Report pursuant to s42A Resource Management Act 1991

In the matter of:	A Notice of Requirement to construct and operate a new intermodal rail and freight hub on land between Palmerston North and Bunnythorpe
And:	A hearing by Palmerston North City Council pursuant to s100A
Requiring Authority:	KiwiRail Holdings Ltd
Hearing date:	Commencing 9 August, 2021

Section 42A technical evidence summary statement for hearing: Transport

By: Harriet Fraser

1. I prepared evidence on transport aspects of the Freight Hub on behalf of the Section 42A reporting team.

2. In this statement I provide comment on the following:

    a) Summary of concerns regarding the transportation assessment of the proposed the Freight Hub, as set out in my s 42A report.

    b) Matters arising since preparation of the s 42A report, including from the submission of expert evidence and submissions presented during the hearing.

    c) Issues in relation to transport that remain in contention.

    d) The draft conditions.

Summary of Evidence in Chief

3. Key areas of concern expressed in my s 42A report can be summarised as follows:

    a) An assumed permitted baseline with the transportation assessment only reporting the incremental traffic effects beyond those forecast with the full development of the NEIZ and its extension (para 2);

    b) The quality of the modelling of heavy vehicles in the traffic model and the likelihood that the modelled levels of service of the links and intersections overestimate their practical traffic carrying capacities (para 3);

    c) Reliance on the Infrastructure Risk Rating tool given its limited ability to reflect pedestrian and cyclist activity (para 4);

    d) Uncertainty regarding site access locations for construction purposes. Concerns regarding any possibility of site access for construction purposes via Maple Street, the southern end of Te Ngaio Road, either end of Clevely Line or from Sangsters Road (para 5);

    e) Lack of traffic modelling of the rural freight ring road and bypasses of Bunnythorpe alongside the Freight Hub proposal, even if only as a sensitivity test (para 6);

f) Uncertainty regarding the interaction in terms of design and designations between a possible southern bypass of Bunnythorpe and the northern section of the perimeter road (para 7);

g) Underestimation of traffic effects in central Bunnythorpe (para 8);

h) Uncertainty regarding how safety improvements might be achieved if needed at the existing road level crossing in Bunnythorpe (para 9);

i) The NEIZ businesses will benefit from proximity to the Freight Hub but trips to and from the City will be adversely affected by worsening congestion on Railway Road (paras 11 and 13);

j) Lack of assessment of the construction and operational traffic effects for existing properties and businesses along Roberts Line to the east of Railway Road (para 12);

k) Traffic safety and performance concerns as a result of the proximity of internal level crossings within the Freight Hub and the external road network, in particular at the Richardsons Line intersection with Roberts Line (para 14);

l) Underestimation of existing and forecast traffic delays along Tremaine Avenue (para 15);

m) Gaps in the assessment of alternatives (paras 16 and 17); and

n) Uncertainty regarding the alignment of the proposal with the statutory and strategic aspirations for the transport system and the associated need for conditions to ensure the anticipated outcomes (paras 18 to 21).

Information Gaps

4. In Section 1.7 of my s 42A report I highlighted areas where it would be useful to have some additional information. I provide an update in the table below about those requests.

Harriet Fraser EIC Paragraph 22	**Update**
By way of sensitivity testing, the combined effect of the PNITI works and the fully	No further assessment provided.

