



Wellington Street On Ramp

Review Summary Report

August 2012

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Executive summary

The Wellington Street on-ramp review is being undertaken jointly by the New Zealand Transport Agency (NZTA) and Auckland Transport (AT). The purpose of the review is to understand the operation of the on-ramp and its influence in achieving the optimal performance of the Auckland transportation network – including motorways and the local road network. The review is both quantitative and qualitative in that it has drawn on the evidence-based transport analysis as well as community feedback to inform the decision making for the future use of the on-ramp.

Following an initial settling-in period for the Victoria Park Tunnel, monitoring of traffic flows on the network was put in place in May 2012. The review also sought to understand the local impacts of the operation of the ramp and its effect on local communities.

The transport analysis has identified that there is currently capacity throughout the day, though limited in the PM Peak for approximately 400 vehicles per hour, to enter the motorway from the Wellington Street on-ramp without unduly compromising the efficiency of the motorway. This is more capacity than existed pre-VPT opening. The feedback from the community has indicated that a majority would like the on-ramp to re-open, with positive and negative effects identified.

In response to the traffic findings and community feedback, the project working group has recommended the Wellington Street on-ramp be re-opened. Identified from the review is the need for on-going monitoring and increased management of the Wellington Street on-ramp to maintain the safe and efficient operation of the network, as demand is expected to increase over time.

Within the next few years, ramp metering of the on-ramp is likely to be insufficient to manage competing demand for this section of the network and NZTA and AT will need to investigate network wide solutions to address this issue.

The project working group noted that, through the engagement process, the community made a number of suggestions for better managing traffic flows, safety and associated amenity improvements for the local area. It was recommended that these be further investigated.

As a result of the findings of the transport analysis, community engagement responses and review process, the project working group recommended the following which were endorsed by the NZTA and AT senior management at a meeting on 31 July 2012:

- Open Wellington Street on-ramp with constrained flows in the PM peak;
- Recognise existing performance of the Wellington Street on-ramp is unsustainable in the long-term if the Wellington Street on-ramp is re-opened;
- Monitor Wellington Street on-ramp, SH1 and local road performance into the future;
- Identify opportunities for network wide solutions in the future; and
- Undertake annual reporting back to the public on efficiency of the “one network”.

The findings and recommendations of the review will be made available for public comment until the end of August 2012. Any feedback received during this stage will be reviewed and taken into account where appropriate in the making of a final decision. A final decision will be released and communicated during September 2012.

This review summary report is intended as a summary only, with further detail available in the following two documents:

- Wellington Street On-Ramp Community Engagement Report – NZTA/AT July 2012
- Wellington Street On-Ramp Transport Analysis Report – NZTA/AT August 2012

1 Introduction

The Wellington Street on-ramp review is a project being undertaken jointly by the New Zealand Transport Agency (NZTA) and Auckland Transport (AT).

The Wellington Street on-ramp (on-ramp) is located in Auckland city centre and has been closed for work associated with the Victoria Park Tunnel (VPT) project – one of the NZTA's Roads of National Significance (RoNS) projects. The closure in May 2011 enabled the VPT project to build a new on-ramp, providing access to the motorway. The new on-ramp was scheduled to open in November 2011 and this was widely communicated at the time of its closure.

There were some early indications that restricting access at the Wellington Street on-ramp may provide some benefits for the wider transport network. In November 2011, the NZTA announced that, together with AT, they would be undertaking a review regarding the future use of the on-ramp and that the decision on its future use would be deferred until after the VPT project was completed in March 2012.

Following an initial settling-in period, monitoring of traffic flows and conditions across the network was undertaken from May 2012 for a period of three months. This monitoring formed the basis of the review.

As part of the review, the NZTA and AT also undertook community engagement to get a better understanding of the effects of the on-ramp closure experienced by the community and their views in relation to the future use of the on-ramp.

This summary report provides an overview of the Wellington Street on-ramp review process and findings.

It is intended as a summary only, with further detail available in the following two documents:

- Wellington Street On-Ramp Community Engagement Report – NZTA/AT July 2012
- Wellington Street On-Ramp Transport Analysis Report – NZTA/AT August 2012

2 Project background

During the construction of the VPT project, the Wellington Street northbound SH1/motorway on-ramp was closed to accommodate construction works, temporarily reopened, and then closed as it currently is today.

Since the ramp closure, there have been some early indications that restricting access at the Wellington Street on-ramp could help the VPT, the SH1 motorway and parts of the local road network to operate more efficiently (primarily by avoiding the addition of merging traffic at a critical part of the motorway network, allowing the entire network to operate with higher flows). Now that the VPT project is complete, the NZTA and AT are gaining a clearer understanding of the benefits the VPT project is delivering to the Auckland network, including city centre traffic movements.

Between May 2012 and the end of July 2012, the NZTA and AT undertook a review of the future use of the on-ramp.

The purpose of the review was to understand the operation of the on-ramp and its influence in achieving the optimal performance of the Auckland transportation network – including motorways and the local road network. As part of the review, the NZTA and AT sought to understand the local impacts of the operation of the ramp and its effect on local communities.

The review took into account the 'one network' approach between AT and the NZTA which acknowledges the aspirations and initiatives of the Auckland Plan 2012, City Centre Master Plan (CCMP) and Auckland Waterfront Plan. The review also took into account AT's approach to supporting and improving the effectiveness of the city centre transport system, including a reliable and robust passenger transport network and safe and pleasant walking and cycling facilities.

3 Overview of the review process

The review was intended to be both quantitative and qualitative in that it drew on the evidence-based transport analysis as well as community feedback to inform the decision making.

The following sets out in broad terms the methodology for the review:

- A project working group was set up with representatives from AT and NZTA as well as specialist consultants.
- Traffic data was collected and analysed to document the changes on the network as result of the current closure.
- A transport assessment was undertaken for both an open and a closed scenario.
- Feedback on observed effects and preference for future use of the on-ramp was sought from the community between mid-June and mid-July 2012.
- The results of the transport assessment and outcomes of the community engagement were presented and evaluated at a workshop attended by the project working group on 23 July 2012.
- The evaluation process involved an analysis of:
 - Community feedback
 - Current and future operational requirements of the motorway and local roading network
 - Expected local traffic effects
- A preliminary recommendation was made by the project working group at the workshop.
- The preliminary recommendation was presented to the NZTA and AT senior management for endorsement on 31 July 2012.
- An independent peer review of the transport assessment used in this process was undertaken.

4 Summary of community engagement

As part of the Wellington Street On-Ramp review, the NZTA and AT undertook engagement with the local community to get a better understanding of the effects of the on-ramp closure experienced by the community.

4.1 Engagement framework

The communication and engagement process was developed using the principles and core values of the International Association of Public Participation (IAP2) as well as the requirements of the Land Transport Management Act 2003 and Local Government Act 2002.

4.2 Methodology

The engagement period began in June 2012 with a media release on 14 June 2012 and a follow-up media release on 9 July 2012.

Key stakeholder letters were sent out on 14 June 2012, accompanied by a copy of the FAQs and feedback form. Letters, FAQs and feedback forms were delivered by hand to the areas identified on the map below from 15 June 2012 and in the week following the media release.

In addition, the NZTA website contained information about the review.

