Appendix C

Integrated Traffic Assessment

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Transport Assessment

Prepared for

ROLLESTON INDUSTRIAL HOLDINGS LTD

Lot 3 DP 52556, Maddisons Road
Rolleston, Selwyn District

November 2019

Transport Assessment
Prepared for

Rolleston Industrial Holdings Ltd

Lot 3 DP 52556, Maddisons Road
Rolleston, Selwyn District

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Introduction

1. Rolleston Industrial Holdings Ltd has commissioned Novo Group to prepare a Transport Assessment for a Plan Change application to enable the development of a dairy processing facility.

2. This report provides an assessment of the transport aspects of the proposed development. It also describes the transport environment in the vicinity of the site, describes the transport related components of the proposal. It has been prepared broadly in accordance with the Integrated Transportation Assessment Guidelines specified in New Zealand Transport Agency Research report 422, November 2010 and other relevant best practice guides.

3. It is proposed to undertake a Plan Change to enable development of the site at Lot 3 DP 52556 on Maddisons Road as a Dairy Processing Management Area (DPMA). The site will take primary access from within the IPort industrial subdivision and is predicted to generate up to 400 vehicle movements per day.

4. The site location is illustrated in **Figure 1** and a copy of the proposed Outline Development Plan is contained in **Appendix 1**.

Figure 1: Site Location

Transport Environment

Road Network

5. The Plan Change application site currently has a Rural zoning, although it has also shares boundaries with IPort and the Lyttelton Port Company Midland Port rail hub. These adjacent activities are urban in nature and are zoned Business 2A . Whilst the majority of the IPort road network is complete, there are elements within the immediate vicinity of the application site that are in the process of being designed / approved (as will be discussed later).

6. The following sections provide details of the transport network in the vicinity of the site.

Maddisons Road

7. **Table 1** sets out the transport details of Maddisons Road.

Table 1: Maddisons Road Transport Features

Key Feature or Characteristic	Comment
Road Classification	Local Road
Cross-Section Description	Sealed width of approximately 5.8m accommodating two traffic lanes (one in each direction). Wide grassed berms beyond this of approximately 7.0m width on both sides.
Traffic Volumes	3,000 vehicles per day (from Mobile Road).
Speed	80km/hr
Pedestrian / Cycling Infrastructure	None

Internal Link to IPort

8. Two new road links are proposed from IPort Drive toward the application site (Proposed Roads D and K). Proposed Road L runs parallel to the application site boundary and links these roads. These roads are shown on the subdivision plans included in **Appendix 2** and the details are summarised in **Table 2**.

Table 2: Internal Link

Key Feature or Characteristic	Comment
Road Classification	Local Road
Cross-Section Description	Carriageway width of 12m, assumed to incorporate on-street car parking.
Traffic Volumes	100 to 120 vehicles per hour in the peaks and 700 to 850 vehicles per day[1].
Speed	50km/hr
Pedestrian / Cycling Infrastructure	2.0m wide footpath on one side of the road.

[1] Based on traffic generation data from the ITE as set out in **Appendix 3**.

Crash History

9. The NZ Transport Agency Crash Analysis System (CAS) has been reviewed to identify crashes that have been reported outside the application site on Maddisons Road and on IPort Drive within 50m of the proposed access locations. This review was of the most recent five-year period available (September 2014 to September 2019). No crashes were reported within these review parameters.

The Proposal & Current Dairy Processing Management Area Rules

10. It is proposed to provide a Plan Change that enables the establishment of a dairy processing facility at the application site. A copy of the proposed Outline Development Plan is included in **Appendix 1** and the following sets out the transport components of the proposal.

11. In addition, it is proposed to adopt the transport related rules set out in Appendix 26 of the Selwyn District Plan Rural Volume (Dairy Processing Management Area). These are referred to in the following sections.

Traffic Generation

12. The traffic generation of the proposed activity has been estimated by Babbage Consultants Ltd as part of their initial infrastructure review. This was based on their experience of other dairy processing operations. It is estimated that the dairy processing facility would generate 400 vehicle movements per day, of which 100 vehicle movements would be trucks or truck and trailer movements. Novo Group has estimated that potentially 15% of the daily traffic generation could occur in the weekday peak hours, which would be approximately 60 vehicles per hour.

13. It is noted that the above traffic generation is similar to that of the Synlait processing plant at Dunsandel in 2012. The information submitted as part of the Plan Change application for that site suggested a daily traffic generation of 520 vehicles and a peak hour traffic generation of approximately 65 vehicles per hour, which occurred around 18:00[2]. The following were understood to be operational at the site at that time:

    i. Two milk dryers;

    ii. Dry stores;

    iii. Administration offices; and

    iv. Approximately 135 day shift staff plus 30 night shift staff.

