584 SH 23 Whatawhata Rd

584 State Highway 23 Whatawhata Road & Brymer Road, Rotokauri

Transportation Assessment for Fast Track Referral Application

15 April 2025, v2 Final

transplan

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Abbreviations

NZTA (or Waka Kotahi)	The New Zealand Transport Agency
WRTM	Waikato Regional Transportation Model
CBD	Central Business District
Rd	Road
Ave	Avenue
St	Street
SH23	State Highway 23
Ha	Hectares
WDC	Waikato District Council
HCC	Hamilton City Council
RITS	Regional Infrastructure Technical Specifications
m	Metres
Km	Kilometres
Km/h	Kilometres per hour
Hr	Hour
Yr	Year
ITA	Integrated Transport Assessment
LoS	Level of Service (also see *Glossary*)
Veh/hr	Vehicles per hour

Glossary

Level of Service (LoS)	LoS is a qualitative stratification of the performance measure or measures representing quality of service. A LoS definition is used to translate complex numerical performance results into a simple stratification system representative of road users' perceptions of the quality of service provided by a facility or service (HCM 2016). These service measures include speed and travel time, delay, density, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. In general, there are six levels of service, designated A to F, with LoS A representing the best operating condition and service quality from the users' perspective (i.e., free-flow) and LoS F the worst (i.e., forced or breakdown flow or having reached a point that most users would consider unsatisfactory, as described by a specific service measure value or a combination of service measure values).
Saturation (or Degree of Saturation)	The concept of degree of saturation, or VCR (Volume to Capacity Ratio), is used in the capacity and operational analysis of intersections. The degree of saturation of a signalised intersection approach may be defined as the ratio of the arrival flow (demand) to the capacity of the approach during the same period The degree of saturation of an intersection approach ranges from close to zero for very low traffic flows up to 1.0 for saturated flow or capacity. A degree of saturation greater than 1.0 indicates oversaturated conditions in which long queues of vehicles build up on the critical approaches. In general, the lower the degree of saturation the better the quality of traffic service. However, the degree of saturation, delay and queue length parameters should always be used together to assess intersection performance. In practice the target degrees of saturation of 0.90 for signals, 0.85 for roundabouts and 0.80 for unsignalised intersections are generally agreed to. These are usually called 'practical degrees of saturation'.

Source: AGTM03-20 Part 3 Transport Study and Analysis Methods, Austroads

1 Introduction

1.1 Overview

Brymer is a residential development that comprises circa 1,650 residential units of varying typologies, such as detached, duplexes, terraces, apartment units and retirement village units, along with a supporting mixed-use neighbourhood centre, open spaces, and infrastructure. The Brymer Masterplan is shown in **Figure 1** and contained within the Urban Design Memorandum.

The residential community is underpinned by a series of design principles, which focus on creating a well-connected, legible and diverse community on Hamilton City's urban fringe. The proposed transport network, with a 20 metre wide spine road running north-to-south, is supported by local roads, cycle connections and pedestrian pathways to create an accessible and legible development. As aforementioned, a range of housing typologies and densities are proposed to meet the growing and changing needs of the housing market to ensure there are options for future residents. Each typology has been thoughtfully located, based on opportunities and constraints, with density ranging from terraces, duplexes and standalone dwellings to ensure integration with the adjoining urban footprint.

In the heart of Brymer is a 0.3 hectare mixed-use neighbourhood centre that will provide a range of amenities and services to support the residential development. This mixed-use neighbourhood centre will likely include commercial properties, cafés and a local superette. Apartment units are provided above the neighbourhood centre. The commercial element of the residential development has been scaled to support the density proposed, located directly adjacent to the majority of apartment building typology.

Sitting at the higher, northern point of the site is a retirement village, that comprises approximately 3.4 hectares, and provides villa terraces, apartment units and an amenity building. This will be serviced by its own private transport network, infrastructure, and high amenity open spaces.

