USING FOCUS GROUPS TO SOLVE A CYCLING MYSTERY

Josephine Draper
BSc Geography (Hons)
MSc Transport Planning and Traffic Engineering
Associate Member, IPENZ
Secretary, IPENZ Transportation Group, Central Branch
Principal Transport Planner, NZ Transport Agency
Josephine.draper@nzta.govt.nz

ABSTRACT

The 5km Ngauranga to Petone section of State Highway Two (SH2) is the only direct connection between Wellington and the Hutt Valley. In this location SH2 is a 100kph, dual lane median divided carriageway which is an important commuter route for motorists, public transport users and cyclists. The NZTA plans to increase cycle safety and use along this route through improved infrastructure. It is currently used by over 400 cyclists daily who are forced to use the highway shoulder for at least part of their journey. A southbound off-road cycleway exists for part of the route, but around 97% of cyclists do not use the existing cycleway, even where it is available.

To better scope out its future work, noting the poor usage of the existing cycleway, the NZTA facilitated focus groups with existing and potential cyclists who have an interest in this route. The focus group technique was fundamental in engaging NZTA's existing and potential customers and utilising direct user experience. Key findings affecting the future scope of works included the conclusion that the ongoing focus should be for provision for cycling both on and off-road, not one or the other, and the need to investigate suppressed demand.

INTRODUCTION

Objective

To better understand the motivations behind cyclist behaviour on the Ngauranga to Petone corridor in order to scope out the eventual Ngauranga to Petone cycleway project.

Overview of Situation

Linking Wellington City and the Hutt Valley is a transport corridor around 5km in length which traverses a narrow coastal strip between the Wellington escarpment (also the Wellington Fault) and Wellington Harbour. This coastal strip accommodates four lanes of SH2, the Hutt Valley rail line, the Ngauranga to Petone cycleway (in part), and coastal defences. Historically this coastal strip flooded at high tide until the 1855 earthquake raised the level of the land. The sheer walls of the Wellington escarpment on one side and the Wellington Harbour on the other mean that land available is limited and is prone to slips which often block the road. Significantly, between Ngauranga and Petone, the nearest alternative route would involve a diversion via SH1 to Pauahatahanui and along SH58 of approximately 45km.

The study area is illustrated in Figure 1 below.

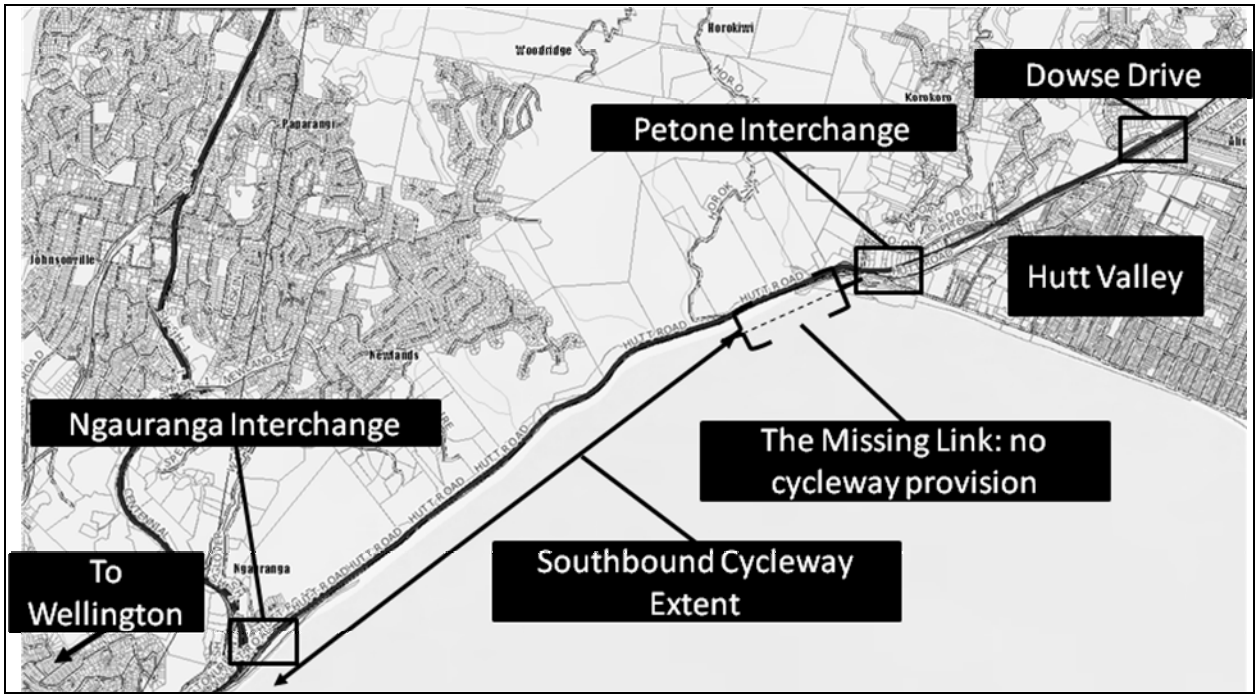

Figure 1 Location Plan

The route between Wellington City and the Hutt Valley is a popular one for commuter journeys and these are accommodated by road, rail and a small number by bicycle. North of Petone stretches the Hutt Valley, while to the south of Ngauranga is a further 5km stretch to the major employment hub of Wellington City, where most commuters terminate their journey.

