

**Residential Development
348 Linwood Road, Karaka North**

Addendum Report

27 June 2022





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1 INTRODUCTION

A proposal for a fast-track consenting referred project has been lodged in March 2022 comprising the subdivision of an 81-hectare block in Karaka North at 69a Dyke Road and 348 Linwood Road, Papakura, Auckland (referred to as the “*original proposal*” within this report). The original proposal intended to create an integrated rural village settlement, comprising residential development and a local centre at the intersection of Dyke, Blackbridge and Linwood Roads. An Integrated Transport Assessment (ITA) was prepared by Commute (dated March 2022) to support the original proposal (referred to as the “previous report”). This previous report assessed 850 residential sites and concluded “*that there is no traffic engineering or transportation planning reason to preclude acceptance of the development of the subject site as proposed*”.

Subsequent to the application being lodged the Proposed layout has been revised and now comprises a reduced scope of works. The revised proposal is for a subdivision of the land to create up 327 lots, including 16 superlots that are anticipated for a future yield of 316. This gives an overall total of 627 dwellings. This report assesses the proposed changes and its effects on the surrounding road network.

Table 1 and Figure 1 below outline the key changes.

Table 1: Key changes to the proposal

Proposed amendments		Future proposed layout	Current layout	Comment
Proposed activity				
Residential lots	Total no. of residential dwellings	850	627	Reduction of 223 dwellings from future layout
	Land-use development of 316 high-density residential units	✓	✗	Not included as part of this proposal
Local Centre		✓	✗	Not included as part of this proposal
Community Centre		✓	✗	
Wastewater treatment plant		✓	✓	No change
Road network				
Upgrade of Linwood Road / Dyke Road intersection to a roundabout control		✓	✓	No change
Upgrade Linwood Road		✓	✓	No change
Upgrade Dyke Road (between Linwood Road and the northern boundary of the site)		✓	✗	No upgrade of Dyke Road is proposed at this stage
Internal road network proposed within Stage 1-17		All internal roads proposed as per ITA	Removal of proposed internal roads within <ul style="list-style-type: none"> • Stage 3-4&12-15); and • Stage 17 (in part) 	Removal of several internal roads

Figure 1: Proposed reduction in scope of works



This report has been structured in the same way as the March 2022 report with updates provided for each section.

2 EXISTING ENVIRONMENT

2.1 SITE LOCATION AND ROAD LAYOUT

No changes from previous report.

2.2 TRAFFIC VOLUMES

No changes from previous report.

2.3 ROAD SAFETY

No changes from previous report.

2.4 PUBLIC TRANSPORT SERVICES

No changes from previous report.

3 FUTURE TRANSPORT UPGRADES

No changes from previous report.

4 PREVIOUS TRANSPORTATION ASSESSMENTS

4.1 EXISTING CONSENT

No changes from previous report.

4.2 EXISTING SUPERLOT SUBDIVISION

No changes from previous report.

4.3 NEIGHBOURING CONSENTS,

No changes from previous report.

5 PROPOSED DEVELOPMENT

5.1 GENERAL

It is proposed to provide a total of 23 new roads accessing 327 residential lots (of various sizes) including 16 superlots to cater for a theoretical yield of 316 dwellings (total 627 dwellings) and water and waste water treatment plant on the site at 348 Linwood Road and 69A Dyke Road.

It is noted that all residential lots will be formed as vacant fee simple lots or superlots thus the exact detail in terms of individual lot access, parking provision and layout is not yet known for these. This will be determined and assessed during later design stages.

Figure 6 below shows the proposed development with more detail for each component given below.