Integrated throughout the residential development are a number of open spaces that are well distributed to create a highly amenable community that will be a pleasant and enjoyable place to live for future residents. The open spaces support ecological restoration through the retention of a number of natural wetlands and riparian revegetation.

The development will be appropriately serviced via a robust infrastructure strategy, which includes a new pump station, wastewater discharge and treatment area, stormwater ponds, and utilisation of the existing water bores.

1.2 Property Particulars

The site includes the following properties (refer to **Figure 2**):

- Lot 3 DP 385271 & Lot 1 DPS 57291 (RT:341666);
- Lot 22 DPS 79526 (RT:SA63C/424);
- Part Lot 2 DP 18355 (RT:SA910/139); and
- Allot 365 Pukete Parish (RT: SA6D/233).

2 Transport Overview

2.1 Introduction

The transportation assessment and modelling outcomes of the subdivision development is based on a concept masterplan which has been subsequently updated over time. However, many aspects of the development including wider roading connections and form are still relevant.

2.2 Connectivity

The site is well-connected to major transport routes, including SH 23 and Brymer Road, which link the area to Hamilton City and surrounding suburbs like Dinsdale and Nawton. The road network integrates with

local amenities such as Te Kootii Park, which will provide for pedestrian and cycle connections to nearby schools, shops, and recreational facilities.

2.3 Key Intersections

The site has frontage/access to three existing roads. New access intersections with these roads are proposed, as follows:

- Priority T-intersection on SH 23 Whatawhata Road (refer **Figure 3**). This will be upgraded and signalised as development progresses;
- Priority T-intersection junction on O'Brien Road(refer **Figure 4**).
- Priority T-intersection junction on Brymer Road (refer **Figure 5**).

The development also makes provision for indicative future access connections via Harrogate Place and Angus Street (via te Kootii Park). These connections are however not required to support the initial stages of development but may be activated later to redistribute traffic and balance network loads. These connections would however serve as active mode connections (e.g., walking and cycling). The use of these connections could potentially be limited for use by commuter buses and emergency vehicles (e.g., in addition to active modes).

The proposed intersection layouts and future internal roading network within the development will require confirmation as part of a future Integrated Transport Assessment (ITA). However, the proposed development connections are considered broadly in line with the requirements of the HCC District Plan standards.

2.4 Alternative Modes

Active transport pathways will be integrated into the development early to reduce car dependency. The proposed infrastructure for alternative modes includes:

- Comprehensive active transport links throughout the development, comprising of footpaths, cycle paths and shared paths, linking with the established active modes infrastructure in Hamilton.
- A private shuttle service will operate initially, connecting residents to Dinsdale shops and schools until public bus services are introduced to the development area.

2.5 Project Stages and Key Access Intersections

2.5.1 Northern Area

Key access intersections in the northern development area include:

- Brymer Road T-intersection
- Obrien T-intersection

2.5.2 Southern Area

The primary access intersection for the southern development area will be via SH23 Whatawhata Road and will take the form of a priority-controlled T-intersection. The intersection will need to be upgraded in future to a traffic signals intersection as development progresses and associated traffic demands are realised.

2.5.3 Central Area

It is anticipated that development of the central area will follow development of the northern and southern areas, contingent on Harrogate Place and Angus Street (via te Kootii Park) connections, if activated for traffic redistribution, or using other alternative connections. These connections will be further assessed as part of the design development stages.

2.6 Transport Infrastructure Sequencing

- New access intersections built in parallel with staged development.
- Active transport pathways integrated early to reduce car dependency.
- Private shuttle service operational at occupancy to offset limited public transport access.

2.7 Commuter Bus Services

There are seveeral commuter bus services accessible near the site as it relates to the northern development area (via Farnborough Drive to the north), the central development area (Ayrshire Drive to the northeast) and the southern development area via SH 23. Initial access to commuter bus services could be made more accessible should an internal road and/or active transport linkage connect the central development area to the northern development and/or through Harrogate Place or Angus Street (via Te Kootii Park).

To assist with local public transport connections, the developer will provide a private bus/shuttle service between the development and the Dinsdale shops until the development population justifies new public bus routes to service the area more fully.