SH2 between Ngauranga and Petone is a four lane, median divided carriageway with a 100kph speed limit. It accommodates around 33,000 vehicles per day, including a flow of over 400 cyclists per day. It is not a motorway, as there is no alternative route available, meaning that all road users, including pedestrians and cyclists may use it.

For the majority of the study area an off-road cycleway is available between SH2 and the rail corridor adjacent to the southbound lanes. However, north of the Horokiwi intersection the cycleway does not exist (Figure 1). North of this point cyclists (and pedestrians) are forced to use the highway shoulder. There is no other land available for cyclists or pedestrians to use as the corridor also accommodates the rail corridor, and apart from the obvious danger of pedestrians or cyclists using a rail corridor, using this land would be considered trespassing.

For this reason, As anyone using the cycleway northbound is forced to travel north against the flow of traffic in the southbound shoulder from Horokiwi to Petone, the cycleway is intended to be used southbound only, with signage at the terminus at Ngauranga indicating that it should not be used in a northbound direction. Despite this, the cycleway is used in a northbound direction by a small numbers of pedestrians and cyclists, who are then forced to walk or cycle northbound in the southbound shoulder between Horokiwi and Petone, a distance of some 800m.

The cycleway varies in width from about 1.3m to 3.6m wide and is bordered by native plants and a wire rope barrier between the cycleway and the SH2 shoulder. The cycleway pavement is of variable quality and is known to collect both rainwater in the uneven surface and swept debris from SH2. Because of the narrowness of the cycleway, maintenance and sweeping is challenging. Figures 2, 3 and 4 illustrate sections of the coastal strip, including the cycleway between road and rail and the northern boundary of the cycleway beyond which only shoulder is available.

