Integrated Transport Assessment
Builtsmart Proposed Expansion
Proposed Private Plan Change and Builtsmart Proposal

ISSUE 1, 4 SEPTEMBER 2019

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Proposed Private Plan Change and Builtsmart Proposal

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ISSUE 1, 4 SEPTEMBER 2019

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Summary of Proposal

Builtsmart Limited engaged Gray Matter Ltd to provide transportation advice for their proposed private plan change. Builtsmart Limited propose to rezone an area of land (approximately 2.4 ha) located immediately to the north of their existing site at 494 Great South Road in Huntly. The existing operation is within Industrial Zone and they wish to expand to increase production of prefabricated houses from the current level of 80 houses per year to 400 houses per year. The proposed expansion site is to the north into properties within Living Zone. The production increase is expected to be gradual with an additional 80 houses per year up to the full capacity of 400 houses/year.

Traffic Effects

The likely effects from the Builtsmart activity relate to additional traffic including heavy vehicle movements and a new vehicle crossing. In total, the proposed industrial activity within the plan change area could generate around 420vpd with 77 vph during the peak period. The proposal includes two vehicle crossings to Great South Road with heavy vehicle activity consolidated to a single point and public and staff vehicles directed to a separate area. The proposal will remove around 10 vpd from the local network (Jackson Road) since vehicle access is proposed from Great South Road and a nett increase of 285 vpd to Great South Road. The proposal results in an overall reduction of two vehicle crossings to Great South Road.

Traffic Aspect	Comment on Effects – Builtsmart specific activity	Comment on Effects – Plan Change – Industrial
Safety effects	The proposal introduces a new vehicle crossing but removes three existing residential crossings. The proposal consolidates heavy vehicle access to the new crossing and light vehicles to the existing Builtsmart crossing. There will be an increase in movements at the crossings which increases the potential for conflict and therefore the potential to reduce safety. However there is good visibility and the flush median and wide shoulders provide space to ensure turning vehicles do not obstruct through vehicles. The environment is expected to change following the opening of the Waikato Expressway with traffic diverted from Great South Road. The reduction in traffic volume on Great South road will contribute to mitigating the potential adverse safety effects of the proposal. There is history of rear end crashes on the approaches to the Tregoweth Lane intersection. The proposed new vehicle crossing is located around 130m north of the signalised intersection and 65m north of the existing site vehicle crossing. The separation between the proposed vehicle crossing and the existing signalised intersection meets the District Plan minimum requirement. Once SH1 is revoked there will be less traffic on Great South Road and the speed limit is expected to be reviewed (lowered). There may be a short time before SH1 is revoked when the site is in operation and therefore higher exposure of site vehicles to through traffic. However, this would be for a short time and there does not appear to be any reason to expect a disproportionate increase in rear end crashes as a result of the proposal. Vehicles turning right into the site are expected to be able to use the flush median without obstructing through traffic on Great South Road to shelter and wait to turn. There will be larger loads transporting houses but these will be under the conditions of over-dimension permits, including requirements for temporary traffic management.	Proposals have to comply with District Plan standards for access (e.g. District Plan Appendix A2 Transportation) so there should be no adverse safety effects. Location in urban Huntly provides options to reduce travel conflict by reducing travel demand (walk and cycle) and potential severity (lower speeds).

Traffic Aspect	Comment on Effects – Builtsmart specific activity	Comment on Effects – Plan Change – Industrial
Efficiency effects	The existing trip generation of the combined residential and Builtsmart activity is in the order of 135 vpd with 21 vph during the peak hour. The trip generation of the site is expected to increase to 420 vpd (nett increase of 325 vpd), however this is expected to be a gradual increase with a total of 178 vpd in year 1. Given that the proposal is gradual and likely to coincide with the revocation of Great South Road which will result in a reduction in traffic, the proposal is unlikely to result in an increase in delay at near-by intersections. The proposal includes using the existing flush median to facilitate turning at the new vehicle crossing. The allocation of space between lanes and the flush median road marking at the vehicle crossing can be reviewed as part of the detailed design.	Network capacity is adequate and reserve capacity will increase when the Huntly section of the Waikato Expressway opens. The location within Huntly contiguous with industrial area provides opportunities for efficiencies from colocation/proximity to similar activities.
Parking effects	The proposal means there will be a total of 36 marked on-site parking spaces for staff and visitors within the existing site with additional 56 unmarked spaces available within the work area for trades and services. This meets the District Plan minimum parking requirement and the demand is expected to be contained on site. Loading and servicing will occur within the work area and an 8m loading space is provided. We recommend two spaces be marked as accessible within the public area. The proposal is unlikely to result in any off-site parking effects.	District Plan rules apply – no new adverse effects.
Construction effects	There will be heavy vehicle traffic during the construction of the expansion. These effects can be mitigated through development of temporary traffic management plans. Other construction related effects such as tracking of debris onto the road can be managed through a construction management plan.	District Plan rules apply – effects likely to be mitigated through corridor access conditions.