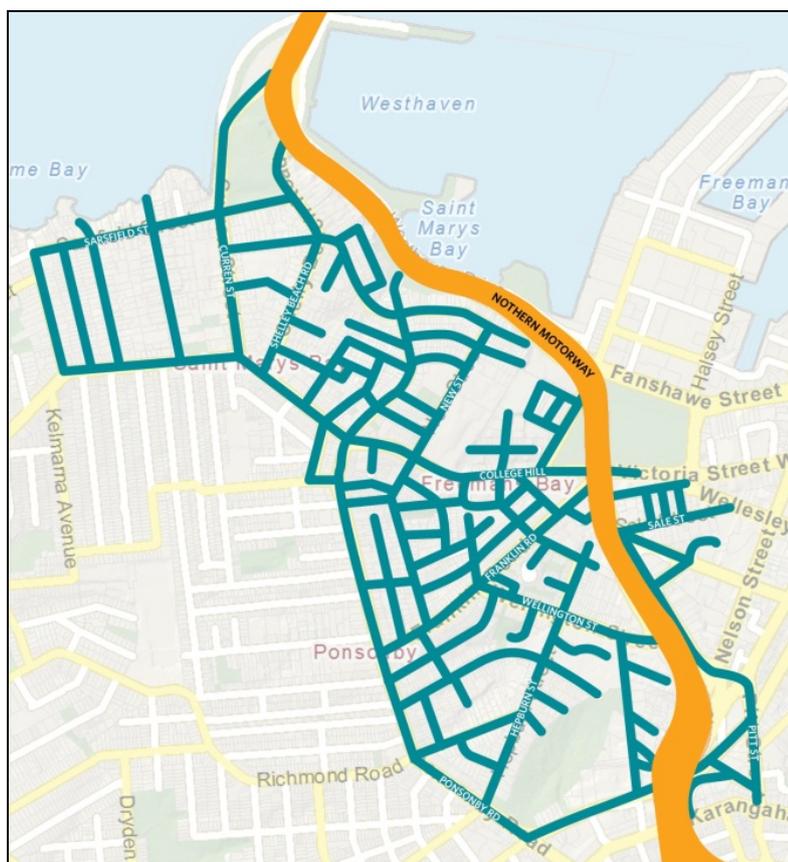


Figure 1 – Letter delivery area in green. Note letters were also delivered to Gillies Avenue.

4.3 Responses

A total of 710 submissions were received during the submission period from Mid-June 2012 through to 13 July 2012. This is a high response rate, reflecting a very strong and high level of community interest.

The vast majority of feedback was received from the local communities where feedback had been actively sought (Western Bays suburbs of Freemans Bay, Ponsonby east/south, St Marys Bay and Herne Bay). Feedback was also received from further afield, particularly from the North Shore.

There were a number ways in which stakeholders and the community could provide feedback. 55% opted to use the feedback form while 45% responded via email. The feedback form asked 4 questions:

Question 1 – *What positive effects have you observed or experienced since the Victoria Park Tunnel fully opened in March 2012, with the Wellington Street on-ramp remaining closed? Please explain what positive effects you have noticed, and where and when this has occurred.*

Question 2 – *What negative effects have you observed or experienced since the Victoria Park Tunnel fully opened in March 2012, with the Wellington Street on-ramp remaining closed? Please explain what negative effects you have noticed, and where and when this has occurred.*

Question 3 – *What are your current views on the future of the on-ramp?*

Remain closed

Re-open

Partial opening

Please explain.

Question 4 – *Is there anything else you have noticed or that you would like the NZTA and AT to take into consideration when undertaking the review?*

The responses to the questions are summarised below.

4.3.1 Feedback Form Question 1 – Positive effects experienced

- The single most common response to Question 1 (positive effects experienced) was ‘no positive effects’.
- Positive effects that were identified came mostly from the Freemans Bay area and outliers (predominantly North Shore). The main positive effects identified included:
 - Improved motorway flows (less congestion and delays) since the opening of the VPT;

- o Improved traffic flows (less congestion and delays) in local streets – particularly in and around Wellington Street, Pitt Street, Howe Street, Union Street and other surrounding streets as shown below;

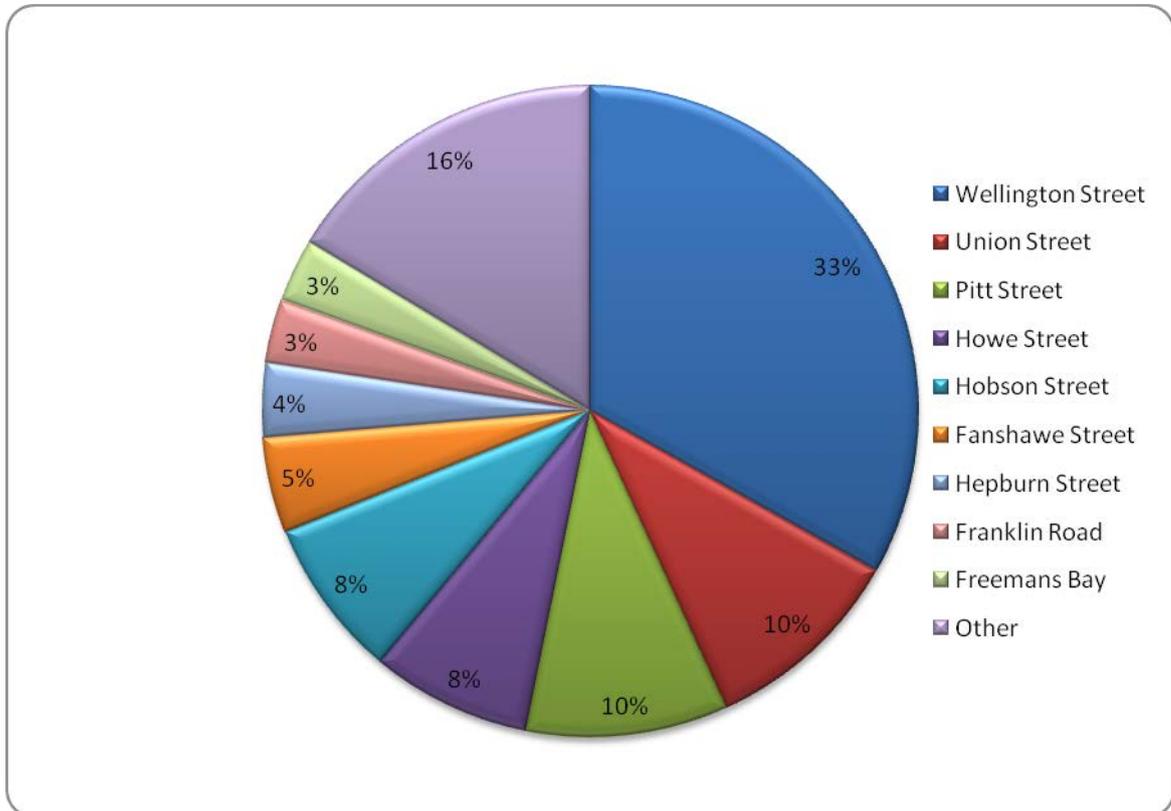


Figure 2 – Location of positive local road traffic effects identified by respondents

- o Improved safety, particularly for pedestrians and around schools (Auckland Girls Grammar School, Freeman’s Bay Primary School and Epsom Girls Grammar) as well as for merging traffic on the motorway itself; and
- o Reduced negative environmental effects, particularly noise and air pollution in the surrounding areas.

Other key positive effects noted included:

- The new areas around the on-ramp and VPT project looks good;
- Reduced trucks and heavy transport on and around Wellington Street; and
- A more people friendly environment is developing around the Wellington Street area.