Figure 2: Proposed development layout



5.2 ROADING UPGRADES

The site has frontage to both Linwood Road and Dyke Road and the following roading upgrades are proposed to enable the development to be accommodated:

- upgrade of the existing priority-controlled Dyke Road / Linwood Road / Blackbridge Road intersection with a single lane roundabout
- a new primary all movements priority-controlled intersection on Linwood Road and Road 1 some 450m west of the proposed new roundabout, one smaller secondary all movements intersection (Road 2B) onto Linwood Road between Road 1 and the proposed roundabout
- new speed reduction on Linwood Road (from 80kph to 50kph) between the proposed roundabout at Dyke Road and near Road 1, including speed reduction thresholds on the Linwood Road approach from the west. This reduced speed section of Linwood Road will include a flush median that will enable access to individual vehicle crossings that service residential sections and the village centre.
- introduction of pedestrian facilities along the site frontage on Linwood Road (east of Road 1) and Dyke Road (near the vicinity of the new roundabout only)
- network of 23 new roads with varying cross-section types internal to the site.

5.3 VILLAGE CENTRE

A Village Centre (and any access associated with this activity) is no longer included in the scope of this project.

5.4 WATER AND WASTEWATER TREATMENT PLANT

No changes from previous report.

5.5 RESTAURANT / COMMUNITY AND FUNCTION VENUE

A Restaurant / Community and function Venue (and any access associated with this activity) is no longer included in the scope of this project.

6 TRAFFIC EFFECTS

6.1 TRIP GENERATION

6.1.1 RESIDENTIAL LOTS

Based on the trip rates in the original report and a total of 627 proposed dwellings, the site is expected to generate some 533 trips in the peak hour or 5,643 trips per day. This compares to the previous report for the future yield which had a total of 837 proposed dwellings, and is expected to generate some 712 trips in the peak hour or 7,533 trips per day

6.1.2 VILLAGE CENTRE

A Village Centre is no longer included in the scope of this project.

6.1.3 WATER AND WASTEWATER TREATMENT PLANT

No changes from the previous report.

6.1.4 RESTAURANT / COMMUNITY AND FUNCTION VENUE

A Restaurant / Community and function Venue is no longer included in the scope of this project.

6.1.5 SUMMARY

Table 1 below summarises the trip generating potential of the proposed developments using the evening peak hour.

Table 2: Anticipated trip generation based on proposed activity type

Activity	Size	Peak hour trip Rate	Peak hour trips
Residential lots	627 dwellings	0.85 / dwelling	533
Wastewater Plant	2	1 / employee	2
Total			535 trips

6.1.6 VILLAGE CENTRE PASS-BY

A Village Centre (and any access associated with this activity) is no longer included in the scope of this project.

6.2 NEIGHBOURING DEVELOPMENTS

No changes from the previous report.

6.3 TRIP DISTRIBUTION

Section 6.3 of the ITA report contained details of trip distribution. The distribution of traffic with the revised proposal is expected to be the same with some minor changes relating to removal of road connections. These changes would not noticeably change this section.

7 INTERSECTION PERFORMANCE

Section 7 of the ITA report outlined an assessment of the proposed trip generation (as a result of the original proposal) on the surrounding network (including Dyke Road / Linwood Road intersection and new Road 1 / Linwood Road intersection). The former development (outlined within the ITA) considered a significantly larger proportion of residential development (and other various activities) within the Karaka North site and therefore a higher level of trip generation to that currently proposed. In this regard, it is considered that the revised proposal for a total of 327 lots, including 16 superlots that are anticipated for a future yield of 316 dwellings (total of 627 dwellings and 533 peak hour trips) can be accommodated within the existing road network.

As such, no further assessment has been undertaken of the performance of the Dyke Road / Linwood Road roundabout and Road 1 / Linwood Road intersection to that already outlined within the ITA report.

8 ROAD NETWORK

8.2 ROAD CROSS-SECTIONS

8.2.1 GENERAL

Figure 2 above shows the proposed new roading layout. In general, there are no changes from the ITA to the overall cross-section of the roads to be upgraded.

8.2.2 LINWOOD ROAD

No changes from previous report.

8.2.3 DYKE ROAD

The proposal intends to upgrade the Linwood Road / Dyke Road intersection from a priority control to a single lane roundabout. North of the new roundabout, the carriageway is proposed to tie into the existing width along Dyke Road (approximately 6.0 m). Excluding the above upgrades, no additional changes are proposed along Dyke Road.