14. The Synlait site overall was 113.6ha and the Plan Change sought to expand the operation. The final development envisaged by the Plan Change would have resulted in 916 vehicle movements per day.

15. The Plan Change site in this application is approximately 27.3ha and using a pro-rata approach to the traffic volumes of the ultimate Synlait development would suggest traffic volumes in the order of 220 vehicle movements per day. This suggests that the 400 vehicle movements per day assumed in this assessment is sufficiently robust.

[2] Information from the Synlait Plan Change Transportation Assessment prepared by Traffic Design Group (now Stantec).

Parking & Loading

District Plan Rules

16. The Dairy Processing Management Area rules regarding parking require the following:

> *All vehicle parking and manoeuvring areas shall be located as shown on the Outline Development Plan in Appendix 26A and comply with Appendix 10 and Appendix 26B as to layout and design.*
>
> *Vehicle parking and manoeuvring associated with new buildings which will increase the capacity for milk processing or storage within the Dairy Processing Management Area shall be constructed, formed and sealed (with drainage) prior to use for operational activities.*

17. The above sets out the permitted location for car parking and manoeuvring (i.e. within the Height Control Area) and the standard for the design of these car parks. This includes the dimensions and formation of the car parking.

18. There is no requirement with regards to the minimum number of car parking or loading spaces. Typically, Rule 4.6.1.4 of the District Plan would require all car parking for an activity in the Rural zones to be accommodated on-site. However, that rule is not applicable to the Dairy Processing Management Area.

Parking Demands

19. The car parking demand at the Plan Change site has been estimated as being in the order of 90 vehicles. This is based on the information provided for the Synlait Dunsandel Plan Change, which identified a demand for 90 vehicles for the 2012 operation, which had 165 staff.

20. The demand for loading is anticipated to be in the order of five trucks at any given time. This is based on there being 50 truck arrivals per day and spreading these across a nominal ten-hour working day.

Site Layout & Access

Vehicle Access Arrangements

21. The Dairy Processing Management Area rules regarding access that require:

> *All access from a local road shall comply with the design requirements of Appendix 10*

22. Appendix 10 of the Rural Volume includes rules with regards to:

    i. The separation of the accesses from intersections;

    ii. Sight distance requirements from vehicle crossings; and

    iii. The design and siting of a vehicle crossing.

23. The Outline Development Plan for the Plan Change indicates primary access to the proposed roads in in the IPort subdivision. Two roads are proposed in the IPort subdivision that link towards the Plan Change site, although it is proposed that access will be to only one of these. The Outline Development Plan allows for either of these roads to be used for access (but not both). Equally, this access could be to Proposed Road L, which links to Proposed Roads D and K.

24. Secondary access is proposed to Maddisons Road. The District Plan Rules state the following regarding secondary accesses:

> *Secondary access points shown on the Outline Development Plan in Appendix 26A and Appendix 26B shall only be used for farm activities, emergency access and situations where the primary access is made temporarily unavailable by emergency services, the road or rail controlling authorities.*

25. It is proposed that the rule be amended to reflect a new Appendix 26C IPort DPMA, with an Outline Development Plan inclusive of the Maddisons Road secondary access. The Maddisons Road secondary access will therefore similarly be available only for farm activities, emergency access and situations where the primary access is temporarily unavailable.

26. An "internal" access is also proposed to the Lyttelton Port Company Midland Port facility. No through access to the wider road network is anticipated for this access, although it would be used to access the rail-sidings.

27. An access to Maddisions Road could be constructed to comply with the requirements of Appendix 10. However, potential access to Proposed Roads D, K and L would likely not comply because of the arrangement of those proposed roads. These are also Urban roads, whereas the requirements of Appendix 10 relate to a Rural environment. The effects of this are discussed later in this report.

Rail Access

28. Access for a rail siding has been included on the Outline Development Plan. This access will link to the Lyttelton Port Company Midland Port facility and provides the ability to transport raw material and product via rail. This will potentially reduce the truck volumes associated with the proposed activity.

Assessment of Effects

29. The key matters for the assessment of transport effects are considered to be as follows:

    i. Parking & Loading: Whether the existing rules adequately provide for the provision and layout of parking and loading at the application site;

    ii. Access Arrangements: Whether the accesses are anticipated to operate safely and efficiently and whether the existing rules adequately provide for access; and

    iii. Wider Network Effects: Whether the effects of the proposed activity can be satisfactorily accommodated by the surrounding road network.