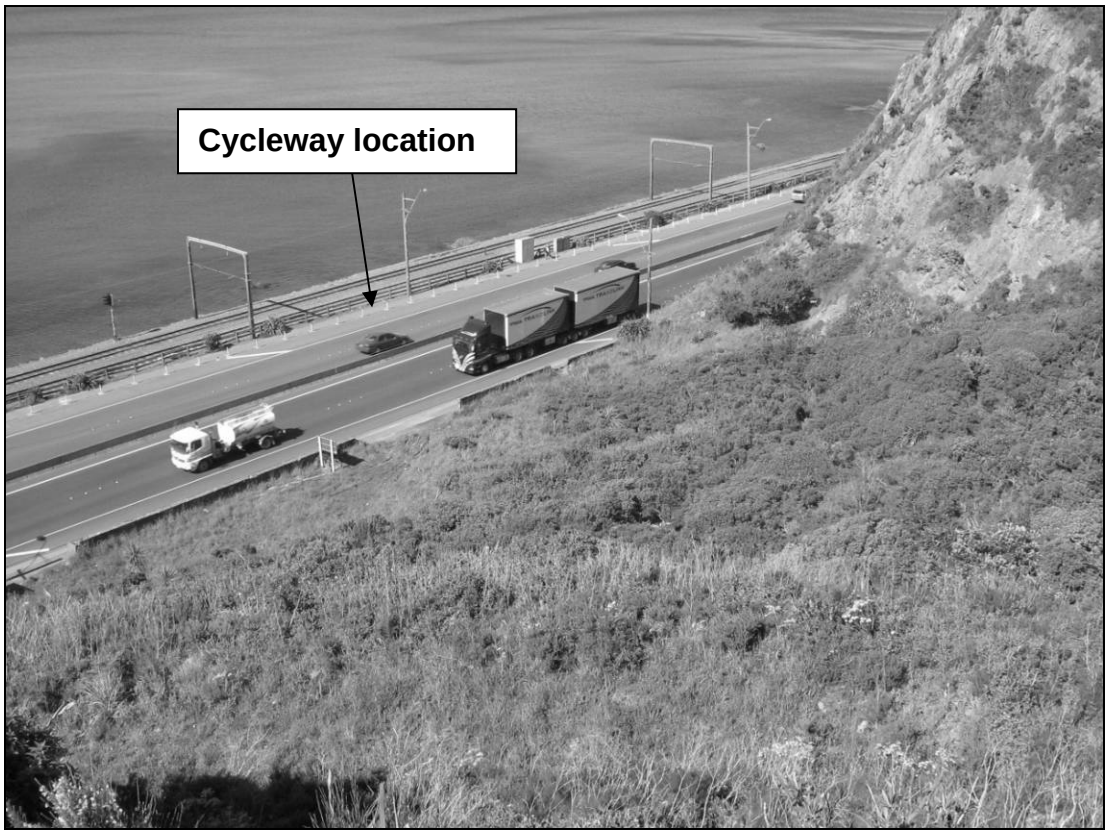

Figure 2 Petone to Ngauranga Coastal Strip indicating cycleway

Figure 3 Southbound Cycleway and Highway Shoulder

Figure 4 Northern Boundary of Cycleway

Austroads (2009) guidance is that a two way cycleway (noting that this cycleway is one way) should be an absolute minimum of 2.6m wide, being 2m in width plus 0.3m clearance either side. It therefore follows that the cycleway would not meet minimum width standards in all locations should it be used in a two way direction.

Previous Work

Previous studies (Opus (2006) and SKM,(2009)) have identified a project which involves the reclamation of 800m of land between Petone and Horokiwi on the seaward side of the rail line, and a bridge over rail to connect with the existing southbound cycleway, which would be upgraded and widened where possible in order to provide a continuous two way cycleway between Petone and Ngauranga. Previous investigations identified a cost of around $15.45m, benefits of $42.06m and therefore a BCR for the project of around 2.85, which has led to the project being included in the 2012-15 National Land Transport Programme (NLTP). The methodology used to calculate benefits is based on McDonald et al (2007) in the LTNZ research report 340, and assumes a transfer of 50% of existing cyclists from the SH2 shoulder to the new facility, plus growth of 4.75% per annum (SKM, 2010).

Locally this project is high profile, and was the item most submitted upon in the Hutt Corridor Plan Review in 2011, indicating the high level of involvement and interest of the local population in cycling issues in general, and this project in particular.

Other background work undertaken involved surveying the corridor to identify its width, and video counts of cyclist use of the corridor. This indicated that while around 400 cyclists a day use the corridor, up to 97% of these do not use the cycleway. However, almost every day a small number of cyclists (and pedestrians) use the cycleway both northbound and southbound (despite the presence of signage indicating that the cycleway is southbound only), which suggests that even in its inadequate form, it is still useful to some users.

It was also observed from the video data that 60% cyclists access or egress the corridor from the Petone interchange, while 40% come from or continue north on SH2 under the Petone overbridge.

The Problem

It is clear from observed data that the cycleway in its current form is not serving the needs of the cycling public, since it is used by only around 3% of cyclists.
A number of different issues with the cycleway have been previously identified by current users of the corridor. The problem the project team faced was ***not knowing which of these were the reason(s) for its poor usage*****.** Without adequate knowledge of the reasons why the cycleway is poorly used, there is a danger that any future solution would perpetuate current problems experienced by the cycleway, not serve the needs of the cyclists, and that it would not be well used.

While a previous study (Opus, 2006 had identified some issues on the cycleway which were factors influencing poor usage, such as the narrowness of the corridor, poor sweeping and drainage, and the fact that the cycleway was not continuous, there was no clear indicator of the key deciding factors or if it was instead the cumulative effect of numerous factors which was at fault. In addition, some issues, such as connectivity of the route to neighbouring urban areas had never been explored.

The Solution

The initial piece of work undertaken was a simple 14 question internet survey. This was disseminated via mailing lists of Cycle Aware Wellington, a local pressure group, following a briefing to one of their meetings, and resulted in 708 responses in two weeks. This was a sample set biased towards existing users, since the survey aimed to identify the trends and motivations behind use of the existing corridor and cycleway, which required a sample set of familiar users. Key findings from the internet survey backed up count data, suggesting limited usage of the cycleway at 18% as compared with 82% on road, although clearly the survey picked up an irregular occasional cyclist user population which explains the higher usage than the video count data suggests. The survey also asked why the cycleway was not used, and reasons cited were:

- Poor maintenance
- Poor surface quality
- Cycleway too narrow
- Cycleway does not allow maintenance of a high continuous speed
- Cycleway prone to flooding
- Cycleway poorly lit

The findings of the survey correlated closely with Opus' previous work with members of cycle groups.

There was strong support in the survey for continuous cycleway provision, with 76% of respondents indicating that they would cycle more if a continuous cycleway were provided. While this is interesting, it was difficult to identify caveats to this answer in a short form survey. To resolve the problem of knowledge gap, what the project team needed to find were the caveats to the statement that cyclists would use a continuous cycleway if provided.

The survey also asked if the respondents would be interested in participating in a focus group, and these responses were used to formulate focus groups.

