

Report pursuant to s42A Resource Management Act 1991

In the matter of:

A Notice of Requirement to construct, operate, use, maintain and improve approximately 11.5km of new State highway connection between Ashhurst and Woodville

And:

A hearing by Manawatū District Council, Palmerston North City Council and Tararua District Council pursuant to s102

Requiring Authority:

New Zealand Transport Agency

Hearing date:

4 April 2019

NJ-015652-992-151-V1:KZ-e



S42A Technical Evidence Addendum: Traffic and Transport

By: Harriet Fraser

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1 Scope

1. In this addendum I provide comment on the following:
 - a. positive traffic effects;
 - b. matters arising during the hearing;
 - c. ongoing traffic concerns; and
 - d. traffic related matters in the draft conditions.

2 Positive Traffic Effects

2. There has been some criticism from NZTA that I have not fully recognised the positive traffic effects associated with the Project. Due to the time constraints of this process, my main focus has been on the areas where I have traffic concerns with regard to the Project. In brief, I consider that the Project will deliver positive traffic effects including the following:
 - a. a more resilient transport route than either the previous route through the Gorge or the Saddle Road or Pahiatua Track;
 - b. reduced travel times between Ashhurst and Woodville, although I consider future congestion in Woodville will result in a reduction in the scale of this benefit for those travelling through central Woodville;
 - c. more reliable travel times between Ashhurst and Woodville, although again I consider that future congestion in Woodville could result in variable travel times at peak times, both daily peaks and holiday peaks;
 - d. improved and safer driving conditions for all vehicles and in particular for trucks as a result of the horizontal and vertical alignment of the indicative road design, along with the edge protection and median wire barrier;

- e. localised benefits for vulnerable road users as a result of the provision for vulnerable road users across the existing Ashhurst Bridge, a shared path between the existing Ashhurst Bridge and the access road to the Manawatu Gorge Scenic Reserve carpark and the provision of a shared path along SH3 in Woodville from Hampson Street to the proposed roundabout at Woodlands Road; and
 - f. safety and amenity benefits of reduced traffic flows on local roads including Salisbury Street, Saddle Road, Woodlands Road, Oxford Road, Pinfold Road and the Pahiatua Track. As detailed in my evidence in chief, with regard to safety gains for cyclists on both Saddle Road and the Pahiatua Track as a result of the Project, the reduced traffic volumes will reduce the exposure to risk for cyclists but will not in my view result in these routes being safe for cyclists, given the variable shoulder widths and vehicle speeds combined with the horizontal and vertical geometry of these routes.
3. As discussed further in following sections of this addendum, I continue to have concerns regarding the lack of recognition of adverse traffic effects resulting from the Project, both outside the proposed designation and as a result of not providing a safe system design for vulnerable road users along the Project itself.

3 Matters Arising During the Hearing

Road Safety Audit

4. The Detailed Business Case (DBC) Road Safety Audit including responses was tabled during the hearing. I had not previously seen this document because the version available in the DBC did not include the “responses”. The safety audit team raised a ‘significant’ concern with regard to the provision for cyclists along the Project route and recommended that *‘consideration be given to providing a high quality/ high speed off-road path separated from the highway or widen the shoulders in accordance with best practice’*.

5. Commissioner Mackinson has referred to the procedures followed in undertaking and responding to road safety audits. While there is some flexibility as to how one responds to a road safety audit, in my view as the degree of the concern of the safety audit team increases, the need for action to be taken in response to a recommendation increases.
6. With regard to the road safety audit, the concern regarding cyclist use of the shoulders was 'significant'. 'Serious' being the only higher level of concern. There is an expectation as set out in the NZTA Road Safety Audit Procedures for Projects Guidelines – Interim Release May 2013 that 'significant' concerns *'should be addressed and require changes to avoid serious safety consequences'*.
7. With regard to the DBC road safety audit the designer response was that the provision of best practice shoulder widths is considered excessive given that cyclist numbers are unknown and that the provision of a higher standard would be out of context with the balance of the network. The safety engineer in their response include that a separated facility would be out of context with the region and that the shoulder widths included in the Austroads Guides are for higher volumes of concerned cyclists and that in their view the provision of 1.5m shoulders with 0.5m clearance to the barriers is appropriate.
8. The "client decision" indicates that on-road cycling facilities will be considered at the detail design stage with "no change to the indicative design". The only change to the shoulder design since then has been the clarification by Mr Whaley through updated cross-sections that a 0.5m space previously identified as unsealed shoulder will be sealed.
9. I do not consider that the "responses" as shown in the audit show an adequate assessment of the recommended mitigations, particularly given the level of "significant" that was noted by the audit team. I maintain my criticisms of the level of assessment.