Parking & Loading

Parking Provision

30. There is no requirement for any car parking to be provided at the Plan Change site and this is consistent with the other Dairy Processing Management Area sites. However, it is considered to be within the dairy processing facility operator's best interest to provide on-site car parking and we are not aware of any issues regarding this approach to car parking at the other Dairy Processing Management Area sites.

31. The predicted car parking demand at the site has been estimated as 90 cars. Assuming an area of approximately 30m^2 per car park leads to an area of 2,700m^2 required for car parking. This is

approximately 1% of the overall Plan Change area, so it is considered there is ample space to accommodate car parking.

32. Changes will be required to the text of District Plan Rule E26.1.5 (Dairy Processing Management Area – Parking) to include the Plan Change site.

Car Parking Layout

33. The District Plan includes sufficient controls regarding the layout and formation of car parking in Appendix 10 (referred to in Rule E26.1.5) to provide a practical and functional arrangement. No further consideration of this matter is considered necessary.

Loading

34. The District Plan does not include rules regarding the provision or layout of loading spaces for this activity. Again, it is considered to be within the dairy processing facility operator's best interest to provide on-site car parking and we are not aware of any issues regarding this approach to car parking at the other Dairy Processing Management Area sites.

35. It is considered there is more than sufficient area within the Plan Change site to satisfactorily accommodate loading. As such, the effects of this are considered to be acceptable.

Access Arrangements

Proposed Subdivision Access

36. Primary access to the Plan Change site is proposed to be via one of (but not both of) the proposed subdivision roads within IPort. These roads are illustrated in **Figure 2**.

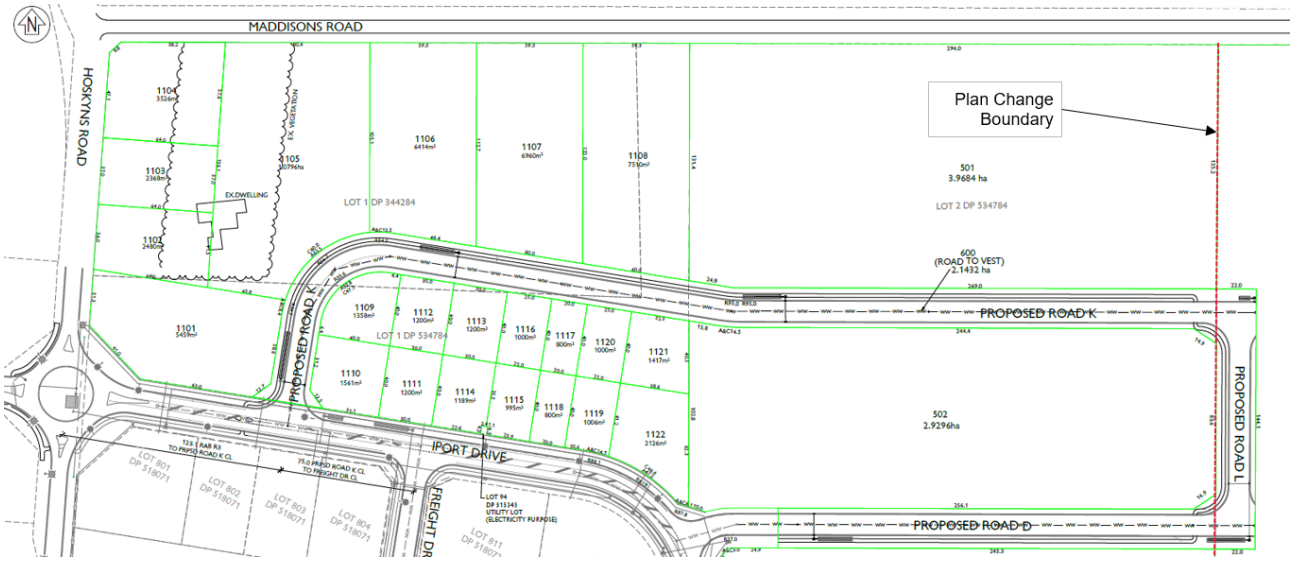

Figure 2: Proposed Subdivision Road Arrangement

37. The road arrangement illustrated in **Figure 2** indicates that Proposed Roads D and K both run direct into the Plan Change site. This is considered to be acceptable and will provide safe and efficient access. The accesses will essentially be at the end of a cul-de-sac so vehicles will not need to give-way to passing traffic. It is also anticipated that vehicles accessing the site would have priority over Proposed

Road L, because of the road alignments. In addition, the visibility out of the access will be good, as drivers are simply looking along a straight segment of road.