A desktop assessment has been undertaken of the existing carriageway widths along Dyke Road (between the proposed Road 2 connection and Linwood Road). Based on the assessment, Dyke Road largely comprises a carriageway width of approximately 6m with localised areas comprising a 5.8 m width. In this regard NZS4404 and Austroads Guide Part 3 provides guidance on the carriageway widths required for a rural area serving various traffic volumes. Based on the level of vehicle movements predicted at the Linwood Road / Dyke Road intersection, Dyke Road is expected to serve up to 298 vehicles during the peak

hour. Peak hour volumes are typically estimated as 10% of daily traffic therefore up to 2,980 daily trips can also be expected along this corridor.

Table 4.5 of Austroads outlines that for a single carriageway rural road serving an AADT between 1,000-3,000 vpd, the following is required:

- 7.0 m carriageway width (2x3.5m wide traffic lanes)
- 2.0m shoulder width including 1.0 m sealed shoulder
- Total carriageway width of 11.0 m.

Table 3.2 of NZS4404 also outlines that for “*All other situations (where not specified elsewhere)*” serving approximately 2,500 vpd requires the following:

- 5.5-5.7 m wide carriageway width;
- 1.5 m total shoulder width including 1.0 m sealed (total carriageway width of 8.5 m); and
- 1.5 m pedestrian access either side (separate from the carriageway).

Based on aerial measurements, the carriageway width is approximately 6.0 m (excluding shoulder) and approximately 7.4-8.5 m wide (including unsealed shoulder) therefore does not meet the requirement. It is noted that while a connection to Dyke Road is proposed, no lots are to be provided direct access onto Dyke Road (as part of this stage). It is noted that this section of Dyke Road is straight and essentially flat in nature therefore vehicles travelling between the Road 2 connection (via Dyke Road) and Linwood Road are expected to have clear visibility of each other along Dyke Road and therefore the additional vehicles are not expected to exacerbate the safety of the existing road network. Therefore, the existing width is considered acceptable (before the village centre or lots with direct frontage onto Dyke Road are developed).

It is noted that public transport services are expected to be considered along the Road 1-Road 2-Dyke Road link (as part of future stages). In this regard, should any buses be required to utilise Dyke Road to access the site, it is recommended to upgrade Dyke Road (including carriageway width and pedestrian provision) as per the Section 8.2.3 of the ITA.

It is noted that upgrades to urbanise the eastern side of Dyke Road will be undertaken separately by the developers of those lots. It is understood that 2.7 m wide parking and a 1.8m wide footpath (along the eastern developers' frontage) will be provided on the eastern side of Dyke Road as part of their separate development.

8.2.4 INTERNAL ROADS

No change from previous report. Figure 3 below shows the proposed roading layout.

Figure 3: Proposed roading layout



8.2.4.1 ROAD 1 (ENTRY AVENUE)

No changes from previous report.

8.2.4.2 ROAD 2 (OAK TREE AVENUE)

The proposal now intends to construct Road 2 (between chainage 0-785m). No other changes are proposed from the previous report.

8.2.4.3 ROAD 3 (GREEN STREET)

In general, no changes are proposed to the previous report in regards to the cross-section of this road.

It is noted that Road 3 on the western end terminates at the intersection with Road 3B. It is recommended that temporary road markings should be provided at the Road 3B / Road 3 intersection to alert road users on Road 3B to give-way to traffic along Road 3.

8.2.4.4 ROAD 7 (PLANE TREE AVENUE)

In general, no changes are proposed to the previous report in regards to the cross-section of this road.

As part of this proposal, Road 7 is not proposed to connect to Dyke Road. It is noted that Road 7 on the eastern end temporarily terminates at the intersection with Road 8 (until such time as the development to the east occurs). It is recommended that temporary road markings should be provided at the Road 8 / Road 7 intersection to alert road users on Road 8 to give-way to traffic along Road 7.

8.2.4.5 ROAD 2 & ROAD 6 IN PART (PARK EDGE STREET)

This section no longer applies. Road 2 (between chainage 1025-1125m) and Road 6 is not proposed as part of this proposal.

8.2.4.6 LOCAL STREET (18M ROAD RESERVE WIDTH)

In general, no changes are proposed to the previous report in regards to the cross-section of a local road (comprising an 18 m road reserve width).