2.8 Road Safety

There have been few recorded crashes on roads near the site. Whereas there are not inherent safety issues that have been identified, a safe system approach will be followed in assessing any road infrastructure that may be required to support the development and ensure that safe road and transportation infrastructure is prioritised.

2.9 Traffic Volumes

Traffic volumes on roads surrounding the site are moderate in nature, including along SH 23 and Brymer Road. As such, the existing road network operates efficiently under current conditions but is nearing capacity in key areas due to increased traffic volumes from continued development growth in the northwestern part of Hamilton (e.g., Rotokauri).

2.10 Development Traffic Generation

The proposed development comprising approx. 1,657 dwelling units will generate significant traffic demands (refer **Table 1**). The development is expected to generate in the order of 11,000 vehicles per day (vpd) split by direction in and out and toward destinations throughout Hamilton and beyond. The AM peak hour demand has been estimated at approx. 900 vehicles/hour (vph), with PM peak hour demand reaching approx. 800 vph.

Table 1: Development Trip Generation Estimation

Peak Period / Land-use	Units	AM Peak Hr Trip Rate	AM Peak Hr Trips	PM Peak Hr Trip Rate	PM Peak Hr Trips	Daily Trip Rate	Daily Trips
Higher density typology (4.5m - 6m lots; 7.5m - 9m lots)	279	0.53	148	0.32	89	6.8	1,897
Lower density typology (10m+ lots)	593	0.71	421	0.78	463	8.2	4,863
Larger / irregular / rear lots	70	0.71	50	0.78	55	9	630
Apartment units	465	0.53	246	0.32	149	6.8	3,162
Retirement village	250	0.13	33	0.20	50	1.8	450
Total	**1,657**		**898**		**805**		**11,002**

The peak hour trip generation of the southern development area is expected to be easily accommodated by a priority-controlled T-intersection on SH23. Further, there is sufficient residual capacity (up to approx. 300 vehicles per hour) within the intersection to accommodate a further 30% of the central development area noting that excessive queues and delays are imposed on the right-turn out movement from the development in the AM peak period. This will be resolved with introduction of traffic signals at the intersection.

Similarly, the peak hour trip generation associated with the northern development area can comfortably be accommodated by a priority-controlled T-intersection on Brymer Road. Further, it is anticipated that there will be sufficient residual capacity within the intersection (up to around 800 vph) to accommodate a further 80% of the central development area. The O'Brien Road connection (leading to Bagust Road) will also provide more than adequate capacity.

Should an additional connection be provided off Harrogate Place, the existing road network could potentially accommodate up to 800 vpd from the development (or an additional approx. 115 standalone dwelling units off Harrogate Place). To achieve this, the carrying capacity of the surrounding 'minor access' streets including Harrogate Place, Ayrshire Drive, Highgrove Drive and Angus Street will need to be improved by setback of the current on-street parking spaces. This is due to 'blockage' effects created by on-street parking and a narrow carriageway of approximately 7.5 m along these streets. The cost of the parking setbacks will need to be considered in further, more detailed feasibility assessments. Furthermore, the existing intersections linking Harrogate Place to Brymer Road/Grandview Road has sufficient capacity to accommodate these flows without any further capital investment.

The design of the proposed Collector Road intersection with SH23 requires a right-turn bay treatment with a wide centreline treatment separating opposing flows at the outset. The intersection layout has been designed to accommodate turning HCVs to comply with *RTS-18 NZ On-road Tracking Curves for Heavy Motor Vehicles*.

The Collector Road has been designed to make provision for a central median (solid or flush median) to accommodate right turning movements into adjacent local roads. The formation also makes provision for a wide berm to allow indented carparking to service adjacent dwellings as required. Both berms make provision for off-road cycle lanes and footpaths. The current Obrien Road intersection with Bagust Road does not require further modification and retains the basic turning treatment with shoulder widening for left- and right-turning vehicles.