The traffic effects of Builtsmart are typical of industrial activities that would be permitted in an Industrial Zone. Typical industrial trip generation would be around 720 vpd (2.4 ha @ 30 vph/nett ha (peak) x nominal 10 hours). The proposed Builtsmart expansion includes a single vehicle crossing to Great South Road for the site which covers four properties with frontage to Great South Road. In the future, if other general industrial activities occupy the separate titles, Rule A14.1 sets out the standards for new vehicle crossings and intensification of use of existing crossings, including limiting permitted activities to 200 vpd in an industrial zone. We consider that the existing A14 rules in the District Plan would adequately manage the potential effects of intensification of use of the existing vehicle crossing or additional crossings by requiring further assessment.

Mitigation

The following options mitigate the potential adverse effects of the expansion:

- Detailed design review and approval by WDC;
- Permanently closing the existing vehicle crossings;
- Forming a new heavy vehicle crossing in accordance with the District Plan Appendix A Figure 7 for Heavy commercial- urban entrances that will provide for trades and service vehicles;
- Marking a HV loading bay within the trades and services area;
- Signage at the vehicle crossings to direct visitors to the appropriate vehicle entry;
- Surfacing the existing vehicle crossing;

- Surfacing and marking 36 parking spaces within the car park area at the main entry for staff and visitors, including two accessible spaces; and
- Construction Management Plan to manage construction traffic effects.

These can be managed through a layout in the District Plan and District Plan rules supported bybuilding consent processes and Corridor Access Request controls, with the option for consents.

Conclusion

From a transportation perspective, the proposed industrial expansion is appropriately located with direct access to the arterial network and in an area of surrounding industrial land use. The timing of the development is likely to coincide with the revocation of Great South Road so it is no longer a State Highway. Rezoning to industrial is consistent with the District Plan objectives and policies relevant to transport, including infill development, employment in areas of population growth, consolidation of access and consistency with the network capacity.

The proposed industrial activity within the plan change area could generate around 420 vpd (Builtsmart proposal (in addition to existing) with 77 vph during the peak period to around 720 vpd (typical industrial activity). The proposal includes two vehicle crossings to Great South Road with heavy vehicle consolidated to a single point and public and staff vehicles directed to a separate area. The proposal will remove around 10 vpd from the local network (Jackson Road) since vehicle access is proposed from Great South Road and a nett increase of 285 vpd to Great South Road. The proposal results in an overall reduction of two vehicle crossings to Great South Road. The plan change could result in different activities or layouts, all of which would have to comply with the District Plan, protecting against unexpected safety and efficiency effects.

The plan change proposal does not conflict with the relevant objectives and policies of both the ODP and the PDP and supports the relevant transportation objectives and policies.

There appears to be no reason related to transportation why the proposed plan change or an equivalent land use consent should not proceed. There are likely to be minor beneficial effects from location in the urban area compared to development elsewhere.

1. INTRODUCTION

1.1. Background

Builtsmart Limited engaged Gray Matter Ltd to provide transportation advice for their proposed private plan change. Builtsmart Limited propose to rezone an area of land (approximately 2.4 ha) located immediately to the north of their existing site at 494 Great South Road in Huntly. The existing operation is within Industrial Zone and they wish to expand to increase production of prefabricated houses from the current level of 80 houses per year to 400 houses per year. The proposed expansion site is to the north into properties within Living Zone.

1.2. Purpose and Intended Use of this Report

The purpose of this report is to support the application for a private plan change and potential land use consent in parallel. This report assesses the transportation effects of the proposal.

This report is based on information including:

- Proposed Site Layout (attached at Appendix 1);
- Site visits on 6 March 2019 and 15 April 2019;
- Traffic data from mobileroad.org;
- Crash data from the New Zealand Transport Agency (NZTA) Crash Analysis System (CAS); and
- Existing trip data and expected operation provided by the applicant.