38. The alignment of having an access that runs straight into the site means that the access will not be able to comply with Rule E26.1.14, which requires:

> *All access from a local road shall comply with the design requirements of Appendix 10.*

39. The District Plan access arrangement is premised on access being taken from the side of a road. However, the potential access arrangements could have access being a continuation of a road. This non-compliance is Restricted Discretionary with the following matters listed.

> *a) The effects of any access not shown on the Outline Development Plan in Appendix 26Aand 26B, on the safety and efficiency of traffic on the road network.*
>
> *b) The safety of access to and from the State Highway, including the combined effect of the State Highway intersection and the site access where applicable.*
>
> *c) Intersection and road design.*

40. An additional assessment matter is considered appropriate for the application site because the above are not considered to satisfactorily address the potential effects associated with the non-compliance. The proposed site access would be in the correct location (as shown on the relevant Outline Development Plan) and access is not taken from a State highway. Equally, the design of the intersection and road are not necessarily applicable, as this is a vehicle crossing / site access.

41. It is recommended that the assessment matters listed under E26.3.7 be amended to include the following additional matter:

> ***d) With regard to the access designs for the Outline Development Plan Appendix 26C, whether the proposed access arrangement will compromise the safety or efficiency of the frontage road.***

42. As identified in paragraph 35, the effects of the access that is anticipated are considered to be acceptable. The above alteration to the assessment matters enables this to be appropriately considered at the time of applying for resource consent.

43. An access could also be constructed from Proposed Road L. This again may not comply with the District Plan rules as this would be an urban road, whereas the rules relate to rural roads. The additional assessment matter would enable consideration of the suitability of the proposed access arrangement and this is considered to be an acceptable mechanism for control.

Maddisons Road Access

44. The Maddisons Road access is anticipated to operate efficiently. This is a secondary access and is therefore anticipated to receive minimal use. The traffic volumes on Maddisons Road are low, such that traffic using this access will be able to identify safe gaps in traffic.

45. It is noted that the District Plan Dairy Processing Management Area rules include the following statement regarding secondary accesses, which will need to be updated to include the application site;

Secondary access points shown on the Outline Development Plan in Appendix 26A and Appendix 26B shall only be used for farm activities, emergency access and situations where the primary access is made temporarily unavailable by emergency services, the road or rail controlling authorities.[3]

46. This access will also be able to be designed in accordance with the requirements of the District Plan. Alternative access arrangements would be subject to the additional assessment matter recommended in paragraph 37.

LPC Midland Port Access

47. The access to the LPC Midland Port site is proposed to be for internal access only. Given it does not take access to the wider road network, it would not be subject to the design requirements of the District Plan. This is considered acceptable as it would be the subject of negotiations between the Plan Change developer and the Lyttelton Port Company.

Rail Access

48. The rail access via the Lyttelton Port Company will need to be designed in accordance with them to confirm that it meets their requirements. The operation of the rail siding along the southern boundary of the Plan Change site will not affect traffic operations.

49. The operation of a rail corridor that runs along the western boundary would require warning devices (such as barriers and lights) to ensure that people entering and exiting the site are aware of the presence of a train. The number of train movements is not anticipated to be high and it is considered unlikely that it will conflict with times of high traffic movements (i.e. staff shift change over). This will ultimately be a management matter for the site operator and the effects are anticipated to be acceptable.

Wider Network Effects

IPort Network

Daily Traffic Volumes

50. The majority of traffic generated by the proposed activity would be to / from the IPort road network via Proposed Road D, K and potentially L. These roads have been designed with a 12m carriageway.

51. NZ Standard 4404 (*Land Development and Subdivision Infrastructure*) suggests that an Industrial Local Road that has an 8.4m wide carriageway (including on-street car parking) can accommodate 2,000 vehicle movements per day. The highest traffic volume (prior to the Plan Change traffic being included) is on Proposed Road K which may accommodate 850 vehicles per day. The proposed traffic generated by the Plan Change development is estimated as being 400 vehicles per day, which leads to a total predicted traffic volume on Proposed Road K of 1,250 vehicles per day. This remains within the limits of NZS4404 and is therefore considered to be acceptable.

52. The traffic volumes on Proposed Roads D and L are lower than those estimated for Proposed Road K. The effects of taking access to these roads are considered to be acceptable given the traffic volumes will be lower and the effects on Proposed Road K were considered to be acceptable.