2.11 Adverse Effects and Mitigation

The potential adverse transportation effects associated with the developments traffic generation and associated mitigation measures and resulting benefits, is summarised in **Table 2** below.

Table 2: Adverse Transportation Effects, Mitigation and Benefits

Effect	Mitigation Measure	Benefit
AM/PM peak congestion on SH23	Upgrade intersection to a signalised intersection prior to the development reaching an agreed traffic threshold level based on traffic volumes and/or level of service (LOS).	Reduces delays by 65% and accommodates future growth.
Traffic redistribution stress	Phased development to limit Middle Development trips until additional road connections are available	Balances network load; avoids overwhelming SH 23 Whatawhata Road, Brymer Road and O'Brien Road.
Safety risks at intersections	Implement safe-system design solutions	Addresses historical and potential crash types on the surrounding road network.
Construction disruption	Staged earthworks and wetland preservation measures	Minimises ecological impact and maintains existing drainage functionality.

3 Next Steps

From a transport perspective the following activities will need to be undertaken and agreed to with the relevant road controlling authorities (RCAs):

- Finalise masterplan layout, roading hierarchy, layout and individual road formations.
- Prepare a comprehensive, 'Broad' Integrated Transport Assessment (ITA) in support of the fast-track consent application.
- Obtain in-principal approvals for the SH23 Whatawhata Road, Obrien Road and Brymer Road intersections from the relevant RCAs.

4 Approvals Required

The following approvals will need to be obtained:

- NZTA approval for intersection upgrades on SH23 (e.g., priority-controlled T-intersection).
- Fast-track consents for new access and road connections (land transport corridors)
- Agreements for staged construction of the development and associated intersections and active transport networks.

4.1 Summary

These findings of this and prior studies highlight the project's transportation proposals, which are intended to deliver a safe and efficient road and active modes network that is well connected and integrated with the establish road network, whilst supporting the development transport needs in full. The development's key access locations are located such to make efficient use of existing road capacity whilst ensuring minimal disruption to current road network operations.

5 References

The following references have been used and/or referred to in the compilation of this report:

Transplan, 2025. 584 State Highway 23 Whatawhata Road (Part Lot 2 DP 18355): Proposed New Access Application for Submission to the NZ Transport Agency | Waka Kotahi. 5 March.

Transplan, 2024. Development Constraints and Opportunities: Roads and Transport, Issue 1, Draft. 21 November.

Stantec, 2022. Brymer Estate Development: Road Network Connectivity Assessment. Issue 3, 10 February.

Stantec, 2021. Brymer Farms Development: Revised Modelling Assessment, Road Network Connections. 9 October.