This report comprises:

- Description of the transport environment, including traffic volumes, crash history over the past five years, and any recent or proposed changes to the transport environment;
- Description of the existing site activity, including:
  - Trip generation and assignment to the network
  - Access, on-site parking and circulation arrangements
- Description of the proposed activity including
  - Description of the proposed plan change
  - Description of the proposed site expansion and operation
  - Trip generation and assignment to the network
  - Access, on-site parking and circulation arrangements
- Assessment of the proposal against the District Plan requirements and relevant regional and national strategies;
- Assessment of transportation effects, considering safety and efficiency;
- Options for mitigation of potentially adverse effects; and
- Any recommended conditions.

2. DESCRIPTION OF SITE AND SURROUNDING NETWORK

2.1. Site Description and Layout

The existing Builtsmart site is located at 494 Great South Road in Huntly. The existing activity involves the construction of transportable homes on site which are transported to permanent sites. Specialist house transporter truck and trailer units transport the houses under the conditions of over-dimension permits.

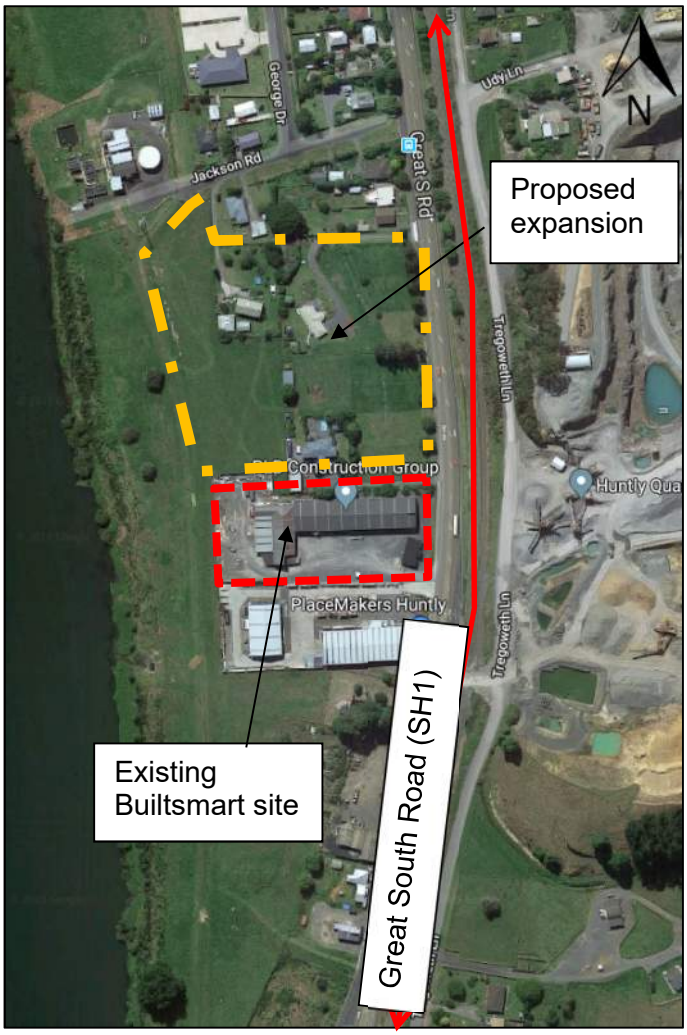


Figure 1: Aerial photograph of the existing site and the proposed expansion site.

The existing Builtsmart site has a large building on site that contains a number of building bays where the houses are constructed. The existing activity employs 10 full time equivalent staff (FTEs) office staff and around 30 trades staff. There is one showhome available for visitors to walk through.