10. I also do not agree with the reasons given in the audit response that provision for cyclists elsewhere in the road network provides justification for providing a less than safe outcome for the Project route.
11. For reasons I have already given, I consider the shoulder width is inadequate notwithstanding the availability of other routes. I would also like to emphasise that there are particular characteristics of the Project route that increase the need for a safe system approach to the design, including:
 - a. the busier traffic volumes, with traffic on both sides of the ranges funnelled onto the route;
 - b. the significant heavy vehicle traffic volumes given the undisputed strategic nature of the route for carrying freight;
 - c. the grade of the alignment which results in more variability in the path of cyclists, in particular on the uphill sections; and
 - d. the climatic conditions, in particular wind, with both the buffeting of trucks and cyclists with associated risk of unexpected lateral movements. Also the wind tunnel effect of the alignment along with likely changes in wind exposure as the alignment transitions between cuts and embankments.
12. With regard to discussions concerning the basis of the Austroads recommendations for shoulder widths for cyclists and in particular whether the guidance is intended for situations where there are large numbers of 'concerned' cyclists, my understanding is that the recommended dimensions are based on the 1m width of the cyclist envelope, the need for some clearance to structures and separation needed due to the side wind force exerted on cyclists from heavy vehicles. I cannot find any reference to cyclist numbers or the types of cyclist with regard to this guidance.

Banning cyclists from the road

13. Mr Randal mentioned the possibility of banning cyclists from using the Project. While this would remove the safety concern regarding cyclists, it would be contrary to the requirement for road controlling authorities to provide for all road users along with all the national, regional and local policy directives to deliver integrated transport systems which include provision for active modes. I would have difficulty supporting the NoR on the basis that it banned cyclists outright. I would be concerned if this was truly the intention of NZTA. On the other hand, I would be comfortable with cyclists being banned from the road if there was an adjacent separated cycleway.

Concerns from other submitters

14. Iwi and Meridian expressed concern regarding people accessing land alongside the route. Given that most of the route is either on bridge structures or passing along embankments or cuttings, I consider that access to frontage properties from a walking and cycling facility alongside the route will be difficult and can be easily controlled. I also note Mr Murphy's comment that he is not aware of any issues with public access along roads through windfarms elsewhere in the City.

Improvements to Saddle Road and the Pahiatua Track

15. NZTA have indicated that there may be future shoulder improvements on both Saddle Road and the Pahiatua Track. These are not included as part of the Project works and there is no certainty regarding the cross-sections of these routes or the speed limits that will apply on them. I am not aware of any programme of works to deliver on this. In terms of the safety of both Saddle Road and the Pahiatua Track, I believe that I must assess it in relation to its current condition, taking into account forecast traffic redistribution.

Old Gorge Road

16. With regard to the now closed route through the gorge, I note that the do minimum scenario is with the route closed and comparisons with traffic effects with the route open are not a relevant consideration. Similarly speculation about any future links, regardless of the road user category that would be accommodated, is also not relevant when assessing the NoR.

Shoulder width provision in relation to safety

17. There has been an ongoing reliance by Mr Kennett and Mr Dunlop on the graph included on Page 19 of the Safer Journeys for People Who Cycle document. I agree that shoulder width is likely to be a factor in the risk of crashes involving cyclists but note that this graph does not include information regarding the wider characteristics of these roads other than the shoulder width. In particular characteristics such as traffic volumes, heavy vehicle numbers, grade and weather conditions.

Crawler lanes

18. There has been some discussion regarding the use of the crawler lane. I remain of the view that it has to be assumed that vehicles both light and heavy will be using the outside traffic lanes with light vehicles travelling up to 110km/h and trucks at up to 100km/h. In time and as the truck fleet is gradually renewed, larger and more powerful trucks can be reasonably expected to be travelling alongside the shoulder.