4.3.2 Feedback Form Question 2 – Negative effects

- There were significantly more responses experiencing negative effects than positive effects.
- A high level of respondents experiencing negative effects were concentrated in the Herne Bay area and Franklin Road area.
- The main negative effects identified included:
 - Increased traffic volumes and congestion on local streets (particularly Franklin Road, Curran Street, Ponsonby Road, Wellington Street)

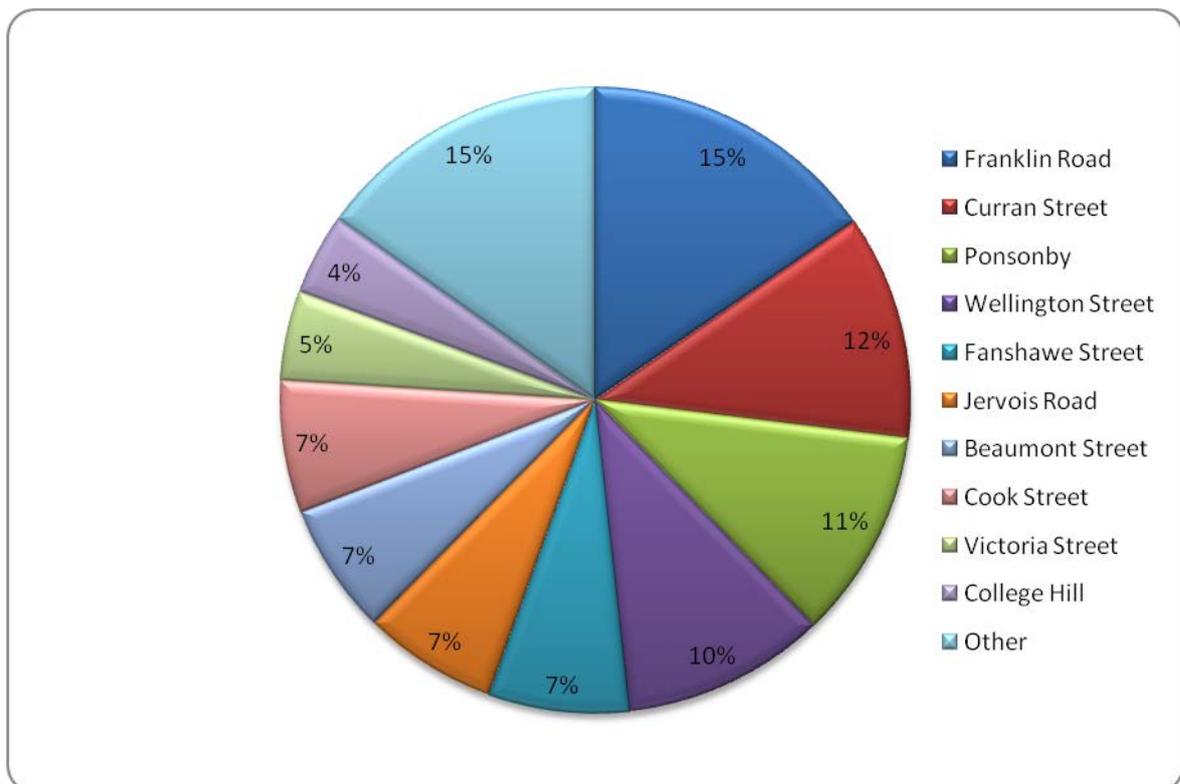


Figure 3 – Location of negative traffic effects experienced

- The above resulted in associated:
 - Driver and resident frustration;
 - Delays to travel times and associated inconvenience;
 - Rat-running through small residential streets;
 - Reduced accessibility to community facilities (e.g. New World supermarket) and suburban activities;
 - Concerns about safety for motorists, pedestrians and schools (a key concern); and

- Increased heavy vehicles and trucks using residential and suburban streets such as Ponsonby Road, Curran Street and Franklin Road. Particular concern was noted during the night time.
- Inconvenience of location of on-ramps and distances needed to be travelled to access to motorway on-ramps – leading to the negative effects identified above;
- Safety concerns – particularly for pedestrians (notably children and elderly) and the impact of traffic on schools. Many noted red-light running, u-turns and excessive speed as factors causing their concerns.
- Environmental concerns associated with increased congestion – noise, air and vibration.
- Interestingly, another response to Question 2 (by around 63 respondents) was stating that *no* negative effects had been experienced (as opposed to leaving the question blank).

4.3.3 Feedback Form Question 3 – Views on the future of the on-ramp

The majority of respondents held the view that the Wellington Street on-ramp should re-open, as shown in the graph below.