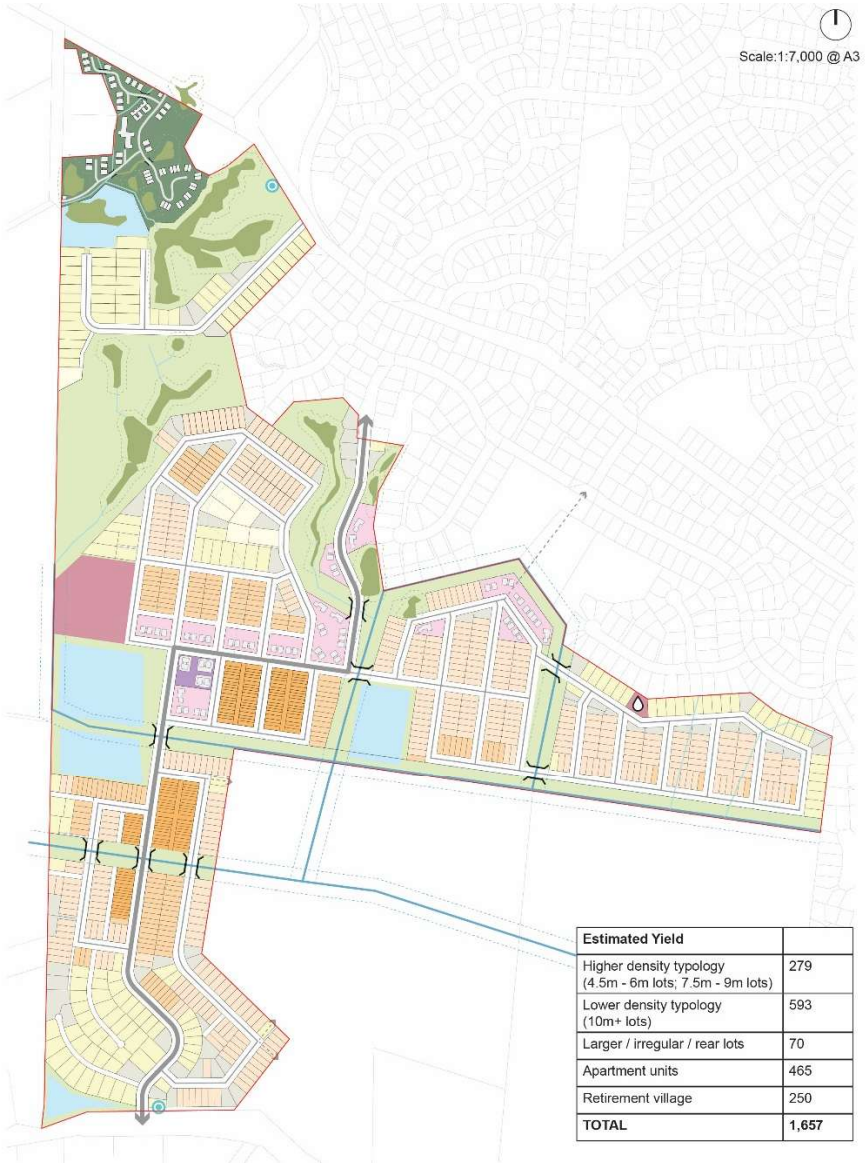
Figures

High-level Masterplan*

* *This masterplan document represents a high-level conceptual layout only. The proposed site layout, estimated yield, typologies, and land uses illustrated herein are indicative and are subject to further adjustments upon comprehensive technical investigations and detailed design processes, including but not limited to engineering, ecological assessment, geotechnical analysis, and hydrological studies.*

Legend

- Apartment Blocks
- Higher Density with Rear Lanes - Terrace Housing (4.5m - 6m lot typology)
- Higher Density - Duplex / Terraces (7.5m - 9m lot typology)
- Lower Density - Duplex / Detached (10m - 12m lot typology)
- Lower Density - Detached (12m+ lot typology)
- Larger Lot Residential (1000m² and above)
- Irregular Shaped / Rear Lots
- Retirement Village - Villa terrace, apartment units, amenity building (approx. 0.3ha)
- Mixed-use with apartment units above / Neighbourhood Centre (approx. 0.3ha)
- Proposed Open Spaces / Riparian / Native Revegetation Areas
- Existing Water Bores
- Proposed Pump Station
- Proposed Wastewater Discharge and Treatment Area
- Proposed Stormwater Ponds (shapes to be confirmed at future design stages)
- Existing Key Drains (as identified through Waikato Regional Council GIS mapping)
- Existing Waterway
- Existing Wetlands To Be Retained and Revegetation (include 10m buffer areas)
- Proposed Main Road (~20m)
- Proposed Local Road (~16.8m)
- Proposed Bridge or Culvert
- Connections to Existing Street Network
- Possible Future Road Connections



Estimated Yield	
Higher density typology (4.5m - 6m lots; 7.5m - 9m lots)	279
Lower density typology (10m+ lots)	593
Larger / irregular / rear lots	70
Apartment units	465
Retirement village	250
TOTAL	**1,657**