Harriet Fraser EIC Paragraph 22	**Update**
developed Freight Hub site, including the bypasses of Bunnythorpe, on the capacity and performance of the wider road network	
The type of treatment that would be needed to improve safety at the central Bunnythorpe level crossings. Is there an option for improved safety without grade separating the crossing? If the only or most likely option is grade separation, what are the property access and land acquisition effects?	Reference is included in Mark Georgeson's evidence to reporting at section 10.1 of the ITA, that a co-ordinated traffic signal at the Bunnythorpe node has been tested. Table 10.5 of his EIC reports that a signalised intersection is expected to operate with a level of service 'C'. No design has been provided nor has any commitment been made to this as a mitigation measure. It also remains unclear whether any additional land would be needed to deliver a signalised intersection in this location.
ALCAM safety assessments to be undertaken for the two roads (Waughs Road at Newbury Line and Campbell Road at the Feilding golf course) and two pedestrian level crossings (Aorangi Marae and Taonui School) to the north of Bunnythorpe.	Assessments have been undertaken and reported on in Mark Georgeson's EIC at paragraph 10.7. A condition has been proposed for LSCIAs to be undertaken at these level crossings in the future, which I support.
Details of the access provision through to Roberts Line for 422 and 422A Railway Road. In particular, whether the access will be parallel to or shared with 684 Roberts Line at the southern end.	A commitment is included to provide the access, but no detail is provided regarding the design of the access and its ability to provide for the particular requirements of the properties. The latest draft of the s 42A conditions includes a condition that the access is able to accommodate heavy vehicles.
Demonstration of at least one option for how the Foodstuffs driveways on Roberts Line will be able to operate during construction and operation of the Freight Hub.	Drawings of an option have been prepared and attached to Mark Georgeson's reply evidence. I discuss this later in my summary.

Harriet Fraser EIC Paragraph 22	**Update**
Confirmation whether there will be any temporary or permanent closures of the Maple Street connection to Railway Road.	Mark Georgeson confirms at paragraph 10.16 of his evidence that Maple Street will not be impacted by the Perimeter Road and will not be used for construction access purposes.
Demonstrate that the operation of the internal level crossings within the site will not disrupt frontage traffic flows.	No further assessment provided. I discuss this later in my summary.
Confirmation that there is no construction or operational access to the Freight Hub site via 9 and 9A Maple Street.	Mark Georgeson confirms at paragraph 10.16 of his EIC that there will be no access to the Freight Hub via 9 and 9A Maple Street.
Confirmation of the access points to the site for construction purposes.	Mark Georgeson states at paragraph [xxx] of his evidence that the site access points will be included in the Construction Traffic Management Plan. Michael Skelton, at paragraph 4.16 of his evidence(under the heading 'Roading changes to enable construction and operation'), describes the three long term access points to the site, two of which will be from the new perimeter road. Accordingly, up until the opening of the perimeter road, the implication is that all site access will be from the Roberts Line intersection with Richardsons Line. The intended access points for construction should be confirmed by KiwiRail.
Confirmation of the parties to be consulted with as part of the RNIP.	The conditions have been updated to require consultation with Waka Kotahi, PNCC, MDC and Horizons.
Outline of the process for endorsement of the RNIP.	The latest s 42A draft conditions include the same certification process as for all the management plans.

5. Based on the continued uncertainty regarding the nature and scale of transport effects, it remains my opinion that the scope and robustness of any conditions is key to ensuring the monitoring and review of transport effects, with means for mitigation to be identified and implemented as needed.

Matters Arising at the Hearing

6. I now discuss transport matters arising since the preparation of my EIC and during the hearing.

7. At paragraphs 5.12 and 5.14 of the KiwiRail's legal submissions, the possibility of a permitted baseline is discussed. The submission included, "there are effects which are permitted under the District Plan and are comparable to the activities proposed to be authorized by the NoR". My understanding is that almost all activities within the NEIZ are likely to trigger discretionary assessment with transport effects being a consideration. The NEIZ extension plan change did not assess traffic effects beyond the immediate area of the extension. As a result, the scale of transport effects on the wider road network associated with the full development of the NEIZ was not known at the time the plan change was adopted. I also note that it is difficult to assess the scale of transport effects associated with the incremental addition of traffic onto a network which is becoming increasingly congested. All this points to the importance of robust conditions (including Management Plans) to identify and mitigate ongoing effects.

8. At paragraph 6.3 the submission includes, "there is the potential for some adverse economic effects as a result of changes in access and traffic flow". The submission goes on to say that these effects are mitigated by design and that there are negligible effects on a small number of businesses. With existing variability in travel times during peak periods, I consider that there is the potential for a large number of businesses, residents, and road users to experience increased travel times as a result of worsening congestion.