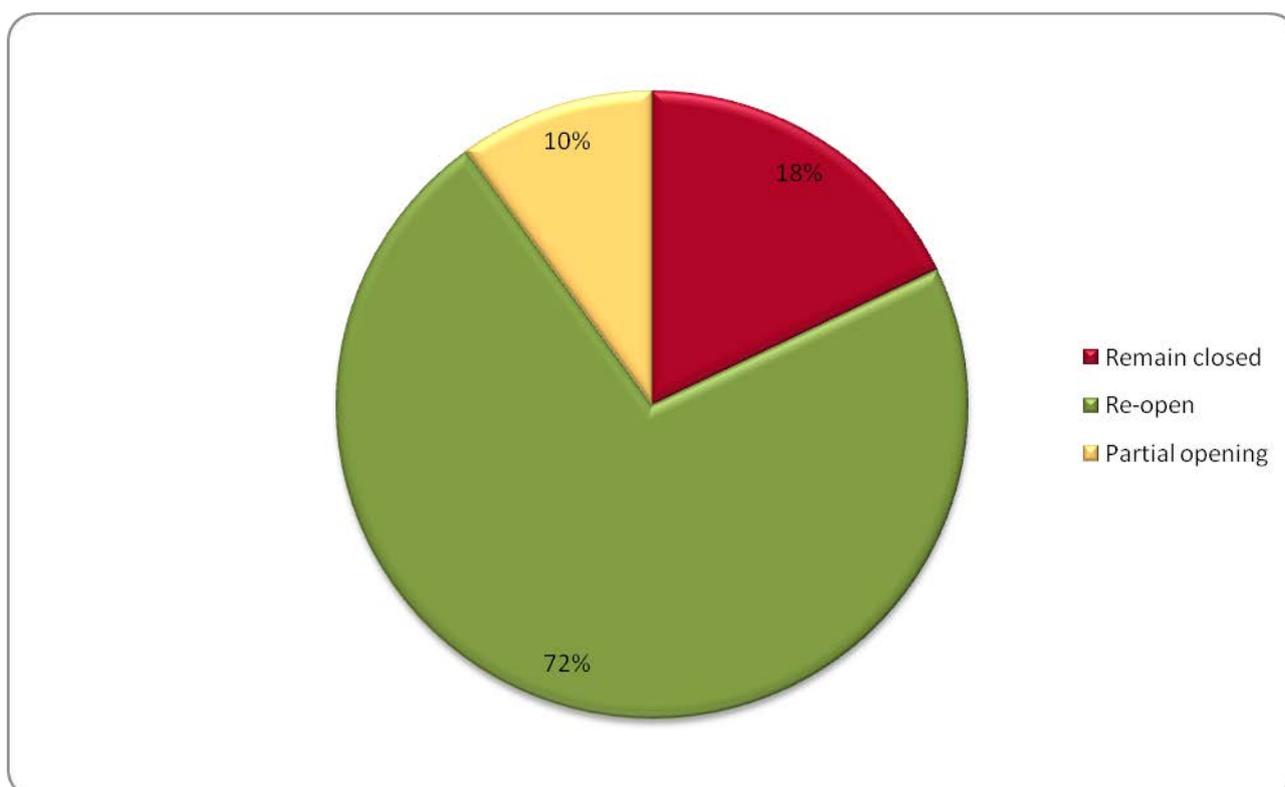


Figure 4 – Current views on the future of the on-ramp

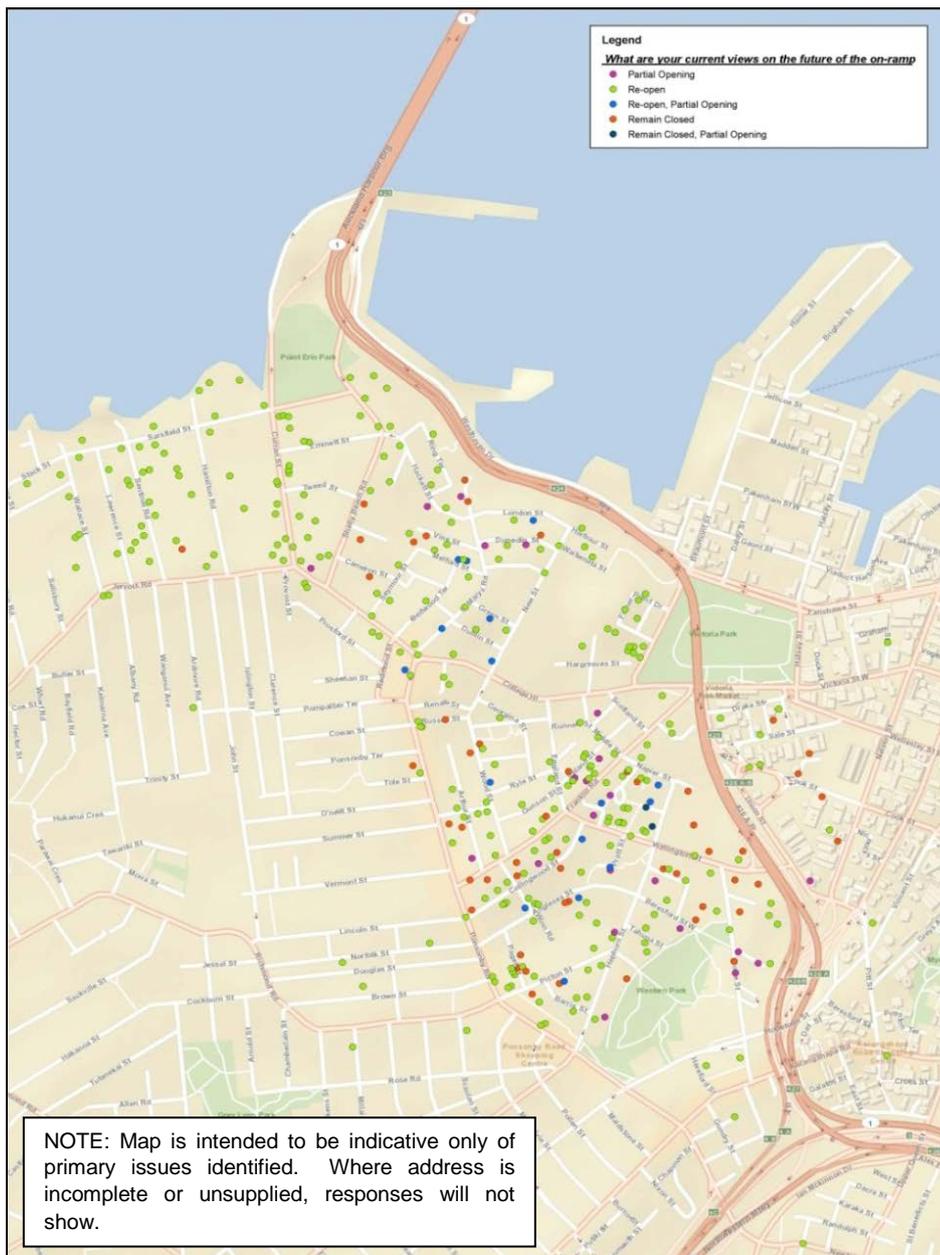


Figure 5 – Indicative location of views on the future of the on-ramp

Of relevance is the clear preference for on-ramp re-opening from the Herne Bay community, particularly west of Shelly Beach Rd as shown in Figure 5 above. The Freeman's Bay area and to some extent the St Mary's Bay area gave more mixed responses. Outliers (North Shore) expressed a clear preference for the on-ramp remaining closed.

Of those who identified partial opening as an option, the most common comment was that it should be open only on weekends and out of peak hours.

It was also noted that while some respondents hadn't selected partial opening as a preferred option, they did refer to it in the 'Other' section of the feedback form indicating that it may be a second preference if full opening/closing wasn't available.

4.3.4 Feedback Form Question 4 – Further thoughts and comments

Question 4 was commonly used to reiterate experiences and preferences described in the preceding questions. It was also used to raise concerns about the review process, along with offering suggestions on how traffic flows and safety and amenity could be improved on local streets. Comments included:

- Community felt misled by the NZTA as they were under the impression that the Wellington Street on-ramp would be re-opened upon completion of the Victoria Park Tunnel Project.
- The review is flawed and unbalanced as it does not trial an opening scenario.
- The review process is a waste of public money.
- Building the on-ramp is a waste of public money if it remains closed.
- Request the current ban on right turns from Beaumont Street be removed, particularly onto the motorway, but also into Fanshawe Street.
- Perception of incompetence / poor traffic planning.

4.3.5 Key stakeholder feedback

A total of 16 submissions were received from the following key stakeholders (those who represent the interests of a larger group of people):

- *Bus & Coach Association NZ (Auckland branch)* - supported partial re-opening on-ramp
- *Ponsonby Primary School Board of Trustees* – supported re-opening on-ramp.
- *Victory Christian Church* - supported re-opening on-ramp.
- *The Karangahape Road Business Association* – supported re-opening on ramp.
- *Auckland Council Transport Committee* - supported re-opening on-ramp.
- *NZ Bus* - supported re-opening on-ramp
- *Western Bays Heritage Committee (environmental section)* - supported on-ramp remain closed.
- *Cycle Action Auckland* – no stance, but consider cyclists.
- *Freemans Bay Primary School (Waiatarau)* - supported on-ramp remain closed.
- *Automobile Association (AA)* - supported re-opening on-ramp.
- *Freemans Bay Residents Action Group* - supported re-opening on-ramp.

- *Auckland Girls Grammar School* - supported on-ramp remain closed.
- *Herne Bay Residents Association Inc. (HBRAI)* - supported re-opening on-ramp.
- *Western Bays Community Group* - supported re-opening on-ramp.
- *Epsom Girls Grammar School* - supported on-ramp remain closed.
- *Viaduct Harbour Holdings Limited* - Right-turn movements out of Beaumont Street into Fanshawe Street be reinstated.