Figure 1: Brymer Development High-level Masterplan

Source: Barker & Associates, 2025

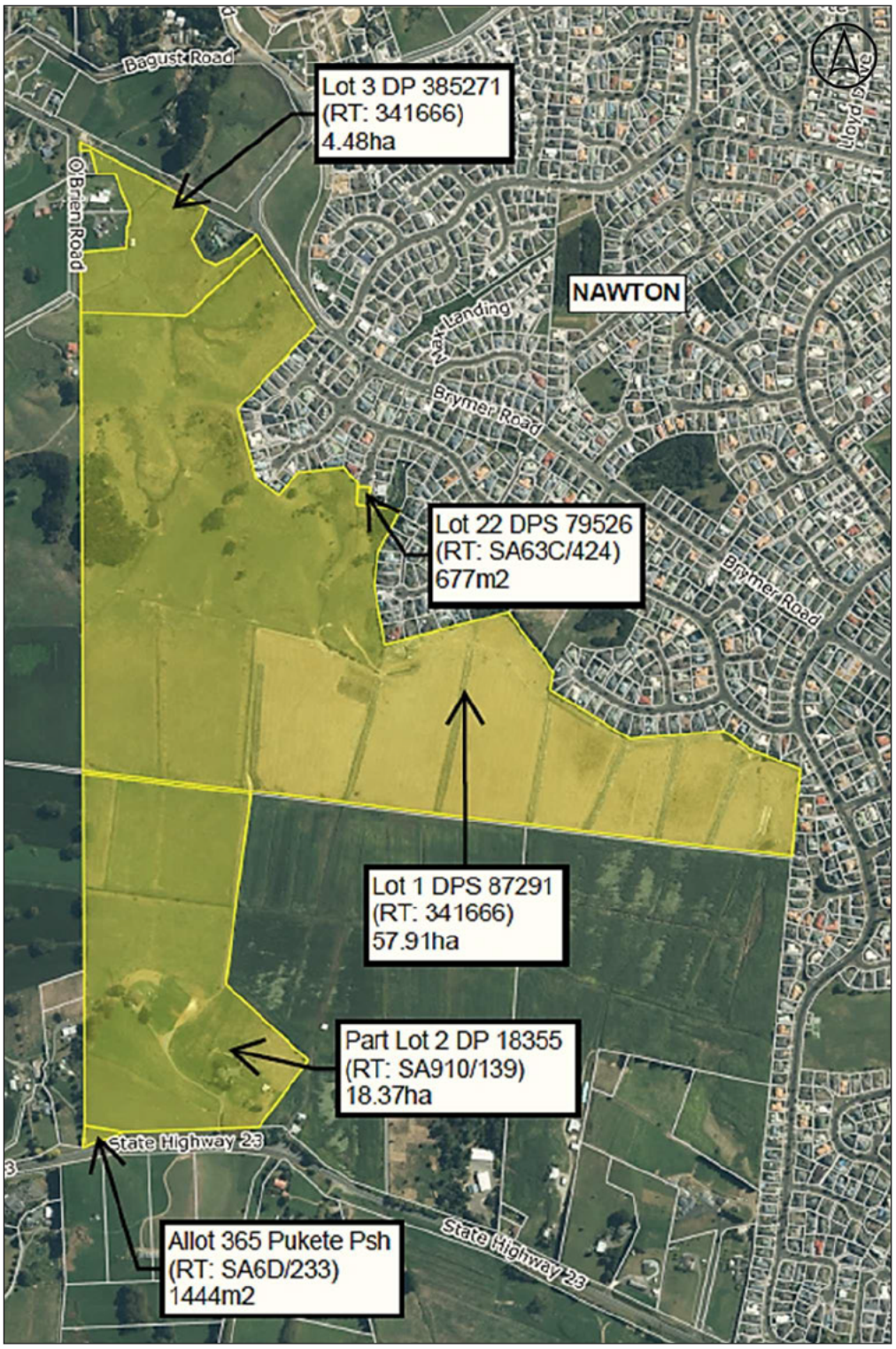


Figure 2: Development Site Location and Property Particulars

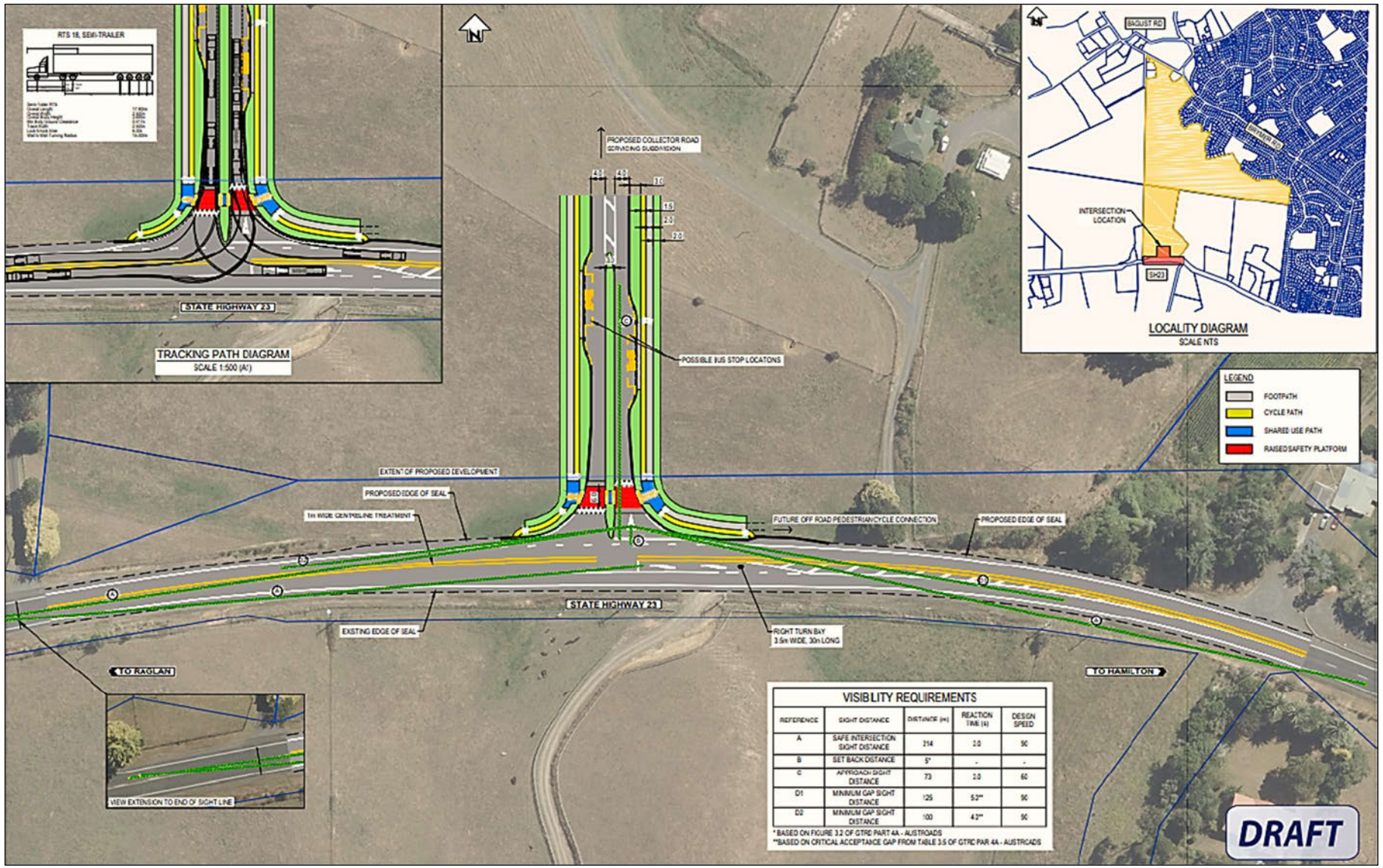