Methodology of Focus Groups

The respondents targeted for focus groups were intended to be a mixture of regular and irregular cyclists and those who did not currently cycle the route at all. Four evening groups were held, two in Petone and two in Wellington with the intention of holding one group of maximum 10 participants for non-cyclists or irregular cyclists and one for regular cyclists in each location. In practice, there were far fewer irregular than regular cyclists in the contact list and there were insufficient numbers to fill the "non-cyclist" group with completely non cyclists, so it was necessary to bolster this group with irregular cyclists.

Of the 33 who attended 18, or just over half, could be considered to be less confident (based upon their responses to questions about usage in both the internet survey and during focus groups) and 17 could be considered to be confident, regular cyclists. It should therefore be noted that this focus group sample is skewed towards less confident cyclists, as compared with the internet survey. In the internet survey 82% of those who cycle the route did not use the cycleway and can therefore be considered to be relatively confident cyclists as opposed to around 50% of the focus group sample.

The focus groups were held in the Wellington NZTA office and in a hired venue (above a pub) in Petone. Snack food was provided and the participants were also offered a reward ($50 cinema voucher) for their participation.
The basic format for the focus groups was as follows:

- Introductions
- Basic questionnaire
- Talk through cycle journey on the route noting issues and concerns
- Talk through presented scenarios

The data collection for the events was based around a stated preference exercise whereby participants were asked to visualise a cycling journey between the Hutt Valley and Wellington. For regular cyclists, this would be their commute; for others they would need to identify a journey that they could potentially make. They were then asked to identify what route they would currently use between point A (their personal journey start) and point B (their personal journey end), and what route they would use in each of a number of different future scenarios where a different cycling facility was constructed.

The group were presented with seven different scenarios, illustrated in a series of images with illustrations of the routes possible in each location. Figure 5 shows the Petone Interchange and current and potential connections in this location.