[3] Refer to E26.1.14 of the District Plan Rural volume.

Peak Hour Traffic Volumes

53. With regards to peak hour traffic, we have traffic modelling data of the road network around IPort for a range of scenarios of wider road network connectivity. Whilst the purpose of this modelling was to consider the effects of potential access options to and across State Highway 1, it does include predicted traffic volumes and the IPort Drive / Link Drive intersection with full development of IPort. This modelling indicates the highest volumes predicted on IPort Drive north of the intersection are in the order of 300 vehicles per hour in the peak hours.

54. The peak hour traffic volumes to / from Proposed Road K are 120 vehicles per hour. The proposed Plan Change activity would increase these to 180 vehicles per hour. **Table 3** is an extract from Austroads *Guide To Traffic Management (Part 3 – Traffic Studies)*[4] that identifies the volumes at which assessment of intersection operation is considered necessary.

Table 3: Intersection Volumes below which Capacity Analysis is Unnecessary

Major Road Type	Major Road Traffic Volume (vph) (IPort Drive)	Minor Road Traffic Volume (vph) (Proposed Road K)
Two Lane	*400*	*250*
	500	*200*
	650	*100*

55. The predicted traffic volumes at the IPort Drive / Proposed Road K intersection are lower than those set out in **Table 3**, so the operation of this intersection is considered to be acceptable with the proposed Plan Change traffic added to the road network. The operation of the IPort Drive / Proposed Road D intersection would also be acceptable, noting the traffic volumes would be lower still.

56. The safety of these intersections is considered to be acceptable, noting these are new elements of the road network that have / will be undergoing safety audits. Both intersections have right turn bays proposed to provide a safe waiting facility for vehicles turning from IPort Drive. These intersections also have good visibility, noting that the Proposed Road D intersection is on a straight and the Proposed Road K intersection is on the outside of a bend.

57. The safety effects at the Proposed Road K / Proposed Road L intersection and the Proposed Road D / Proposed Road L intersection are also considered to be acceptable. The traffic volumes will be very low in this area and this is a newly designed road network that will have been through a Road Safety Audit process.

Maddisons Road

58. The effects on Maddisons Road are anticipated to be acceptable because of the low volumes predicted to use this access associated with the Plan Change.

Alternate Transport Modes

59. The site is reasonably remote to residential areas, so it is anticipated that walking will not form a significant portion of the mode share for journeys to work. That said, there are footpaths proposed on

[4] Refer to Table 6.1 of that document.

the surrounding road network so staff will be able to walk to the facilities in the emerging surrounding area.

60. Similarly, the site is not served by passenger transport. It is considered unlikely that staff would use the bus given the lack of facilities. This is consistent with the IPort development.

61. There is potential that staff would cycle to the Plan Change site. It is approximately 2.5km from the centre of Rolleston and this is a comfortable cycling distance. The roads within IPort are sufficiently low volume to accommodate cycles without requiring dedicated provision.

Summary & Conclusion

Summary

62. It is proposed to undertake a Plan Change to enable development of the site at Lot 3 DP 52556 on Maddisons Road as a dairy processing facility. The site will take primary access from within the IPort industrial subdivision, with secondary access to Maddisons Road and a potential internal link to the LPC Midland Port. A potential rail link to the Midland Port is also proposed. The Plan Change activity is predicted to generate up to 400 vehicle movements per day and 60 vehicle movements per hour.

63. Matters associated with car parking and loading have been considered. It is noted there is no requirement for these to be provided, consistent with the existing Dairy Processing Management Area sites. There is more than sufficient space within the site to accommodate car parking and loading and it is within the best interest of the developer to accommodate these demands. As such, this approach is considered to be acceptable.

64. Standards are set out in the District Plan to ensure the car parking arrangement is practical and functional.

65. The access arrangements have been considered and are anticipated to be acceptable. It is noted that the access to the IPort road network is unlikely to comply with the District Plan requirements. The following assessment matter (under E26.3.7) is proposed to enable a suitable assessment of the effects of this non-compliance:

> ***d) With regard to the access designs for the Outline Development Plan Appendix 26C, whether the proposed access arrangement will compromise the safety or efficiency of the frontage road.***

66. The effects of the proposed Plan Change activity on the safety and efficiency of the wider transport network have been reviewed and are considered to be acceptable.

Conclusions

67. The transport effects of the proposed Plan Change are considered to be acceptable and less than minor subject to alterations to the District Plan rules as identified in this report (or alternative wording with the same intention).