It is noted that a temporary turning head is required (and proposed) at the end of Road 8 (north-western end) until such time the road is extended. The proposed turning head should comply with the AT TDM standards.

8.2.4.7 LOCAL STREET (16 M ROAD RESERVE WIDTH)

No changes from previous report.

8.3 INTERSECTION LAYOUTS

8.3.1 LINWOOD ROAD / DYKE ROAD / BLACKBRIDGE INTERSECTION

No changes from previous report.

8.3.2 ENTRY AVENUE ROAD (ROAD 1) / LINWOOD ROAD INTERSECTION

No changes are proposed to this intersection to that outlined within the previous report. It is noted that any site boundaries for Lots 1-316 (high density units) shown in Figure 30 of the original report have been removed and are no longer included as part of this proposal, however the overall layout of the intersection remains unchanged.

8.3.3 ROAD 2B / LINWOOD ROAD INTERSECTION

No changes are proposed to this intersection to that outlined within the previous report.

8.3.4 ENTRY AVENUE (ROAD 1) / ROAD 2 / ROAD 5 ('THE CIRCUS')

No changes are proposed to this intersection to that outlined within the previous report. It is noted that any site boundaries for Lots 1-316 (high density units) or accessing from Road 10 / 11 shown in Figure 32 of the original report have been removed and are no longer included as part of this proposal, however the overall layout of the intersection remains unchanged.

8.3.5 LOCAL / LOCAL ROAD INTERSECTIONS

In general, this section is unchanged. There are a small number of local intersections that will require temporary road markings/ barriers to be installed due to some roads not being formed however this can be considered at engineering approval stage. It is noted that any

site boundaries for Lots 1-316 (high density units) shown in Figure 33&34 of the original report have been removed and are no longer included as part of this proposal, however the overall layout of the intersections generally remain unchanged.

8.3.6 TURNING HEADS

A temporary turning head is proposed at the end of Road 8 and Road 4 respectively and should be designed to comply with AT TDM requirements.

Vehicle tracking at each turning should be checked at EPA stage to ensure there is adequate space for a 10.3m truck to turn around.

8.3.7 SEPARATION TO INTERSECTIONS

No changes from previous report. It is noted that the Road 10 / Dyke Road intersection is no longer included as part of this proposal.

8.4 VEHICLE TRACKING

No change from previous report.