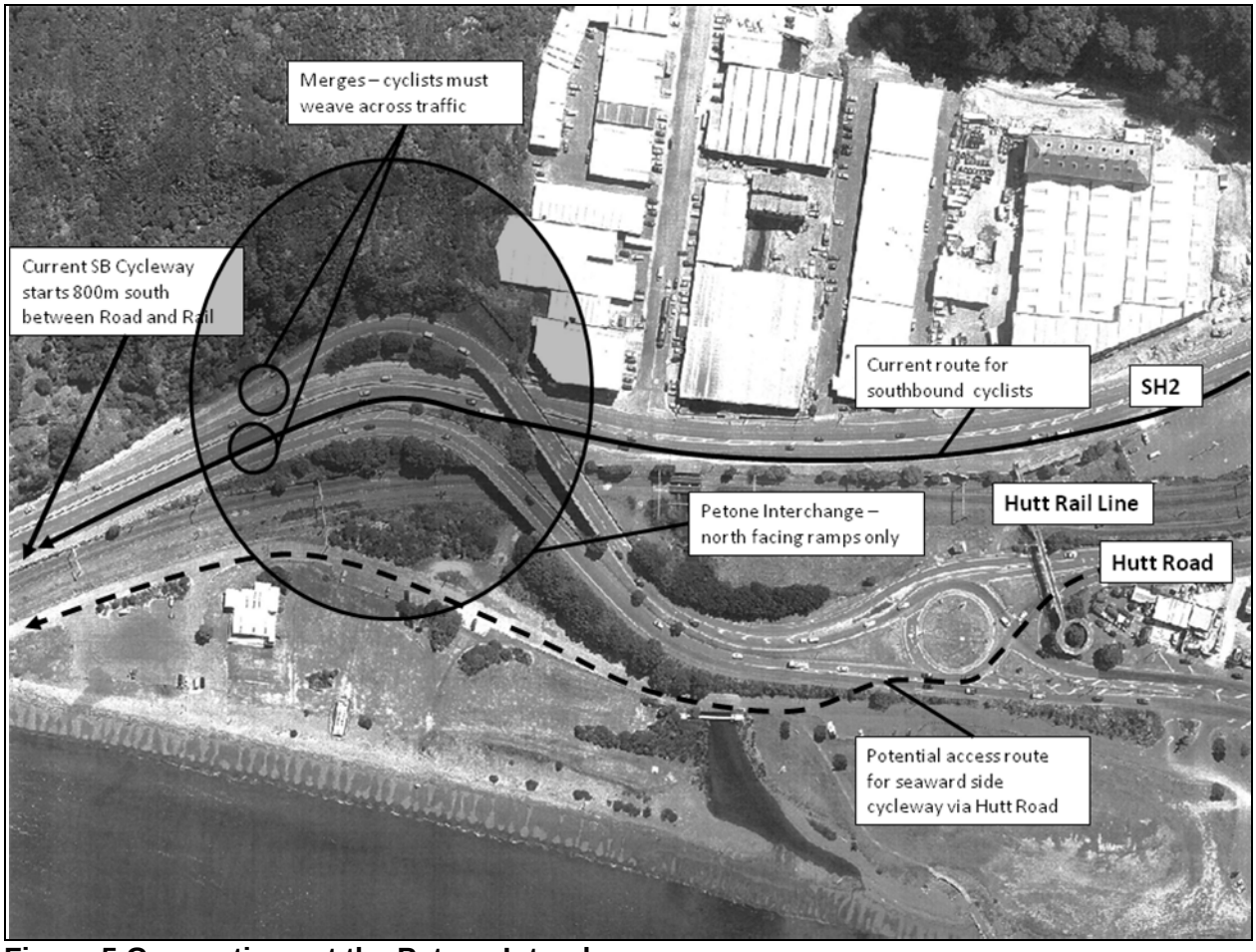

Figure 5 Connections at the Petone Interchange

The seven scenarios are described below:

Scenario 1: Current Situation

Scenario 2: A fenced 2.6m NB /SB cycleway between Ngauranga and Petone between road and rail. Part of the existing shoulder would have to be taken to achieve this width of cycleway. Northbound cyclists on the new cycleway wanting to access an area north of Dowse would have to continue north on the Hutt Road as there is no northbound access to SH2 at Petone.

Scenario 3: Around 800m of reclamation to the south of Petone forming a new 3m wide two-way cycleway/walkway, and a bridge/crossing over rail connecting the new cycleway with the existing (but upgraded) cycleway south of Horokiwi to form a continuous two-way route.

Scenario 4: Reclaiming a strip of land on the seaward side of the rail line allowing for a 3 metre wide cycleway/walkway to be constructed. This would need to be accessed/egressed via the Hutt Road to the north and a crossing of the rail line would be required at Ngauranga to connect back up with the Hutt Road.

Scenario 5: A segregated 2 way cycleway/walkway which stays on the road side of the rail line by tunnelling through the bank under the Petone overbridge. This means that northbound cyclists could continue north adjacent to SH2 before rejoining the state highway at an unspecified point north of Petone.

Scenario 6: As Scenario 4 but with a new Petone Interchange allowing access to a cycleway from Petone.

Scenario 7: As Scenario 5 but with a new Petone Interchange allowing access to a cycleway from Petone.

Images of the scenarios are given below in Figure 6.