Future proofing

19. A number of submitters have raised the concern that as a minimum the route should be future proofed for a possible future separated shared path. Horizons seek as a minimum a separated pedestrian and cyclist facility across the new bridge over the Manawatu River. Others talked about the future proofing of all bridges on the Project. With regard to the future proofing of the route for a possible future separated walking/cycling facilities, given that there are four

bridge structures along the route as well as significant cuttings or embankments along much of the length, my expectation is that in practice considerable engineering is likely to be needed along most of the route to retrofit a separated path. Accordingly I am of the view that given the local topography with the associated engineering to accommodate the road, that in this particular case it would be most practical to form the separated path from the outset, rather than try to accommodate it at a later date.

20. Commissioner van Voorthuysen asked submitters whether they had views on which side of the new Manawatu River bridge a separated shared facility should go on. In my view and in terms of access, the facility could be on either side as presumably there would be an opportunity to bring the path underneath the bridge as needed, to access the opposite side of the road corridor. If there is a contraflow shared path, it only needs to be on one side, and from my perspective it does not matter which side.

Cycleway hierarchy

21. Commissioner Mackinson asked Mr Hindrup from Horizons whether the regional cycling hierarchy would be expected to reflect the road hierarchy. In my view the higher up the road hierarchy a road is, the busier the traffic flows that it will be carrying. While cyclist volumes may or may not increase, the risk to cyclists increases with the increased vehicle flows, and standards like NZS 4404: 2010 (Land Development and Subdivision Infrastructure) include increased provision for cyclists as the roads get busier. The One Network Road Classification indicates that for National Routes that are at the top of the road hierarchy, that if active modes are present they will most likely be provided for via a separate facility.

Ebikes

22. A number of submitters commented on the rapid increase in sales of ebikes in New Zealand and Mr Ross commented that unpowered bikes can go as fast or faster than powered bikes. I agree that consideration needs to be given to the

increased use of ebikes. This will affect the patronage of the road by cyclists and reinforces my view regarding the appropriateness of a shared path.

Cyclist turnaround provision

23. Build the Path raised a concern that with the use of shoulders by cyclists, what would happen if a cyclist needs to turn around for some reason. The options are either to cross the four lane highway and median barrier to the opposite side or head along the shoulder they are already on in a contraflow direction. I agree that this is a concern given the length of the route and the lack of any exit or turning points. This reinforces my opinion that a shared path is preferable.

Location of separated shared path

24. Members of the Panel asked a number of the submitters whether they had a preference for the location of a separated shared path, that is either immediately alongside the road or further away. My primary concern is safe provision for cyclists along the road corridor, and ensuring that any provision is attractive to cyclists that would otherwise choose to cycle on the shoulders. Accordingly, my opinion is that the path needs to have a similar surface to the road and to follow the general alignment of the road. I consider that a shared path separated by a wire barrier as a minimum would achieve this.
25. Ms Ruth Jackson commented that for her passive surveillance from the road to the path is important. I agree with this.

Safety of shoulder use by cyclists

26. Mr James Jefferies and Mr Andrew Watt mentioned concerns regarding cyclists having to move into a 100km/h traffic lane if the shoulder is blocked by a vehicle. Mr Watt also described how side barriers can restrict the escape paths for cyclists when something does go wrong and also that with vehicles approaching from behind, cyclists have no warning that there may be a need to take evasive action. I agree that these are risks of the shoulder scenario. It is factors such as these that influence my opinion that a separated pathway is a

preferable outcome and the only outcome consistent with a safe system philosophy.