9. Paragraph 6.17 refers to damage to road surfaces. The haulage routes and increase in truck activity on the road network will only be known once the sources of construction materials are identified. At this stage, these factors are unknown and as such, the potential and scale of adverse effects are unknown. We do however have some understanding of the volumes involved. Looking at the KiwiRail Design, Construction and Operation Report, Section 1.3.3.1, 1,550,000m3 of fill is to be imported, plus a 700mm layer of granular fill

to go over the site plus ballast, concrete, and asphalt. Section 6.35 of the AEE includes that the main operational area is 130Ha. As such, a 700mm layer would have a volume of 910,000m^3.

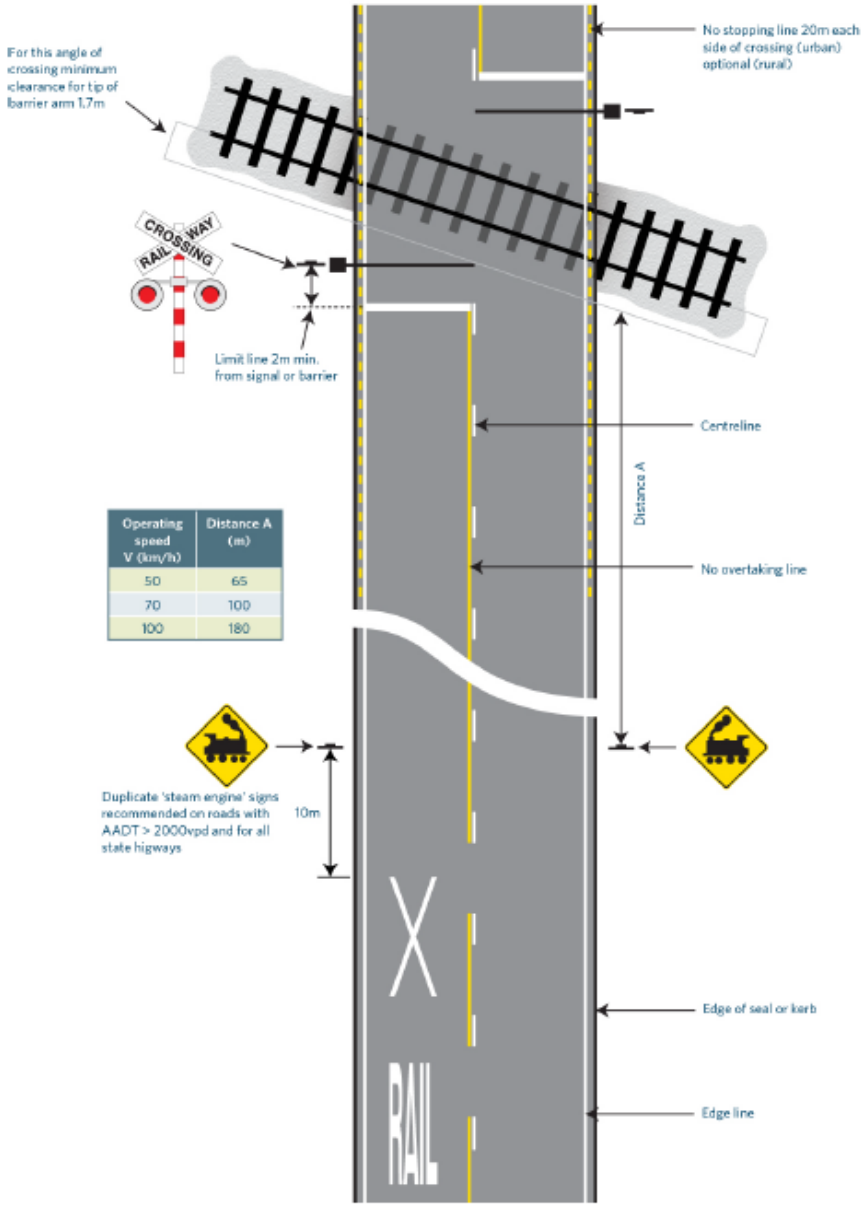
10. Given these volumes of material to be hauled to the site, I have recommended that conditions are put in place to require that KiwiRail ensure that any road pavement damage caused by heavy vehicles as a result of construction activities is repaired. The legal submissions indicate that there are other methods and reference the decision of *Norsho Bulc Ltd v Auckland Council* [2017] NZ EnvC 109 at [104].