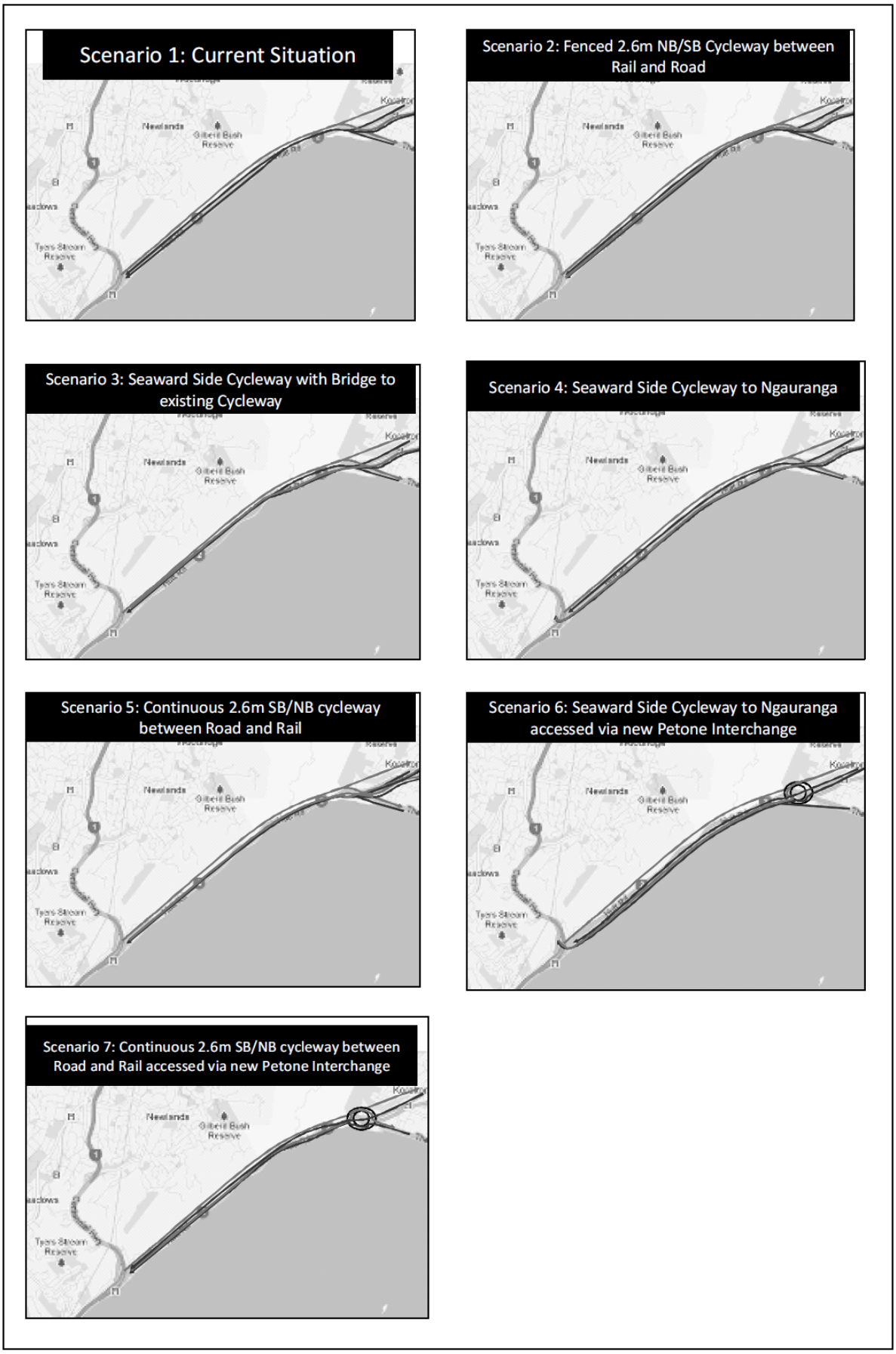

Figure 6 Focus Group Scenarios

The respondents were given worksheets to fill out indicating what choice of route they would make in each scenario and their comments on the scenarios. A worked example is given below.

Origin			Kelson						
Destination			Wellington CBD	Would this scenario make you change your route choice? (describe how if so) Would this scenario make your journey (whether or not you change your route) faster, slower, safer, more dangerous, or no change? (describe how if so)					
Scenario			1 (Existing)	2	3	4	5	6	7
Dowse	NB	Route	SH2	Would use cycleway sb from Petone. But then not the cycleway south of Horokiwi. Would make journey safer, probably a bit slower though.	Wouldn't change journey, Because would have to exit SH2 at Dowse. Would have no impact on my journey.	Wouldn't change journey, because would have to exit SH2 at Dowse. Would have no impact on my journey.	Would use cycleway SB only. Would make journey safer, but a bit slower. No change NB.	Wouldn't change journey because would have to navigate roundabout, would be dangerous.	Would use cycleway SB. Possibly NB too but don't like the idea of going round roundabout to get back onto SH2. Would make journey slower but safer.
	SB	Route	SH2						
Petone	NB	Route	SH2						
	SB	Route	SH2						
Horokiwi	NB	Route	SH2						
	SB	Route	SH2						
Ngauranga	NB	Route	SH2						
	SB	Route	SH2						
Why not using cycleway ? (1 main reason)			Too much rubbish		Need to go down Hutt Road	Need to go down Hutt Road		Roundabout	

Figure 7 Worked Example of Focus Group Feedback Sheet

The scenarios were chosen specifically with a view to identifying key factors which influence choice. We were particularly interested in the influence that the road connections at either end of the cycleway had on choice, and two of the scenarios (6 and 7) compared the current situation (with northbound access/egress only at Petone) against a future scenario where the interchange is reconstructed allowing full access.[1] Full access at Petone would mean that cyclists coming from or to north of Petone would be able to stay on SH2 until Petone before exiting the state highway to enter an off road cycleway, as opposed to now, where to access a seaward side cycleway, cyclists would have to egress some 2km north of Petone and navigate a route along the Hutt Road, a local distributor with frequent side access points, parking and side friction (see Figure 5).

In addition to their feedback on theoretical scenarios, cyclists were also encouraged to talk about and comment on their experiences cycling on the corridor. These comments were separately recorded by the facilitators of the focus groups.

KEY FINDINGS FOR PROJECT

Types of Cyclists

[1] The reconstruction of the Petone Interchange is a part of a separate NZTA project, the Petone to Grenada Link Road which is currently scheduled for construction start in 2019.

In common with the Opus study (2006),the focus group work indicated that there are two (or more) very distinct groups of cyclists using the corridor. The divergent nature of the two groups shaped the responses received and were fundamental to the conclusions reached.

The majority of those using the Petone to Ngauranga corridor for cycling are confident, regular cyclists who cycle at high speed on lightweight road bikes for commuting or sporting purposes. This group is both confident cycling on the corridor, and relatively content with their journey. In fact, most comments related to issues not within the study area (for example, narrow shoulders north of the study area at Melling). This group's main concern with cycling in the study area is the need to navigate merges and diverges, notably at Petone and Ngauranga. This is a difficult manoeuvre when mixing with faster moving motorised traffic and many cyclists stop completely to cross the traffic flow rather than attempt to merge smoothly (although note the comments about clipping in amongst some cyclists under "Interim Scheme".).