4.3.6 Mitigation suggestions

The community through the feedback process made number of suggestions for better managing traffic flows, safety and associated amenity improvements for the area. It is important to note that suggestions for mitigation were not specifically sought in the feedback form, but were offered by a large number of respondents nonetheless. Common suggestions were:

If the Wellington Street on-ramp remains closed:

- Install traffic lights at the corner of Franklin Road and Wellington Street. (Submissions 70, 149, 706 and others)

If the Wellington Street on-ramp is re-opened:

- Traffic lights would be required at the intersection of Howe Street and Wellington Street. (Submissions 42, 149 and others)
- A through lane would be needed on Wellington Street to enable people to pass the on-ramp queue— both city bound and west bound. (Submission 42 and others)
- Control flow of on-ramp traffic using traffic light signalling. (Submissions 308, 328, 383 and others)
- Install roundabout Wellington Street/Franklin Road. (Submission 277 and others)

Partial opening/ other:

- Address dangerous/ steep judder bars on Union Street (Submission 657 and others) and/or paint lines on Victoria Street so cars leave a space for others to turn. (Submission 384)
- Reopen right-hand turn at the Beaumont Street / Fanshawe Street intersection. (many submissions)
- Undertake an independent review of the NZTA review. (Submission 317 and others)
- Include opening scenario as part of the review. (many submissions)
- Remove traffic lights at motorway on-ramps. (Submission 321 and others)

5 Summary of transport analysis

A significant improvement in northbound flow on the motorway has occurred since the VPT fully opened in March 2012. The new layout is expected to encourage changes in the use of the network over time, including additional demands from SH16 ramps, both from the Port and the North-Western motorway (SH16). These additional demands are expected to come from traffic that would otherwise use local streets, so can be seen as a benefit.

As part of the Wellington Street on-ramp review, NZTA and AT investigated the changes associated with the current closure and assessed the likely traffic effects (network wide) of any permanent closure and/or re-opening of the Wellington Street on-ramp.

5.1 Scope of transport analysis

The objectives of the transport analysis included the following:

- Develop a joint NZTA and Auckland Transport framework for the operation of the both the strategic motorway and the local Auckland city road network;
- Assess the changes to key traffic flows and movements from the City Centre, to points north along the State Highway associated with the closure of the Wellington Street on-ramp;
- Develop an agreed future management philosophy on how the on-ramp will be controlled as part of a 'one-network' optimisation plan; and
- Identify physical and operational interventions to manage and monitor changes to the network.

The review included specific analysis of the following:

- Observed changes on the motorway and local network due to the current closure;
- An analysis of the catchment areas for each ramp on the network and the associated accessibility to the motorway;
- Consideration of the VPT tunnel capacity and future operational requirements; and
- Consideration of the VPT and motorway network capacity available to accommodate Wellington Street on-ramp demand.

5.2 Traffic review study area

The study area for the traffic review (shown below in Figure 6) includes key access points from the city to the motorway and intersections along key corridor routes of interest and non-arterial roads, particularly in the vicinity of Curran Street.

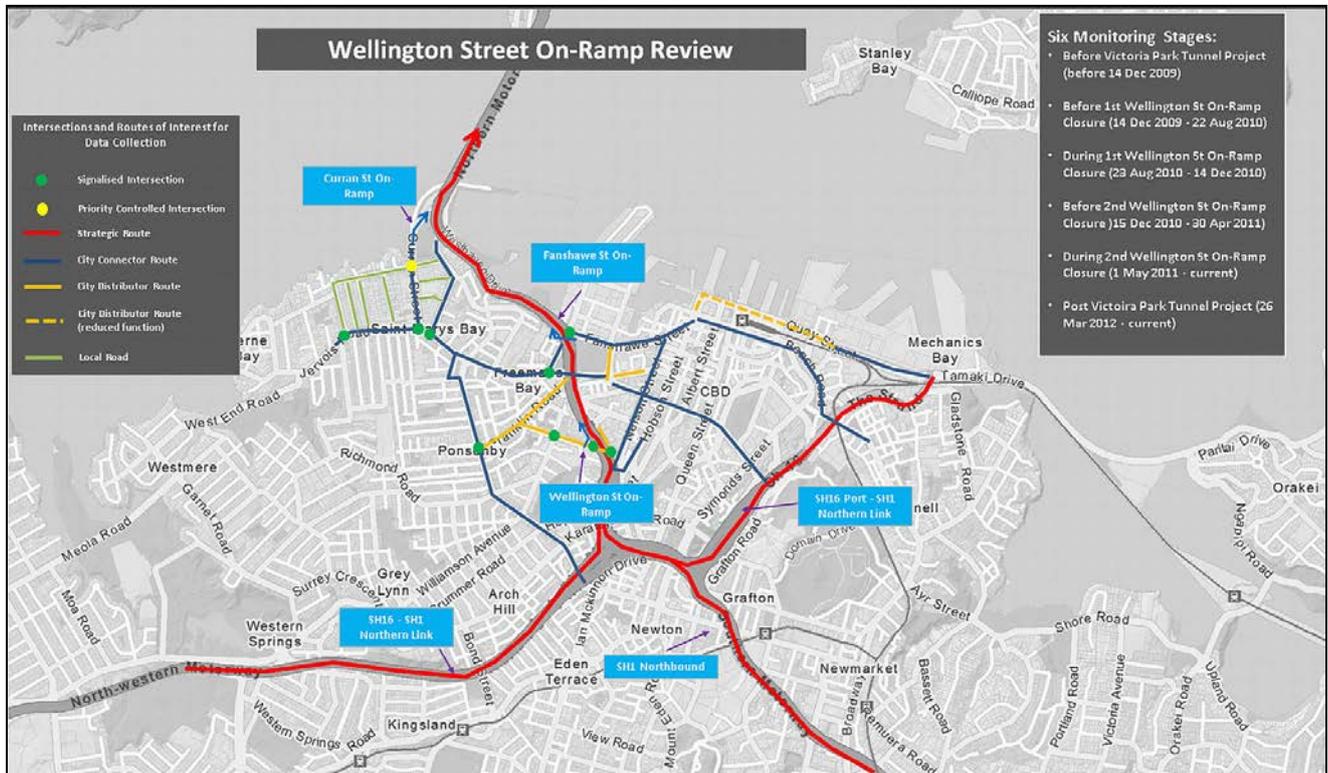


Figure 6 – Study area and data collection locations

5.3 Traffic review framework

The VPT and the adjacent links to the SH1 northbound through Curran Street, Fanshawe Street, Wellington Street and the SH16 links form critical connections between the City Centre and the strategic network. The traffic review applied the following principles:

- 'One Network' approach: The close collaboration between NZTA who represent the State highway network and AT who represent the local road network is important for any future planning and operation of Auckland's transport network.
- A Road Hierarchy: To provide a structure for any future planning and operation of Auckland's highway and local road network. Key features in the hierarchy relevant to the Wellington Street on-ramp review are:
 - The State highway network.
 - Key arterial routes.
 - City centre movements.

- Motorway connections.
- Local roads

The review has also been cognisant of themes emerging in the draft Auckland Integrated Transportation Plan - a comprehensive long-term transport and land use approach being developed by AT and NZTA to enable robust transport planning and decision-making in light of the new Auckland Plan. This strategy articulates the 'one network' approach between AT and NZTA and takes account of the aspirations and initiatives of not just the Auckland Plan, but also the recently launched City Centre Master Plan (CCMP) and Auckland Waterfront Plan.

5.4 Actual local network traffic changes observed

A traffic model was used to provide an initial indication of where the traffic flows change when the Wellington Street on-ramp is opened or closed. The traffic modelling provided a visual indication of where to collect traffic data in order to verify what traffic volume changes have actually occurred on the road network. Care was taken in this analysis to isolate the changes associated with the Wellington Street on-ramp closure from those associated with the opening of the VPT tunnel.

A number of traffic volume changes have been observed on the local traffic network since VPT was completed and the Wellington Street on-ramp remained closed. Figure 7 shows the changes observed specifically due to the Wellington Street on-ramp being closed. These changes have been identified by reviewing traffic signal and roadway daily flow (tube count) data for specific roads and traffic movements.