11. As I read it, *Norsho Bulc* was a resource consent application for a managed landfill operation. The capacity applied for was 600,000m^3 over 10 years with a maximum of 160 truck movements per day. The road is a 2.6km length of local road between the nearby highway and the landfill site. The Freight Hub is a very different proposal, being a NoR with around four times the volume of material being imported withno practical or desirable way of limiting the number of truck movements. To the contrary, it will be desired that construction is completed swiftly. Further, the haulage routes are unknown at this time and the activity is likely to occur over a relatively short timeframe, possibly two years.

12. I am not a pavement engineer and I have deferred to Mr Van Bentum's expertise in these matters when it comes to identifying a practical formula for targeting KiwiRail's potential effect on the roads that will ultimately be used.

13. As a result of both Michael Skelton's and Mark Georgeson's presentations, there was a discussion around the interaction between the internal rail level crossing and the external road network. The discussion focused on queuing space for vehicles turning into the site, other matters include forward sight lines to the crossing and to queues formed at the crossing. From the extract below (sourced from the NZ Transport Agency's Traffic Control Devices Manual Part 9 Level Crossings) it appears unlikely that there will be enough distance between the Richardsons Line/ Roberts Line roundabout and the internal rail level crossing to accommodate the necessary advance warning signage and markings. This highlights the need for road safety audits to be undertaken of the access points to the Freight Hub site with particular consideration of the interaction with the internal level crossings.

Figure A6 FLB or HAB active control



14. The detailed design of the intersection will also need to include measures to prevent traffic queuing to enter the site from blocking back through the intersection. Some queuing provision is shown for traffic turning in left or right from Roberts Line but a similar provision for vehicles entering from Richardsons Line is more difficult to include.

15. Michael Nixon has provided expert transport evidence on behalf of Foodstuffs North Island Limited. At his paragraph 2.2, he summarises his concerns with the NoR proposal as being:

a) The geometry of the Railway Road to Roberts Line road alignment, specifically the effects on available sight distances at the Distribution Centre (DC) site vehicle crossings (visibility to the east);

b) The closure of Railway Road north of Roberts Line and the re-direction of traffic in front of the DC site. With the increase in volumes in front of the DC site, the safe and efficient operation of the DC site vehicle crossings may be compromised;

c) The NoR requirement for land to be taken from the DC site to facilitate construction of the Roberts Line/ Richardsons Line roundabout. Alternative options to avoid taking land from the DC site have not been fully investigated.

16. Regarding the available sight distance towards the east from the DC staff carpark driveway, Michael Nixon estimates a future sight line distance of 95m. I calculate, based on the Austroads Guide to Road Design Part 4A Tables 3.5 and 3.6, that for light vehicles with a minimum gap acceptance of 5 seconds in a 60km/h speed environment to join or cross the westbound traffic flow on Roberts Line, a sight line of at least 83m is needed. The estimated available sight distance exceeds this assessed minimum gap sight distance by around 12m.

17. At paragraph 4.9 of Mark Georgeson's rebuttal evidence, the reported forecast performance of the staff carpark driveway includes average delays of up to 18 seconds for the year 2051 Freight Hub scenario. This level of delay is widely considered acceptable and is unlikely to result in safety concerns.

18. I consider, based on Mark Georgeson's analysis, that the staff carpark driveway can be expected to continue to operate safely and efficiently. It should however be noted that any extension of the sight line towards the east, through planting removal or control would add to the safe performance of the driveway.