There is however, another group who either use the corridor infrequently, or do not use it at all, mainly due to safety fears. For this less confident group cycling alongside fast moving traffic is very challenging and the merges and diverges become a terrifying obstacle to the extent that some will not continue north at Petone because this would necessitate navigating the diverge.

Impact of Journey Length

Of our focus group sample 15 of the 33 currently use the cycleway at least southbound. One respondent uses it northbound also. This is in sharp contrast to surveys undertaken of the route which indicate that up to 97% of cyclists use the shoulder as opposed to the cycleway, but reflects the selective nature of our survey group which featured a number of less confident cyclists.

Half of our group had journey origins north of Dowse Drive, but of those 15 who use the cycleway, only one came from north of Dowse. The conclusion to be drawn is that the cycleway is of limited attractiveness to those making longer cycle journeys or who have to navigate the merge and diverge at Petone. It appears that for a cyclist confident enough to make a relatively long journey on SH2 the cycleway would not be an attractive option.

Feedback on Scenarios

Scenario 3 (partial reclamation to the seaward side and bridge over rail to cycleway) is among the least supported of the scenarios (17 of 33 respondents stated they would use it in both directions) although there is widespread support for it, particularly among less confident cyclists. Those not supporting it tended also not to support Scenario 4. The focus group comments suggest that reasons for not using this scenario were the extra time required to navigate it and the need to use the Hutt Road to continue a journey further north. For example, one person noted: "Would not use southbound, if had to go onto Hutt Road to access. Too much extra time".

Scenario 4, the seaward side cycleway is attractive from a lifestyle, rather than a commuting point of view. While it was generally attractive to less confident cyclists, concerns about this scenario tended to be from more confident cyclists who feared that it would be a victim of its own success due to being attractive to groups other than cyclists (for example, runners, those fishing or family groups) and could become

too congested for commuter cycling speeds to be achieved. One person commented: “the concern with Great Harbour Way is the mixing pedestrians/runners/dogs etc. with 2 way cycling traffic”.

Scenarios 6 and 7 were readily comparable with Scenarios 4 and 5 and indicated that with a full access interchange in place of the current limited access Petone interchange, an off-road cycleway would become more attractive since its connectivity would be better. However, cyclists were concerned that navigating a roundabout would replace one danger with another and that ultimately most would continue to use the highway shoulder in preference to navigating a roundabout to access an off-road cycleway. In summary, though, 29 of 33 respondents indicated that these options would be attractive to them.

A comment thread running through scenarios was the influence of journey time on route choice. Often the reason given for not using a cycleway in a scenario was speed. One group commented when asked what they would build, if money were no object: “a motorway for cyclists - this is what all cyclists want: wide, flat cycleway, easy on, easy off”. Many cyclists were concerned that any off-road cycleway (and particularly a two way cycleway) would not be wide enough to perform an overtaking manoeuvre at speed.

Confident cyclists also feared that provision of a facility creates an expectation that it should be used. If cyclists do not use it (because it is inadequate), there is a potential risk of motorist backlash against cyclists who utilise road shoulders when an off-road facility is available.

In contrast, less confident cyclists reported that “anything is better than nothing”, that separation of cyclists and motorised traffic would be welcome and that they would use any off-road facility. It is also worth noting that only one respondent (a confident, long distance cyclist) said that nothing would make them shift from the highway shoulder; suggesting that it is possible to create a scheme attractive to almost any type of cyclist, given the right conditions and investment.

Interim Scheme

The NZTA also used the focus group to float the concept of a short-term low-cost solution to the problem of lack of cycle connectivity. This involves constructing some form of indicative separation from traffic between Ngauranga and Horokiwi by taking most of the southbound shoulder. This would mean that cyclists would then be able to use a segregated two-way cycleway all the way from Ngauranga to Petone.

Less confident cyclists tended to welcome the idea noting it was “better than nothing” and that they would certainly use it.

However, many confident cyclists indicated that they would not use the facility at all, even southbound, for the following reasons:

- it might collect debris if not properly maintained.
- might be too narrow for overtaking.
- might have a barrier the wrong height.
- would be unsuitable for bunch riding.
- might mean coming face-to-face with a cyclist in the opposite direction.

Other concerns about the interim scheme related to the gap to be left between the southbound merge and the segregated area for access. It was suggested that confident cyclists (and particularly those clipped in to pedals) would not stop and wait

at the merge area for a gap to cross the Petone Esplanade on-slip, but would instead cycle between the two merging lanes until they can cross to the left hand side. These cyclists would require a gap of up to 100m to allow this behaviour to continue or they would likely utilise the SH lanes outside the segregated area.