8.5 SPEED MANAGEMENT / TRAFFIC CALMING

8.5.1 LINWOOD ROAD

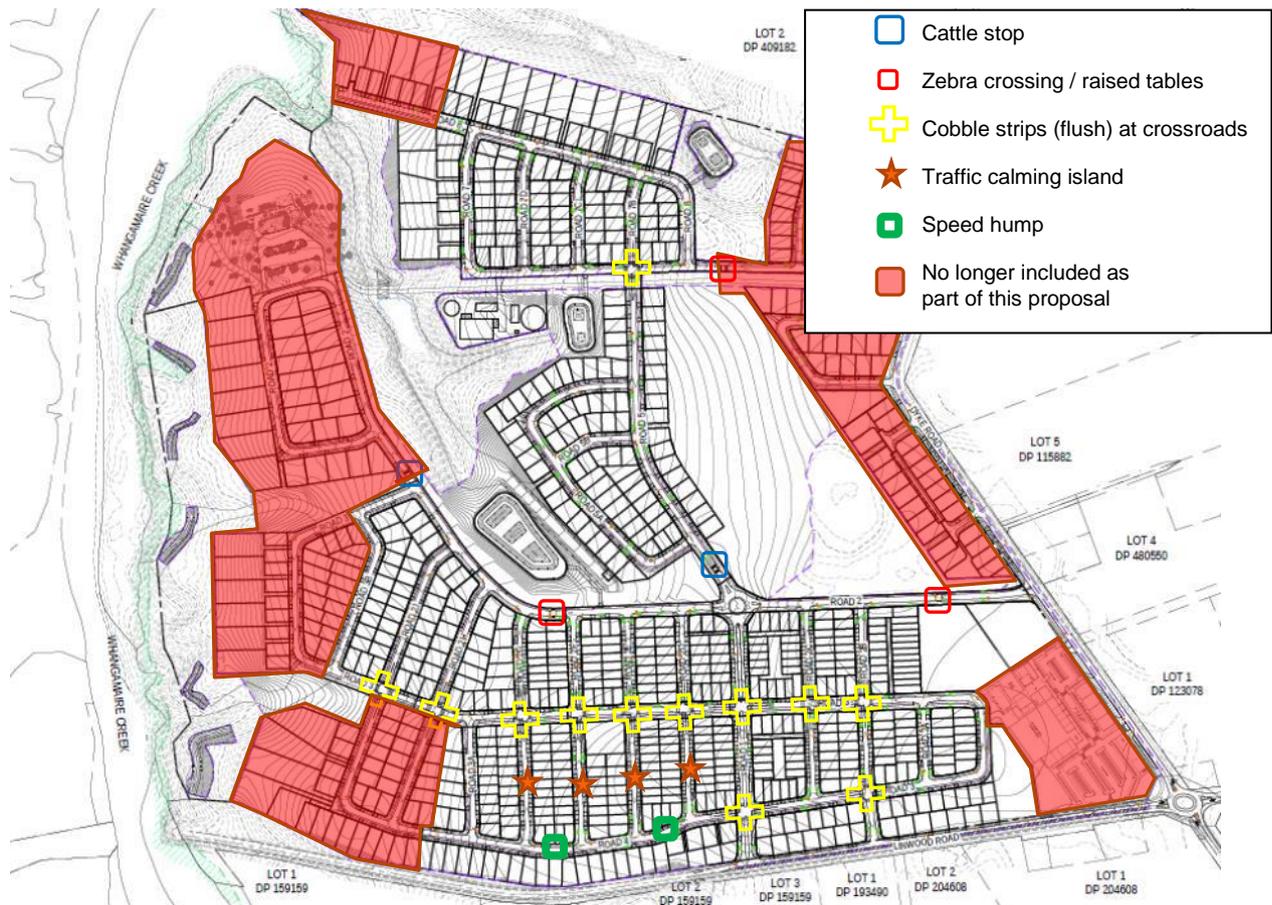
No changes from previous report

8.5.2 INTERNAL TRAFFIC CALMING

In general, no changes to the traffic calming measures. It is noted that some of the more detailed measures will not occur (as some roads are not to be constructed).

The location of all proposed internal traffic calming measures can be seen in Figure 4 below.

Figure 4: Proposed internal traffic calming measures



8.6 SIGHT DISTANCE

8.6.1 INTERSECTIONS

No changes from the previous report.

8.6.1.1 LINWOOD ROAD AND DYKE ROAD

No changes from the previous report.

8.6.1.2 INTERNAL LOCAL ROADS

No changes from the previous report. It is noted that a number of internal local roads (and thus several intersections) will not be constructed as part of this proposal.

8.6.2 PRAM CROSSINGS

As per previous report. Any intersections that have since been removed are no longer considered relevant.

8.7 VERTICAL ALIGNMENT

8.7.1 GRADIENTS

No changes from previous report. Any roads that have since been removed are no longer considered relevant.

8.7.2 K VALUES

As per previous report. Any roads that have since been removed are no longer considered relevant.

8.8 MATERIALS / SURFACE TREATMENTS

No changes from the previous report.

8.9 PUBLIC TRANSPORT

No change to the future public transport route. It is considered that with the number of dwellings proposed the bus route will unlikely be viable with the current proposal. As noted previously if the bus route does occur it is considered Dyke Road will need to be upgraded (from Linwood Road roundabout to Road 2).

9 ACCESS

It is noted that a number of crossings are no longer being considered as part of this proposal (and any assessment associated with those crossings are no longer relevant). This includes crossings outlined within the previous report that serve JOAL 1, Lot 1-316 / JOAL's serving these lots including JOAL 2-5 (now proposed as Superlots), the Community Centre, Village Centre and any crossings located along an internal road that is no longer proposed. The assessment for the remaining crossing is as per previous ITA report.