19. I share Michael Nixon's concerns regarding trucks exiting the DC site. There is general agreement between the experts that articulated trucks (semi-trailers or B-trains) will need a gap in the traffic flow on Roberts Line of at least 10 seconds to exit the site. A 10 second gap in a 60km/h speed environment has an associated minimum gap sight distance of 167m. Fig:151 which is attached to Mark Georgeson's rebuttal evidence shows an estimated available sight

distance of 142m towards the east for an exiting truck. This means that an exiting truck will need the full sight line to be clear of traffic. If a northbound vehicle on Railway Road is approaching the turn into Roberts Line as a truck starts to exit, the approaching vehicle will need to slow down but most likely not need to stop as the truck completes its turn and clears the traffic lane.

20. Whether a truck can safely exit the DC site is a matter of both the available sight line and the availability of gaps in the frontage traffic flow. At paragraph 4.9 of Mark Georgeson's evidence, he estimates that average delays for trucks exiting the site will increase from the current 3 seconds to 89 seconds in 2031 with the Freight Hub and more than 120 seconds by 2051. Average delays of 89 seconds and more than 120 seconds show that there are not sufficient gaps in the traffic flow and I consider these levels of delay to be unacceptable. These figures represent average delays so 50% of all exiting trucks would experience even larger delays.

21. At paragraph 4.13 of his rebuttal evidence, Mark Georgeson comments that if these larger delays eventuate, trucks can turn left out and make a U-turn at the proposed Roberts Line/ Richardsons Line roundabout. During the hearing Michael Nixon said (and I agree), that the left turn out will require a similar gap in the traffic flow to a right turn out and will result in following traffic needing to slow to the speed of the truck that has recently joined Roberts Line from a standstill. I do not consider that the arrangement shown in Figures 148 to 151 attached to Mark Georgeson's rebuttal evidence demonstrate that safe egress can be achieved for trucks exiting the Foodstuffs site.

22. Regarding the proposed designation across the northern corner of the Foodstuffs site at the intersection of Roberts Line and Richardsons Line, and as shown in Figure 148 attached to Mark Georgeson's rebuttal evidence, I consider that while the NoR includes a larger part of the site, the actual land needed for the intersection is unlikely to have any significant impact on the expansion and access options for the Foodstuffs site. I note that Mr Brady Nixon speaking for Foodstuffs had a different view on this.

23. Sarah Downs provided evidence on behalf of Waka Kotahi NZ Transport Agency. I note:

    a) At paragraph 2.3 that Waka Kotahi considers that the amended conditions appropriately address the matters raised in its submission;

b) At paragraph 6.5 that the associated construction and operation of the Freight Hub will have a significant impact on the form and function of the transport network;

c) At paragraph 6.6 that the testing of several PNITI programmes highlighted that although routes to access Tremaine Avenue may change because of these improvements or changes, it is still a key origin and destination for trips across the network;

d) At paragraph 6.7 she includes that 'preliminary modelling of the Freight Hub development shows that the proposal will result in a significant reduction in freight volumes along Tremaine Avenue, the scale of which will relate to the replacement land use of the existing facility. Therefore, flow reductions on Tremaine Avenue are dependent on KiwiRail and any subsequent land use of the existing facility'. I am not aware of evidence of 'a significant reduction in freight volumes along Tremaine Avenue'. I consider that there remains uncertainty around the ongoing and future traffic performance of Tremaine Avenue;

e) Beyond the confirmation of the NoR, at paragraph 6.9, she comments that there will be 'a need to undertake further investigations to finalise the pre-cursor transport system activities essential to support the safe construction and operation of the Freight Hub; and

f) In her final paragraph she comments that "as KiwiRail progress through the development of the proposed Freight Hub, a review of the preferred PNITI programme will need to be undertaken". Which I interpret to mean that the Freight Hub will likely influence the delivery of the PNITI programmes.

24. I note that the Ministry of Education has provided a letter to the Panel stating:

> The Ministry considers that the revised conditions provide appropriate management of potential effects on Bunnythorpe School and other local school. The Ministry therefore supports the final proposed designation conditions

25. Commissioner Makinson asked Mark Georgeson how changes in proportions of heavy vehicles are accounted for in the Infrastructure Risk Rating (IRR) assessment. Mr Georgeson prepared supplementary evidence on this matter.