The suggestion that the facility would not be used is a concern as the scheme would take most of the southbound shoulder. By not using the segregated area, cyclists would be forced into the live southbound traffic lane, potentially increasing conflict.

In conclusion, there is limited support for this option. A general impression was that while a small number of people would support it, a larger group of existing users would be significantly disadvantaged by it. The focus group work allowed NZTA to decide not to progress this concept further.

CONCLUSIONS

The Significance of Speed

If we consider that any cyclist currently using the route to commute must be reasonably confident, since they must ride on a highway shoulder alongside fast moving heavy traffic, clearly safety is not a likely motivator for those cyclists to move to another facility. Speed must be the key factor. Those cyclists who are motivated by safety are (as a rule) not actually cycling between Wellington and Petone at all at present and it is this dichotomy which forms the two fundamental conclusions of this piece of work:

1. The ability to achieve similar, reliable speeds to those currently achievable on the SH shoulder is the only factor which will encourage current confident cyclists to shift to an off-road cycleway
2. There is an as-yet unquantified group of potential cyclists who will not cycle between Wellington and the Hutt Valley at present. These cyclists will only cycle if a safe, off road facility is constructed.

Accepting conclusions 1 and 2, the NZTA is left with a question which will influence the future scope of work: with the $15.45 million available, can a facility be built which will both be sufficiently safe to attract suppressed demand, and also attract commuters off the SH shoulder?

The conclusion of the focus group exercise was that the premise behind the original business case is flawed, since commuter cyclists would be significantly delayed in using an off road facility which required egress at Dowse Drive and using a cycleway likely to be below minimum width and would not switch to a the cycleway once built.

However, the work also indicated the presence of a hitherto unknown “suppressed demand” group. The business case (SKM, 2010) assumed growth in this group of 4.75% per annum, which the focus group work suggests is an underestimate.

Overall, it is concluded that quantifying suppressed demand must be a focus for the next stage of work. In addition, with funding constraints limiting scheme scope, cyclists will continue to use the highway shoulder, so investigations should look at both how the journey on the highway shoulder can be improved, as well as trying to provide an off-road route.

Implications for Future Work

The sample set chosen was existing cyclists who had familiarity with the route. This group was chosen in order to be able to identify obstacles which existing cyclists perceived. As non-cyclists were not involved in the process, a next step would be to test out scenarios on non-cyclists living and working close to the study area who could be targeted as potential future users.

Cyclists were observed to be a very engaged group who were (through pre-selection) well aware of many of the issues in the corridor, partly due to the high profile of the project locally. There was a high attendance rate, and the group were generally well engaged in the conversation and wished to contribute. Amongst a different user group this level of engagement may not be achieved.

Despite the high level of engagement of the groups, there was an element of fatigue in some of the responses. A problem with this exercise was the challenging nature of trying to explain future scenarios. The engaged and interested nature of the groups helped, but nonetheless there is evidence in the response sheets that there was a misunderstanding of the future scenarios. This means that the accuracy of the data cannot be considered to be beyond doubt. Nonetheless, clear trends were observed.

Many of the comments made by participants about their journeys were also telling. It proved difficult to write a survey and ask the correct trigger questions which enable subtle trends to emerge. By enabling discussion, however, often the group would move to discuss an issue which had not been brought up before. For example, many groups raised concerns about onward connections to Wellington along Hutt Road, noting a number of safety and connectivity issues. These comments have contributed to discussions with Wellington City Council on their development plans for cycling on the Hutt Road.

Because the focus group work clearly identified at least two groups of users with divergent requirements, the recommendation from the exercise which is to be carried forward is to provide for less confident cyclists in order to encourage growth in new cycle commuters, while accepting that it is unlikely that a facility attractive to less confident cyclists will also be attractive for more confident cyclists. Therefore, investigations will also be made into improving the facilities for more confident cyclists who will continue to use the state highway, even after a continuous off-road cycleway is provided.

Previous work recommended off-road solutions on the assumption they would provide attractive access to all cyclists, but this exercise demonstrated that it would be challenging to provide one solution to fit all, particularly with a limited budget, and that a more prudent approach would be to address each group's needs separately

The biggest success of the exercise was in conveying to these stakeholders and road users that the NZTA is genuinely making an attempt to progress this project while taking on board the views of users. While the empirical data received is immensely valuable, it is the relationship building that will have the ongoing benefits to both parties. The ongoing collaborative relationship is the building block which will determine the success or failure of the project.

FURTHER READING

There is further information on the focus group exercise at NZTA's Ngauranga to Petone Cycleway web page:

http://www.nzta.govt.nz/network/projects/project.html?ID=215

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ACKNOWLEDGEMENTS

I would like to acknowledge the assistance of the following people:

Robert Addison, NZTA

Margaret Buttle, NZTA

Rowan Oliver, NZTA

Mike Seabourne, NZTA

Neil Trotter, NZTA