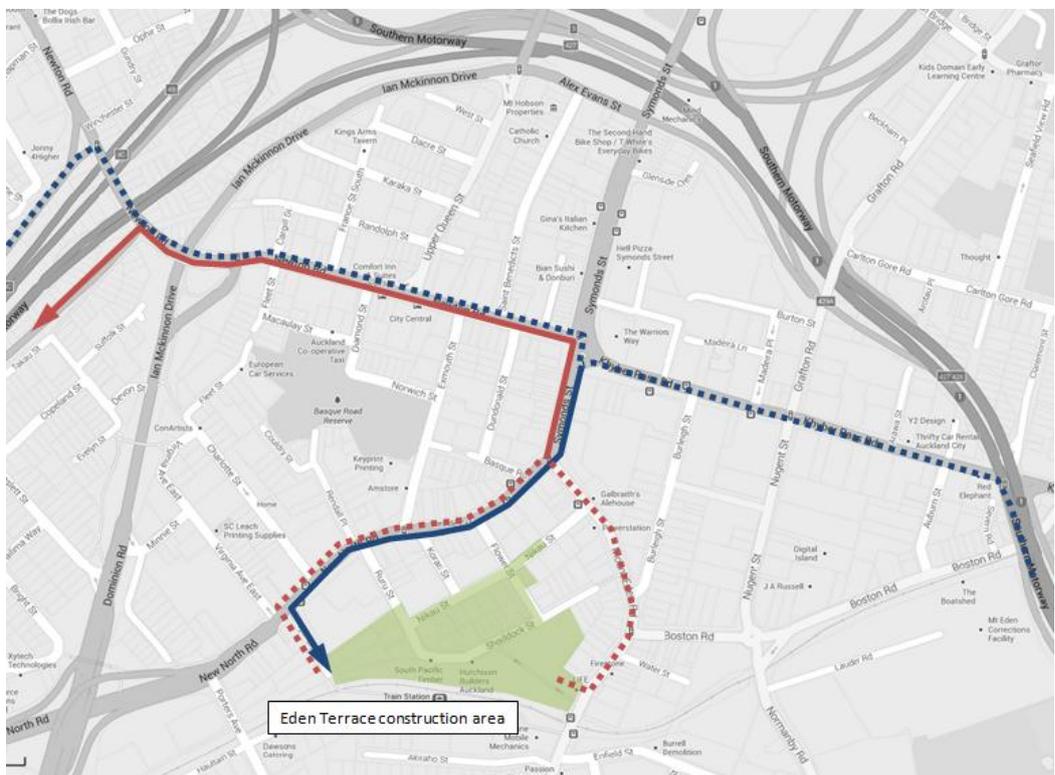


Figure 20: Construction Traffic Routes: Eden Terrace Construction Area



Appendix A: Rail Passenger Demands to/from City Centre (2041 AM Peak Period)

Table A1: Rail Passenger Demands to/from City Centre (2041 AM Peak), based on Model Run used for CCFAS (i.e. including Inner West Interchange)

	To City Centre		From City Centre	
	Base	With CRL	Base	With CRL
Eastern Line (across Hobson Bay)	4,677	7,254	634	903
Southern Line (south of Newmarket)	9,730	11,706	1,712	2,024
Western Line (west of CRL)	9,651	15,035	1,462	1,902
Total	24,058	33,995	3,808	4,829

Table A2: Rail Passenger Demands to/from City Centre (2041 AM Peak), based on Model Run without Inner West Interchange and potential alternative rail plan

	To City Centre		From City Centre	
	Base	With CRL	Base	With CRL
Eastern Line (across Hobson Bay)	4,677	7,247	634	1,024
Southern Line (south of Newmarket)	9,730	12,984	1,712	2,258
Western Line (west of CRL)	9,651	15,169	1,462	2,068
Total	24,058	35,400	3,808	5,350

Table A3: Boarding and Alighting Summary (2041 AM Peak), based on Model Run used for CCFAS (i.e. including Inner West Interchange)

	Without CRL : Boarding	Without CRL: Alighting	With CRL : Boarding	With CRL: Alighting
Britomart	2370	12990	2747	13152
Aotea	-	-	1168	12724
K Rd	-	-	947	3100
Newton	-	-	803	601
Parnell	240	6229	247	2808

Table A4: Boarding and Alighting Summary (2041 AM Peak), based on Model Run without Inner West Interchange and potential alternative rail plan

	Without CRL : Boarding	Without CRL: Alighting	With CRL : Boarding	With CRL: Alighting
Britomart	2370	12990	2047	12378
Aotea	-	-	1449	13044
K Rd	-	-	1066	3250
Newton	-	-	2384	1980
Parnell	240	6229	255	2931