Based on his evidence and my own reading of the IRR Manual, I understand that:

a) The assessment methodology is designed to assess road safety risk, primarily as an input to the speed management process;

b) Pedestrian and cyclist activity is accounted for in the Land Use parameter with no consideration of actual or forecast volumes of pedestrians and cyclists; and

c) The traffic volume bands used are large and do not include allowance for either the proportion of, or changes in the proportion of freight traffic.

26. Future roading changes within the NEIZ have been discussed. My understanding from discussions with Robert van Bentum is that there are programmed carriageway widening improvements to Richardsons Line within the NEIZ including a shared path and that the Council are actively seeking to provide a road link between Richardsons Line and Alderson Drive which in turn connects with El Prado Drive. There is less certainty around any upgrade of the El Prado Drive intersection with Railway Road and of the other roading changes included in the Structure Plan Map for the NEIZ (see Figure 11 of my EIC).

27. Commissioner Sweetman asked Mr Georgeson about where he thought that a direct connection might be provided between the NEIZ and the Freight Hub. Mr Georgeson's view is that such a connection is not needed, with the existing and proposed roading arrangement providing suitable connectivity. My understanding is that if a bespoke corridor was provided for the movement of containers between the two sites via specialised container movers, rather than by road trucks, it would need to be very wide, around 40-50m and level. My expectation has been that if such a corridor were to be provided it would run along the western side of Richardsons Line. It would then need to cross Roberts Line to enter the Freight Hub with the associated challenges of crossing both a road and an internal rail corridor. This NoR does not include allowance for such a connection.

28. The owners of 9A Maple Street expressed concern about the paper road adjacent to their property being used for construction traffic access to the Freight Hub site. In his evidence, Mark Georgeson said that Maple Street will

not get used for construction purposes. I consider that a condition might be appropriate to ensure that.

29. We heard from Nathan Barnes who owns the business at 422A Richardsons Line. He indicated that there could be up to 150 vehicle movements per day associated with his business and that this can include B-trains and semi-trailer trucks accessing the site with deliveries. Given the number and type of vehicle movements, along with the need for the connection to Roberts Line to accommodate access to 422 Richardsons Line and 684 Roberts Line, I consider that this link will need to be formed by KiwiRail to a road standard. The design will need to allow for the largest trucks to be able to turn to and from Roberts Line.

30. The presentation by Manawatu District Council highlighted the expected residential and industrial growth in Feilding and the associated increases in traffic activity, in particular in the direction of the Freight Hub and Palmerston North. An update was also provided regarding the ongoing delivery of the shared path between Feilding and Bunnythorpe.

31. We heard how the vertical alignment of Roberts Line constrains sight distances at some of the driveways, possibly to around 100m. Both the Construction and Operation Traffic Management Plans will need to ensure that the speed environment and available sight distances are matched to provide for safe turning to and from frontage properties on Roberts Line, between Railway Road and Kairanga Bunnythorpe Road. I recommend that a condition is included to ensure the ongoing safe operation of this section of Roberts Line.

Ongoing Areas of Contention

32. There are ongoing areas of contention regarding the nature and scale of the transport effects (safety and performance) during both the construction and operation of the Freight Hub within the immediate and wider transport network. This, in my opinion, means that more reliance than 'normal' needs to be placed on conditions and management plans that allow for transport safety and performance effects to be identified and, where needed, for the effects to be mitigated by KiwiRail.

Draft Conditions

33. The transport related conditions in the S 42A working draft are as follows:

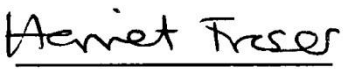
a) Level Crossings – Conditions 45, 45A and 46

b) Road Network Integration Plan – Conditions 47 to 50

c) Roading connections and upgrades – Conditions 51 to 52C

d) Construction Traffic Management Plan – Conditions 61 to 67B

e) Operational Traffic Management Plan – Conditions 78 to 84.



Harriet Fraser

30 September 2021