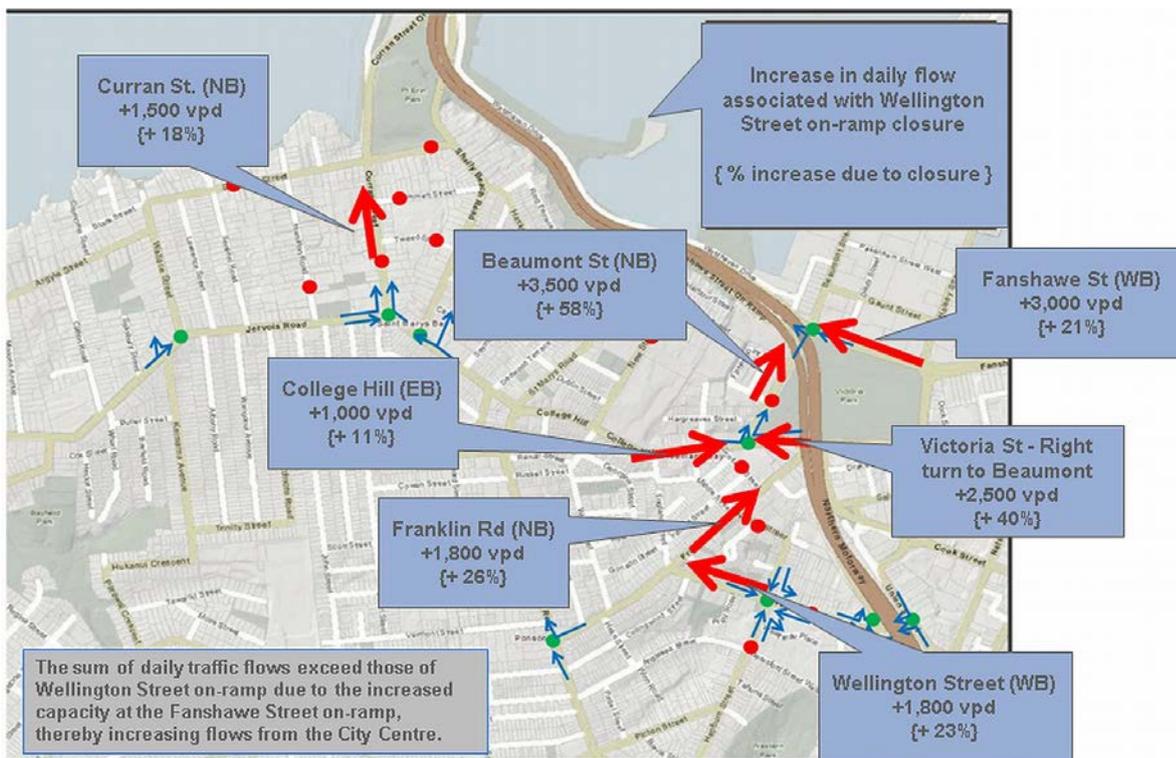


Figure 7 – Data collection locations, key movements and daily volume changes associated with Wellington Street on-ramp closure

The traffic flow analysis indicates that the effects of the Wellington Street on-ramp closure resulted in increases in traffic flow on local streets ranging from +11% (College Hill) through to +58% (Beaumont Street).

It is noted that the increase in total flows on these roads appear to exceed the historic (i.e. pre-VPT) flows that used the Wellington Street on-ramp. This is likely, in part, due to additional capacity that has been provided at the Fanshawe Street on-ramp. This is an important point, as it means that not all of the increases in traffic flows can be attributed simply to the closure of Wellington Street on-ramp.

Points of interest include:

Curran Street:

- The AM peak flows increased by almost 125 veh/hr (18%).
- The PM peak flows increased by 100veh/hr (11%). The total daily flows increased by 1,500 veh/day (18%).
- The most significant of the changes occurred between the hours of 10pm and midnight with hourly flows increasing beyond 250 veh/hr (compared with 100 veh/hr prior to VPT).

Wellington Street:

- There was an increase in flow by 100 veh/hr (20%) almost consistently throughout the day heading westbound from the city.

- The total daily westbound flow increased by approximately 1,800 veh/day (23%) because of the on-ramp closure.
- Most of this traffic turned right from Wellington Street onto Franklin Road towards the motorway at the Fanshawe Street on-ramp.

College Hill / Victoria Street:

- There was a net increase throughout the day for both the eastbound movement down College Hill and the westbound movement from Victoria Street (double right-turn movement into Beaumont Street).
- Overall, the right-turn to Beaumont Street saw a significant increase in traffic throughout the day with a daily volume change of over 2,500 vehicles per day (23%).

Beaumont Street:

- Beaumont Street was provided additional green-time and capacity for motorway access with the removal of the right-turn phases from Beaumont Street north and south at Fanshawe Street.
- The left turn movement onto the motorway increased by approximately 150 veh/hr (75%) during the AM peak, 200 veh/hr (23%) during the PM peak and by 3,500 vehicles across a single day (58% increase).

Fanshawe Street:

- Additional capacity was also given to the westbound movement onto the motorway when the right turn movements on Beaumont Street were banned.
- The AM peak increased by almost 150 veh/hr (28%) while the PM peak increased by over 300 veh/hr (15%). There was a daily increase of 3000 veh/day (21%) accounting for a shift from the right-turn movement from Beaumont Street north which resulted in additional traffic entering Fanshawe Street from via Halsey Street.

Ponsonby Road / Franklin Road:

- Northbound AM peak flows increased approximately 150 veh/hr (13%) with daily flows increasing by approximately 700 veh/day (5%).
- Dissimilar to other arterial routes, the northbound PM flows remain approximately unchanged.
- During the inter-peak period an average northbound increase of 100 veh/hr (11%) leading up to the PM peak.

Franklin Road (Right Turning to Ponsonby Road):

- The flows across the entire day remain similar to magnitudes experienced before the VPT project began.
- The negligible change observed, further validates that additional volume from the Wellington Street westbound movement is heavily biased to the right turn onto Franklin Road heading towards Victoria Street.

5.5 Network traffic conditions

5.5.1 Network constraints

The successful operation of the VPT tunnel is critical to the efficient operation of a significant part of the Auckland network including the critical northbound SH1 entrance to Auckland city accessing SH16 west, SH16 east to the port, SH1 to points north, the City Centre, the wider network and local roads that feed into this network.

The Wellington Street on-ramp is the closest ramp to the VPT. VPT has specific operational capacity requirements in order to minimise operational problems and congestion from forming within the tunnel. Any management of the Wellington Street on-ramp must be tied to the operational conditions within the VPT.

The VPT has an operational capacity of 5400 vehicles per hour, both from a traffic operations and fire protection safety perspective. Currently the peak flows are approximately 5000 vehicles per hour during the PM peak period. This leaves a remaining capacity for approximately 400 vehicles per hour or 7%.

It is envisaged that the Port / SH16 northbound on-ramp (also known as 'Motorway to Motorway' or M2M) should be servicing as many vehicles as possible to move traffic from the City Centre around to the north via the motorway rather than the local road network. The SH16 northbound on-ramp is located 350m upstream of the Wellington Street on-ramp. Therefore, the joint management of the SH16 merge and the Wellington Street on-ramp is critical for the safe and efficient operation of the VPT.

The available capacity of the Wellington Street on-ramp is based on an assessment of the other higher priority flows entering the motorway upstream, with the balance being available for the Wellington Street on-ramp. Figure 8 below shows that in the critical PM peak period the SH1 approach volumes (i.e. the amount of traffic heading into the VPT) is close to the maximum allowable threshold, whilst at other times of the day, there is plenty of available capacity.