Equestrians

27. During the hearing there has been some discussion with regard to the status of equestrians as road users. Horses whether ridden or pulling a carriage can legally travel along roads in New Zealand. In my experience horses are typically either ridden, led or transported along roads to access a wide range of off-road riding opportunities. Of course, farm horses may be used on roads to muster stock. Horse riders will weigh up a range of factors when deciding whether to ride or lead a horse along a road and I would expect perceived safety to be a primary factor.
28. I have concerns with regard to horses being ridden or led alongside the Project route. As mentioned by Mr Yeo during the hearing, there would need to be deer fencing to prevent horses accessing the road. While there was some discussion that horses, cyclists and pedestrians could share a path, given the level of background noise that will be present due to the traffic, I am concerned that horses could be surprised by cyclists approaching from behind with an associated risk of an incident. The topography is such that there will be little opportunity for an equestrian to move off a roadside path if needed.
29. Unlike for cycling and pedestrians, I am not aware of any strategic drivers, either local or regional for the provision for horses to be included as part of an integrated transport system. While the Kapiti Expressway does include provision for horses along the shared path, the desire to accommodate horses has been included in their policy documents for a number of years.
30. Notwithstanding the above, the Project route will result in a significant benefit for many horse owners. The new route with its smooth vertical and horizontal alignment will result in the much safer and comfortable transport of horses across the ranges.

Status of Austroads guidance

31. Commissioner Rogers asked Mark Read about the status of the guidance in the Austroads Guides. The Austroads Guides have been developed by experts in Australia and New Zealand, including experts from NZTA, and are generally considered to provide best practice guidance in these two countries. Like with permitted activity standards in District Plans, my expectation is that it may not always be practical to achieve best practice standards. When the standards cannot be met my expectation is that an assessment would be provided with regard to the effects of not meeting the standard. No such assessment has been provided.
32. With regard to the safe provision for cyclists along a rural high speed road, factors to be considered would include matters such as whether there are any cyclists on the wider road network, whether there is suppressed demand for cycling (that is people who would cycle but do not for reasons such as perceived safety), the size and number of any trucks that would be using the route and the alignment of the road and associated forward visibility to cyclists.
33. In the case of the Project route, we know that there are cyclists who would use the route and that there is suppressed demand as a result of the narrow width of the existing Ashhurst Bridge. We also know that there will be a large number of trucks on the route including the largest legal sized trucks and that there is a trend for trucks to become larger and more powerful. Accordingly, I remain of the view that in this particular case meeting best practice with regard to cycle provision is necessary on safety grounds.

4 Ongoing Traffic Concerns

34. I continue to be of the view that the mitigation identified in paragraph 141 of my evidence in chief is needed to address the adverse traffic effects of the Project.

35. While the NZTA have usefully brought into the Project the provision of cycling and pedestrian facilities across the existing Ashhurst Bridge and through to the access road to the Manawatu Gorge Scenic Reserve carpark, in my view there remains a gap in provision along SH3 between Cambridge Avenue and the Ashhurst Bridge. In my opinion safe provision for pedestrians and cyclists should include a separated shared facility along this section. Such a facility will avoid the need for active mode users to cross the road to access the shoulders, provides for contraflow cyclists and reduces the likelihood of death or serious injury crashes.
36. I continue to be of a view that the only safe system provision for vulnerable road users along the Project route is with the inclusion of a separated shared path. I note that Mr Dunlop, Mr Read and myself all agreed (page 22 of the Joint Statement of Transport and Social Experts) that *'a separated facility is considered safer than use of the shoulder for vulnerable road users'*. My position and as recorded in the joint statement *'is that the inclusion of a barrier separated path immediately adjacent to the road provides a safe system design with a significant reduction in the likelihood of death or serious injury from a crash between a cyclist and a vehicle. A separated path is consistent with the One Network Road Classification guidance for a National Route such as this and is in line with the recommendation of the DBC road safety audit'*.
37. During the hearing the following additional factors supporting the provision of a separated path rather than shoulder provision have been raised:
- a. the ability for cyclists to turn around without having to cross the four lane carriageway and median barrier to access the opposite shoulder or cycle in a contraflow direction on the shoulder they are on;
 - b. out and back options for cyclists who do not want to commit to the full crossing;
 - c. avoid cyclists being pushed into the traffic lane when there is a vehicle stopped on the shoulder;