For all residential lots (including superlots) vehicle access, parking and manoeuvring will be assessed as part of any future resource and / or building consent stage and therefore have not been assessed as part of this application.

9.1 PEDESTRIANS / CYCLISTS

This section is largely unchanged. Figure 5 of the ITA outlines the facilities which will provide a safe and efficient pedestrian / cycling network through the site. With the removal of some roads a small number of these connections will not be constructed in the short term. These are shown in Figure 4 below.

Figure 5: Proposed pedestrian / cycle network (not proposed at this stage)



10 PARKING

10.1 UNITARY PLAN PARKING REQUIREMENTS

10.1.1 NUMBER OF SPACES REQUIRED

No changes from the previous report.

10.1.2 RESIDENTIAL ACTIVITY

No changes from the previous report. As outlined above, no high-density residential units are included as part of the revised proposal therefore any assessment of parking for Lots 1-316 (within the previous report) are no longer considered relevant.

10.1.3 VILLAGE CENTRE

A Village Centre (and any access associated with this activity) is no longer included in the scope of this project.

10.2 DIMENSIONAL REQUIREMENTS

10.2.1 REQUIREMENTS

No changes from the previous report.

10.2.2 RESIDENTIAL (VACANT LOTS)

No changes from the previous report.

10.2.3 VILLAGE CENTRE

A Village Centre (and any access associated with this activity) is no longer included in the scope of this project.

10.2.4 COMMUNITY CENTRE

A Community Centre (and any access associated with this activity) is no longer included in the scope of this project.

10.2.5 HIGH DENSITY RESIDENTIAL UNITS

High density residential units are no longer included in the scope of this project.

10.3 VEHICLE TRACKING

No changes from the previous report. Any vehicle tracking associated with the high-density residential units, Village Centre or Local centre are no longer relevant as these activities are not included in the scope of this project (to be considered at later stages).

10.4 CYCLE PARKING

10.4.1 GENERAL

No changes from the previous report.

10.4.2 VILLAGE / COMMUNITY CENTRE

A Village Centre / Community Centre (and any access associated with this activity) is no longer included in the scope of this project.

10.5 ON-STREET PARKING

10.5.1 LOCAL STREETS

No changes from the previous report. A number of roads are no longer proposed as part of this proposal and as such, any parking spaces associated within these roads are not included at this stage.

10.5.2 VILLAGE CENTRE

A Village Centre (and any access associated with this activity) is no longer included in the scope of this project.

11 SERVICING AND LOADING

No changes from the previous report. Of note the comments in the previous report on servicing and loading of the village centre no longer apply.

12 CONCLUSION AND RECOMMENDATIONS

Following a review of the revised proposal for a proposed residential subdivision and development at 348 Linwood Road in Karaka, the following can be concluded:

- The layout is essentially the same as that previously assessed.

- The High density units (Lots 1-316), Village Centre, Community Centre and a number of internal local roads are no longer proposed as part of this development. This includes any vehicle crossings, parking provision and/or pedestrian provisions associated with these activities / roads.
- The majority of upgrades to the surrounding road network are retained as part of the revised proposal. This excludes the upgrade of Dyke Road between Linwood Road and Road 2 and is described in further detail in Section 8.2.3 above. This section of Dyke Road no longer includes direct vehicle access to any lots. Should a bus route be established within the site (or the village centre or lots with direct frontage onto Dyke Road are developed) it is considered Dyke Road will need to be upgraded (from Linwood Road roundabout to Road 2).

Recommendations

- As per previous report

Accordingly, subject to the above, it is concluded that there is no traffic engineering or transportation planning reason to preclude acceptance of the development of the subject site as proposed.

Commute Transportation Consultants

ATTACHMENT A – 14 SUPERLOT SUBDIVISION TECHNICAL MEMO

No changes from previous report.

ATTACHMENT B – VEHICLE TRACKING

No changes from previous report.

ATTACHMENT C – VEHICLE TRACKING

No changes from previous report.

ATTACHMENT D – VEHICLE TRACKING-HIGH DENSITY RESIDENTIAL UNITS

No changes from previous report.