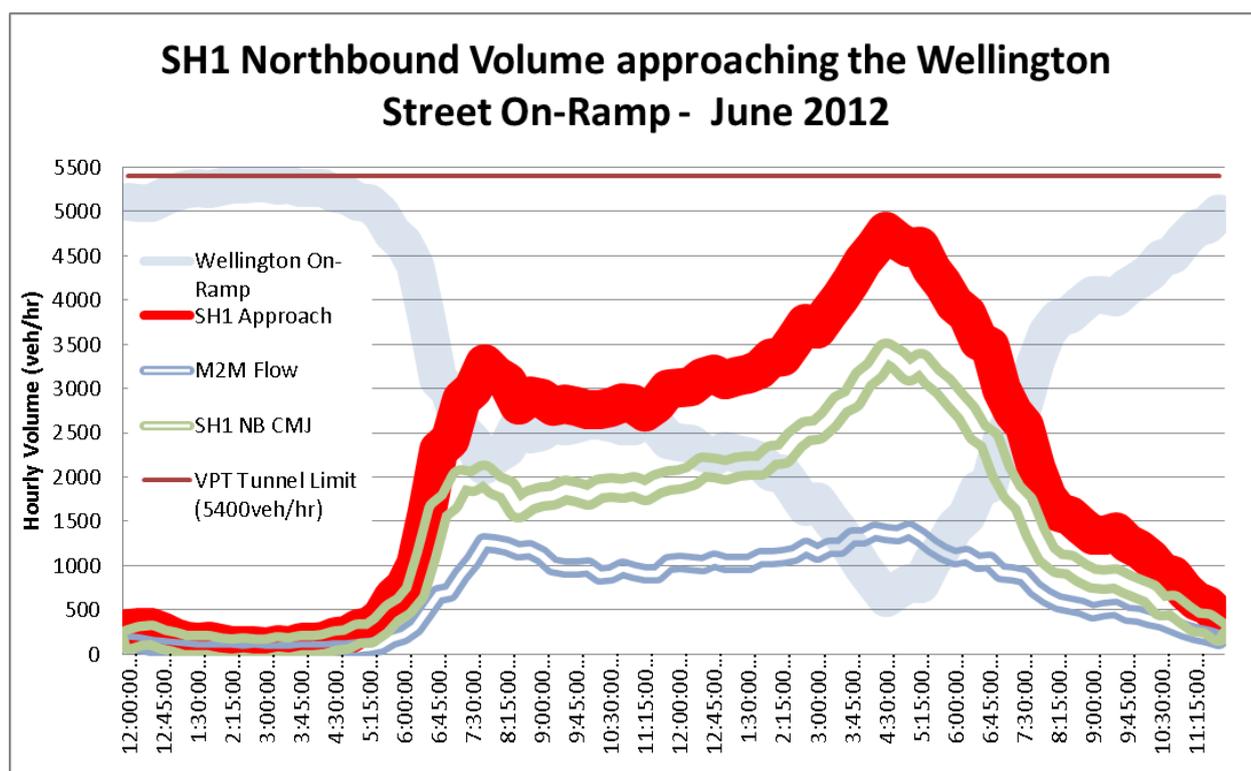


Figure 8 – Motorway capacities at the Wellington Street merge in 2012

5.5.2 Accessibility through the network

An assessment of access to the motorway from surrounding areas was modelled with the VPT complete and the Wellington Street on-ramp remaining closed. The model assessed the geographic areas most physically impacted by the closure of the Wellington Street on-ramp. A scenario with the Wellington Street on-ramp open versus the on-ramp closed was assessed in the traffic model on a number of different measures including:

- Additional travel time;
- Additional travel distance; and
- Number of vehicles affected.

The analysis indicates that the majority of the users who will have to spend additional *time* travelling because of the closure of the Wellington Street on-ramp are located throughout the immediate adjacent areas of Ponsonby, upper city centre, Eden Terrace and Freeman's Bay. Those in the Eden Terrace and northern Sandringham areas are the most affected by increases in travel distance to access the motorway.

Other areas, such as Herne Bay, show that there are minimal changes to either the additional distance or additional time associated with the Wellington Street on-ramp closure. This is because other on-ramps are available as alternatives.

5.6 Identified local network issues and suggested improvements

The traffic conditions in the study area were reviewed to understand the effects of current traffic demands on the local street network. Based on the changes in the network associated with the completion of the VPT, there are places on the network which may require improvements and monitoring to optimise traffic flows.

On the current network (with Wellington Street on-ramp closed)

- **Wellington Street – Franklin Road:** The traffic flow with the ramp closed can be very heavy making it difficult to turn right from Wellington Street onto Franklin Road. The flow at the intersection could be monitored to determine whether a traffic signal could provide a safer type of intersection control for vehicles and pedestrians, and to better manage flows.
- **Victoria Street – Beaumont Street:** The right-turn from Victoria Street to Beaumont Street has become a popular option for drivers with the Wellington on-ramp closed. It may be desirable that the signal timings be checked to provide sufficient green time maximums to manage this demand.
- **The Cook Street to Nelson Street movement** should be reviewed to assess whether vehicle flows are travelling down Nelson Street to Fanshawe Street or travelling to Wellington Street. The capacity for the Cook Street to Nelson Street turn could be reviewed.

If Wellington Street on-ramp is re-opened

It is expected that a re-opening of the Wellington Street on-ramp will see a reversal of some of the additional flows shown in Figure 7. However, it is likely that a portion of those flows will remain on the routes in Figure 7 due to driver behaviour responding to the improvements on the network following the completion of the VPT. The opening of the Wellington Street on-ramp will bring additional changes to the network.

- **Wellington Street Corridor:** The corridor will likely experience queuing and congestion during the PM peak period with demands likely to exceed the ramp signal capacity at the on-ramp. This in effect would be similar to the congestion and queuing experienced when Wellington Street on-ramp was open prior to the VPT. The queuing and related signal timings will have to be monitored to minimise effects further upstream and downstream (i.e. in local streets).
- **Pedestrian protection and phasing at the Wellington Street on-ramp** signal could be reviewed in liaison with the Freeman's Bay Primary School.

Potential network opportunities (irrespective of opening or closing)

In addition to the issues above, the following issues unrelated to Wellington Street on-ramp were noted:

- **Curran Street:** The PM peak period is generally constrained northbound because of the motorway on-ramp. The speed at the bottom of the hill was identified as an issue given an overall high degree of pedestrian and cycle demand along Sarsfield Street, crossing Curran Street. Destinations include Westhaven cycle path, and Point Erin pools. It was noted that it would be desirable to have additional pedestrian facilities at the Curran Street – Sarsfield Street intersection, with no pedestrian ramps, tactiles, and mid-block refuges in place currently.

5.7 Management of the Wellington Street on-ramp itself

5.7.1 Future Flows and Operations at the Wellington On-ramp Merge

The available capacity during the PM peak for the Wellington Street on-ramp is anticipated to decrease over time as future motorway flows continue to grow, including additional traffic flow through the Port / SH16 northbound on-ramp (also known as M2M). It is envisaged that by 2016 the Port / SH16 northbound on-ramp will be fully utilised during the PM peak (up to 1,800 veh per hour), reducing the available capacity at Wellington Street on-ramp.

The future flows on the network will be subject to a number of influences including the completion of the SH20 – Western Ring Route, continued improvement to the public transport network, and general growth in population and travel affecting motorway demand.