- d. removes concern regarding vehicles approaching from behind with no warning if something is wrong; and
 - e. increases the number of users that will feel comfortable using the path.
38. The provision of a separated path rather than shoulder provision for vulnerable road users will also result in safety benefits for vehicle traffic. Significantly reducing the risk of collisions with vulnerable road users will also reduce the risk of damage to vehicles and injury to vehicle occupants.
39. In my opinion, not including safe provision for cyclists on the Project route introduces an adverse traffic effect which cannot be rationalised or balanced by either lack of safe provision or improved but not safe provision on other parts of the road network. I consider that while compliance with best practice road design would improve the safety of the shoulder, my opinion is that a separated facility is the only safe system option given that a wire rope barrier can be expected to significantly reduce the risk of death or serious injury to cyclists resulting from crashes with vehicles.
40. There has been much discussion regarding the forecast level of cycling activity across the Project route and the level of provision that might be appropriate. In my opinion it is the amount and type of vehicle traffic using the route that is key to the level of provision needed for cyclists as opposed to the number of cyclists. In my view and in line with the One Network Road Classification, it is the forecast level of truck activity on this route which is the key consideration.
41. With regard to impacts on the road corridor cross-section, my understanding is that the current intention is to provide a sealed shoulder width of 2m from the side barrier to the nearest edgeline/ rumble strip. The provision of best practice shoulder widths would result in an increase in the shoulder width of 1.2 to 2.0m on each side depending on whether minimum or desirable clearances to the barriers and trucks are used. Accordingly, the overall width of the road would increase by 2.4 to 4.0m.

42. As set out in paragraph 118 of my evidence in chief, a separated facility would need to have a width of at least 3m with additional clearances of at least 0.2m to any barriers. As such, my expectation is that the impact on the corridor width would be similar to the widening of both shoulders to best practice standards.

5 Draft Conditions

43. My comments on the draft conditions remain largely as set out in paragraph 206 of my evidence in chief with the following amendments in response to matters that have been raised during the expert conferencing and the hearing:
- a. Ms McLeod's Condition 26B includes a requirement for the outcomes of the detailed design and pre-opening/ post-construction stages road safety audits to be provided to the Councils and that particular consideration is to be given to vulnerable road users. The road safety audit process is discussed on pages 20 and 21 of the Joint Statement of Traffic and Social Experts. I note that Ms McLeod's condition does not require the audits to be undertaken nor does it indicate the geographical extent of the audits. I consider that it would be useful to include a requirement that the audits are undertaken and that as per paragraph 206.a) of my evidence in chief that the audit extend from the SH3 intersection with York Street in Ashhurst to the SH2 intersection with Pinfold Road in Woodville. As such I prefer the reporting officers' Condition 5.c)x. but note that this should be expanded to include a pre-opening/ post- construction stage road safety audit;
 - b. As per page 9 of the Joint Statement of Transport and Social Experts (Joint Statement), it is understood that the noise experts do not consider Hope Road as a desirable route for construction traffic. I note that Ms McLeod's Condition 22.e) ii. continues to include the use of Hope Road as a site access. If it is used as a construction route, access would need to be limited to Woodlands Road and the road would need to be upgraded to provide passing opportunities for trucks. At the moment and as described

in my evidence in chief, Hope Road has a single lane width along much of its length. Refer to the reporting officers' Condition 22.e)iii;

- c. Ms McLeod's Condition 22 regarding the Construction Traffic Management Plan should include a requirement for heavy vehicle construction traffic to avoid Oxford Road and Pinfold Road in Woodville, refer to reporting officers' Condition 22.e)iii. I consider that a requirement to light site access intersections with public roads that are used for night works should also be included, see reporting officers' Condition 22D;
- d. As per page 28 and 29 of the Joint Statement, any site accesses on Saddle Road are to be provided either to the standard included in paragraph 215 of Mr Dunlop's Technical Report 1 or alternate provision needs to be achieved (e.g. speed reduction to meet safe sight lines or appropriate and Comment on Hope Road traffic management). Particular consideration needs to be given to the ability to achieve safe site access in locations where slow vehicle bays exist at Morgan Road and Cook Road. This has not been captured in Ms McLeod's Conditions. Refer to reporting officers' Condition 22.e)iv.;
- e. Ms McLeod's Condition 22.k) continues to refer to 'current' provision for pedestrians and cycling activities is maintained. I remain of the view that 'safe' provision needs to be made. This should usefully include around each of the roundabout construction sites and across the existing Ashhurst Bridge. See reporting officers' Condition 22.k);
- f. With regard to the intersection between SH3 and Cambridge Avenue in Ashhurst, I understand that there will be works to temporarily direct traffic through Ashhurst and that prior to the opening as provided for in Ms McLeod's Condition 26.b)i. the intersection will be further modified to redirect traffic back onto the Project route;
- g. Ms McLeod's Condition 26 regarding the Network Integration Plan (NIP) has usefully been expanded to include a number of mitigation measures