Figure 3: Proposed SH 23 intersection layout

Source: Drawing no. 310204767-01-001-C100/A, Stantec, 23/07/2021

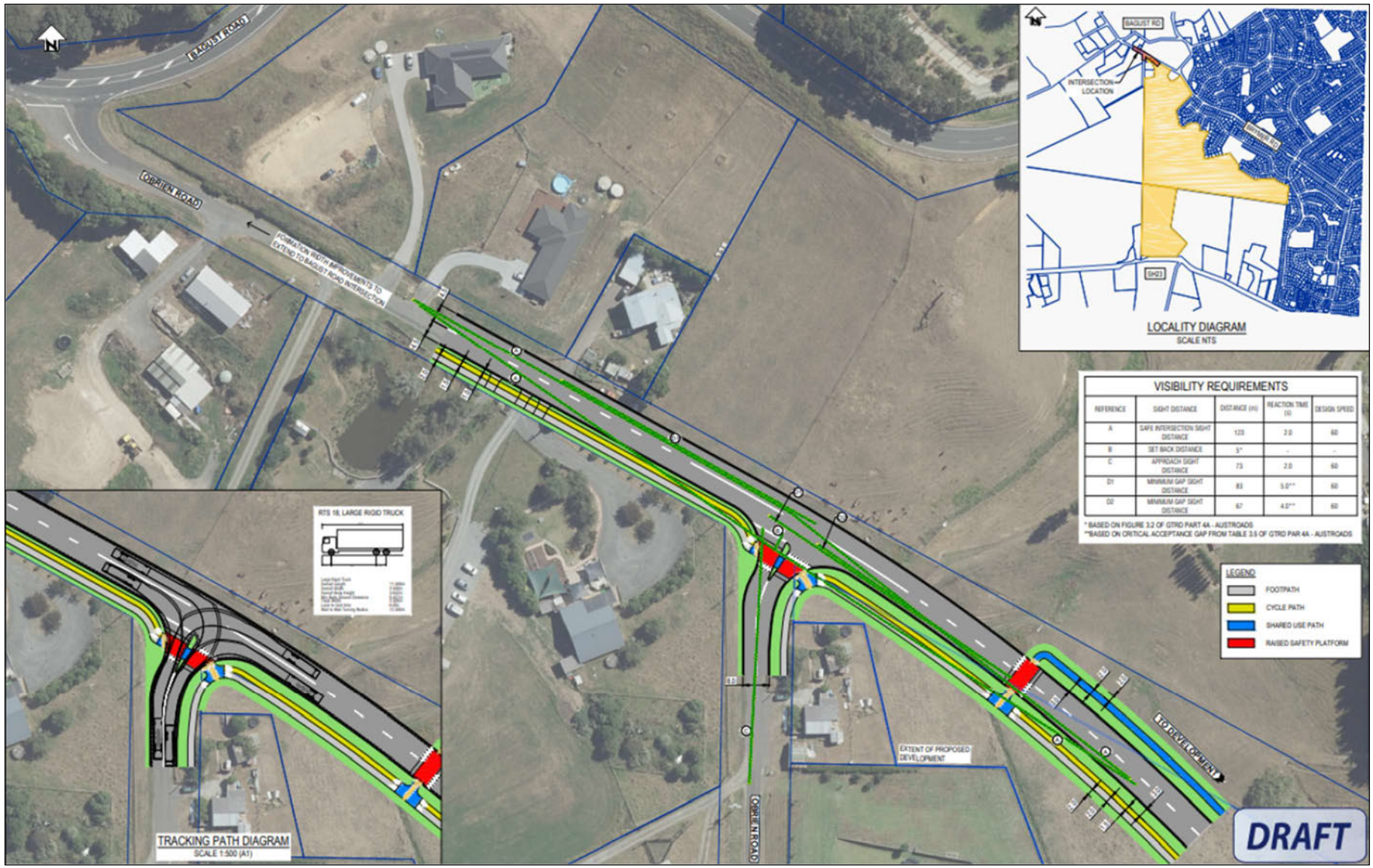


Figure 4: Proposed Obrien Road Intersection layout

Image: Drawing No. 310204767-01-001-C200/A, Stantec, 23/07/2021

Figure 5: Proposed Brymer Road intersection layout

Source: Drawing No. 310204767-01-001-C300/B, Stantec, 08/11/2021

Please get in touch if you have any questions regarding this document

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