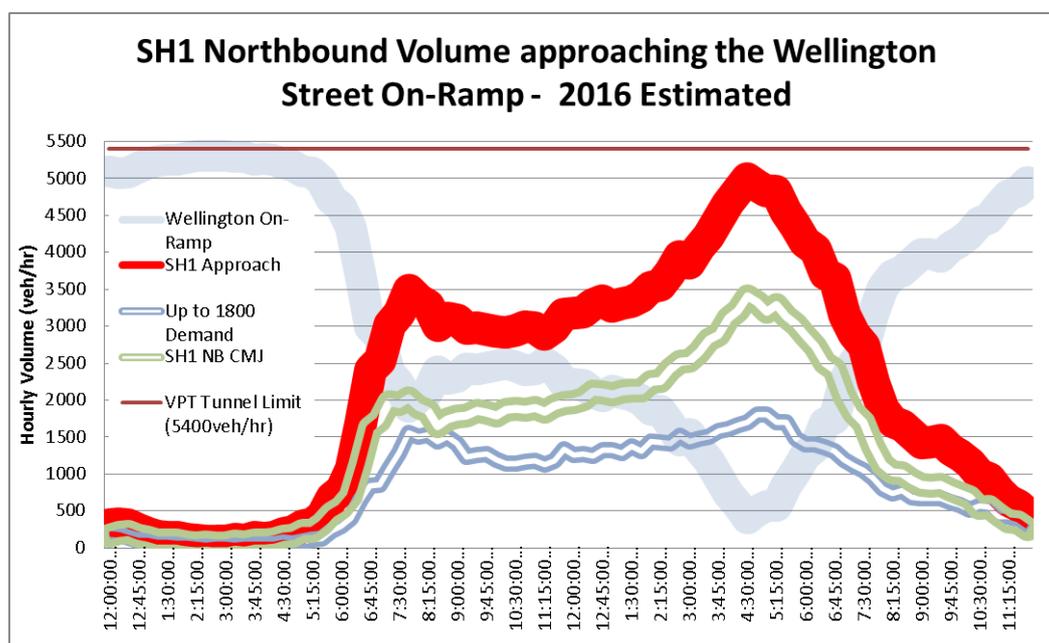


Figure 9 – Motorway capacities at the Wellington Street merge in 2016

Figure 9 shows that by 2016, in the critical PM peak period, the total SH1 approach volumes (i.e. the amount of traffic heading into the VPT) is expected to be virtually at the maximum allowable threshold. This clearly means the ranges in future flows will have to be monitored to determine the management philosophy of the Wellington Street on-ramp in order to maintain the 5,400 vehicles per hour operational threshold in the VPT.

5.8 Transport findings

The transport analysis has considered the transportation network changes associated with the closure of the Wellington Street on-ramp and has made the following findings:

- Prior to VPT the Wellington Street on-ramp served between 7,000 and 8,000 vehicles per day, predominately from the Freemans Bay, upper City Centre, and Eden Terrace catchments. The Victoria Park Viaduct had flows just over 50,000 vehicles per day.
- The successful operation of the tunnel is critical to the efficient operation of a significant part of the Auckland network including the critical northbound SH1 entrance to the Auckland city accessing SH16 west, SH16 east to the port, SH1 to points north, the City Centre, the motorway network and local roads that feed into this network.
- The Wellington Street on-ramp has the potential to significantly impact the motorway flows and operations within the merge area along SH1, particularly acute during the PM peak period;
- The Wellington Street on-ramp closure is estimated to have increased daily flows on the following routes: Beaumont Street (approximately 3,500 vpd, 58%), Curran Street (approximately 1,500 vpd, 18%), Fanshawe Street (approximately 3,000 vpd, 21%), Franklin Road (approximately 1,800 vpd, 26%) , Victoria Street (approximately 2,500 vpd, 40%), and Wellington Street (approximately 1,800 vpd, 23%);
- The impacts on motorway accessibility of the Wellington Street on-ramp closure were found to be primarily in and around the Freemans Bay and Franklin Road corridor with increases in traffic flows en route to the Fanshawe Street on-ramp. Areas of Eden Terrace and the Upper City Centre were the most affected with increased travel time and/or distance to points north. The impacts within the wider areas were found to be minor;
- Currently, there is capacity available on the motorway to accommodate the Wellington Street on-ramp traffic outside of the weekday PM peak period. During the PM peak period there is currently approximately 400 vehicles per hour capacity for the Wellington Street on-ramp. This is less than the expected demand for the ramp during PM peak times, which would result in queues along Wellington Street and in the immediate vicinity during the PM peak period (similar to pre-VPT conditions);
- It is envisaged that there will be increased use of the SH16 Port Link to minimise cross city traffic. This will further reduce the available capacity for the Wellington Street on-ramp, especially at PM peak times, requiring additional management and reduction in the on-ramp flow;
- On-going monitoring of the motorway flows and operation as well as the local network effects should be reviewed on an annual basis to identify future risks and operational issues before they arise; and
- If the State Highway motorway operations begin to be impacted in the study area, a wider network performance and management review will be necessary to assess potential future changes in order to maintain safe and efficient flows along the strategic road network.

5.9 Transport conclusions

There is current available capacity on the motorway network to open the Wellington Street on-ramp subject to significant management of the on-ramp flows during the weekday PM peak period, similar to pre-VPT levels.

There would be benefits to a number of local streets if Wellington Street on-ramp was re-opened, including reduced flows and improved accessibility. However, during the PM peak period, the road network within the immediate vicinity of the on-ramp is likely to experience queuing and congestion similar to the pre-VPT conditions.

The available capacity of the Wellington St on-ramp is expected to reduce over time as a consequence of growth on the Auckland transport network and increased usage of the SH16 Port link. This will require further management of the on-ramp or wider network solutions to prevent significant disruption to the motorway operations. These solutions could include:

- Constraining either or both of the north facing SH16 on-ramps;
- Part-time operation of the Wellington Street on-ramp with PM peak closures;
- Full time closure on the ramp;
- Sacrifice performance of SH1; or
- Additional infrastructure.

Monitoring and regular reviews are recommended to inform the on-going management of the on-ramp.

6 Evaluation process

The transport analysis has identified that there is capacity in the PM Peak for approximately 400 vehicles per hour to enter the motorway from the Wellington Street on-ramp without unduly compromising the efficiency of the motorway. This is more capacity than existed pre-VPT opening.

The feedback from the community has indicated that a majority would like the Wellington street on-ramp to re-open.

In response to the traffic findings and community feedback, the working group recommend that the Wellington Street on-ramp be re-opened. The working group also acknowledged that the on-ramp would require on-going management to maintain the safe and efficient operation of the motorway network.

The working group noted that, through the engagement process, a number of suggestions for better managing traffic flows, safety and associated amenity improvements for the area were identified by the community. It was recommended that these be further investigated.

7 Recommendation made

As a result of the findings of the transport analysis, community engagement responses and review process, the project working group recommended the following:

- Open Wellington Street on-ramp with constrained flows in the PM peak;
- Recognise existing performance of the Wellington Street on-ramp is unsustainable in the long-term if the Wellington Street on-ramp is re-opened;
- Monitor Wellington Street on-ramp, SH1 and local road performance into the future;
- Identify opportunities for network wide solutions in the future; and
- Undertake annual reporting back to the public on efficiency of the “one network”.

These recommendations were endorsed by the NZTA and AT senior management at a meeting on 31 July 2012.

8 Next steps

The findings and recommendations of the review will be made available for public comment until the end of August 2012 – commencing during the week beginning 6 August 2012.

Any feedback received during this stage will be reviewed and taken into account where appropriate in the making of a final decision.

The NZTA and AT will review the identified local road issues and investigate appropriate treatment measures.

A final decision will be released and communicated during September 2012.