beyond the designation. However I remain of the view that a separated shared contraflow path is needed between SH3/ Cambridge Avenue in Ashhurst and the existing Ashhurst Bridge, this is discussed on page 14 of the Joint Statement. I also remain of the view that the NIP should extend along SH3 and SH2 in Woodville such that the necessary mitigation of traffic effects can be captured. I refer the Panel to page 30 of the Joint Statement where myself and Mr Dunlop agree that there will be additional traffic as a result of the Project on both the eastern and western approaches to the Project route. As such I prefer the reporting officers' Conditions 26.a) and 26A to 26H;

- h. I remain of the view that a condition should be included requiring a barrier separated two-way shared path along one side of the Project carriageway. The path should be a minimum of 3m wide with additional clearances to structures and obstacles. The path should have a smooth continuous surface such that road cyclists will not be deterred from using it and be available for use from the opening of the Project route. See reporting officers' Condition 26D;
- i. Ms McLeod's Condition 5.e)viii. provides for a pedestrian walking facility and if reasonably practicable that it be developed as a shared facility, across the new bridge across the Manawatu River. This is a useful addition to the conditions but as discussed on pages 15 and 16 of the Joint Statement and included in the reporting officers' Condition 26E further clarity is needed with regard to:
 - i. Provision for access from the Manawatu Gorge Scenic Reserve carpark;
 - ii. Separation from the highway to prevent vulnerable road users accessing the carriageway from the facility;
 - iii. Availability as a viewing point from opening of the Project; and

- iv. Control of access to the northern side until such time as formal recreational access is facilitated.

- j. Ms McLeod's Condition 26.b)ii. provides for the extension of the existing walkway along SH3 from Hampson Street through to the west of the eastern roundabout. I consider that it would be useful to include some guidance with regard to the width and surfacing of the path. The reporting officers' Condition 26F could be expanded to include a lime path with a minimum width of 2m for this new section. Given the flat topography in this location a 2m wide path can be expected to provide for two cyclists to safely pass. A lime surface would be consistent with the existing path surface immediately to the east towards Woodville;

- k. Ms McLeod's Condition 26.b)iii. provides for pedestrian and cycling facilities between the Manawatu Gorge Scenic Reserve Carpark and the Ashhurst Bridge. I support the inclusion of this condition but refer the Panel to the agreed position stated on page 15 of the Joint Statement. As such I prefer the wording of the reporting officers' Condition 26C but note that once the path connects with or is alongside the access road to the Manawatu Gorge Scenic Reserve that the path no longer needs to be separated from the access road;

- l. Ms McLeod's Condition 26.b)iv. provides for improved walking and cycling access across the existing Ashhurst Bridge. As set out in paragraph 15 of the Joint Statement it is anticipated that the facility could be either on or alongside the existing bridge and that it would be a two-way shared facility on the northern side. I consider that some physical separation is needed between the facility and vehicle traffic but that this could be achieved with a kerb. As such I prefer the wording of the reporting officers' Condition 26C but note that on the Bridge that the separation could be provided by a kerb;

- m. Ms McLeod's Condition 27. provides for low noise road surfaces on sections of road on the approaches to the Project. Some further clarity is needed with regard to the start and end points of these sections. The

reference to the Manawatu River in 27.a) should be clarified regarding whether this is at the existing Ashhurst Bridge or at the new river crossing. With regard to 27.b) the section of Vogel Street (SH3 and SH2) should be clearly specified. Refer to reporting officers' Condition 27 which is being modified to more precisely specify the extent of the surfacing requirement.

- n. The new roundabouts are discussed on pages 30 and 31 of the Joint Statement with an agreed position that separate facilities for walking and cycling should be provided on each of the roundabouts. Ms McLeod has not included a condition with regard to this matter and I refer the Panel to the reporting officers' Conditions 26C and 26F. These conditions could usefully be expanded to include separate provision either through or around the roundabouts for vulnerable road users.

Harriet Fraser

4 April 2019

Harriet Fraser