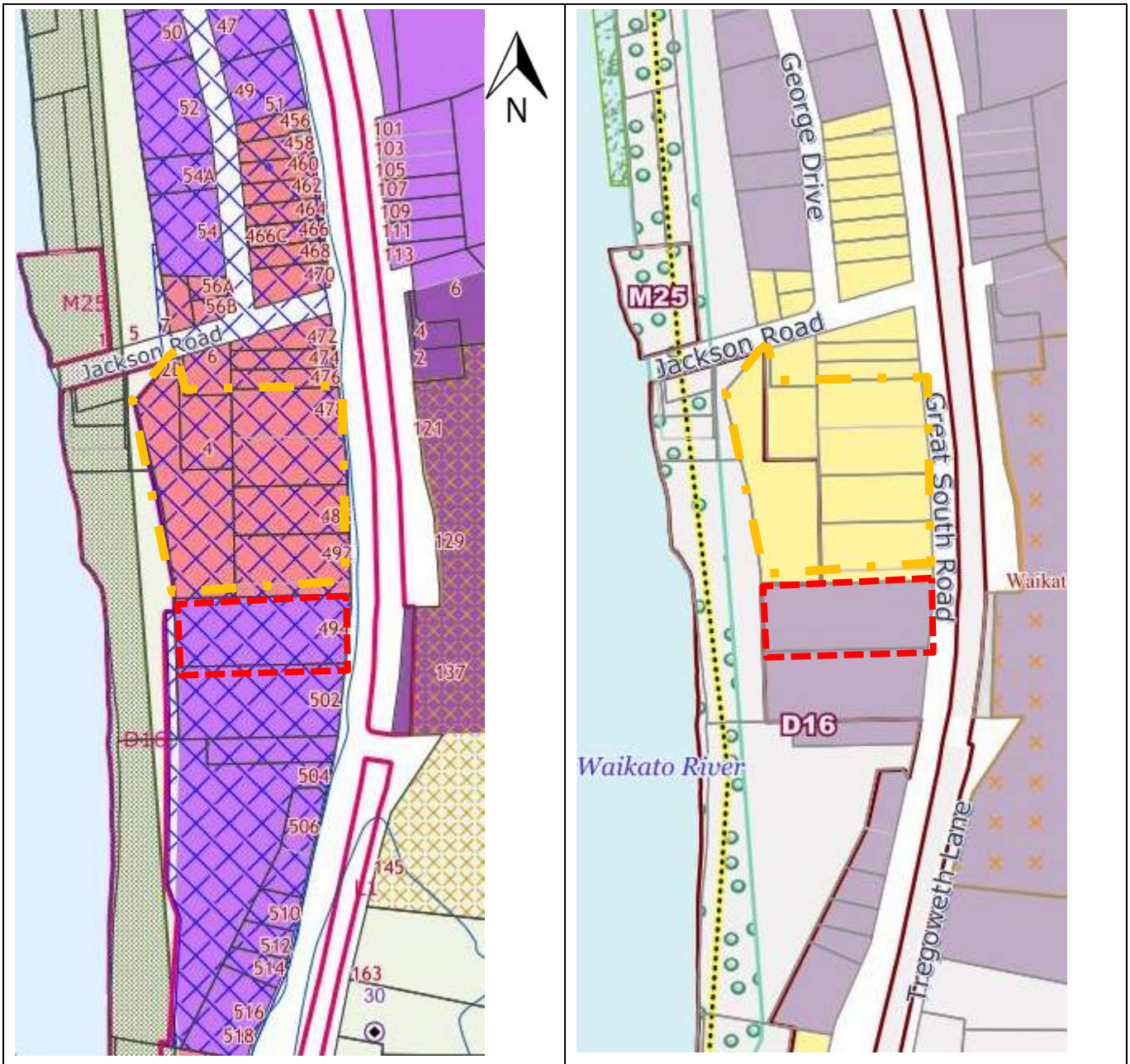
Currently, around 1-2 houses per week are constructed, a total of around 70-80 per year.

The existing site is Light Industrial (W) Zone in the Waikato Operative District Plan (ODP). The surrounding area is mostly industrial zoning with Light Industrial (W) Zone to the south of and Heavy Industrial Zone on the eastern side of SH1. Immediately north of the site (eastern side of SH1) is Living Zone. Further north, beyond Jackson Road is Light Industrial (W) Zone.

The heavy industrial zone opposite the site (east of SH1) is an operational quarry located within an aggregate extraction policy area. Access to the quarry is from Tregoweth Lane. South of Tregoweth Lane is Rural Zone.

In the Waikato Proposed District Plan (PDP), the zoning is similar with industrial on the eastern side of SH1 and industrial and residential on the western side.

The ODP and PDP zones are shown in Figure 2.



Operative Waikato District Plan (ODP)	Proposed Waikato District Plan (PDP)

Figure 2: Operative and Proposed District Plan Maps. The existing site is outlined with the red broken line and the outline of the proposed expansion site is indicated with the broken orange line.

The surrounding land use is industrial to the east (Huntly Quarry) and south (Placemakers is the immediate neighbour). The property to the north is a lifestyle property with a house and a couple of paddocks. The existing land is low lying immediately to the north of the existing Builtsmart site. Further to the north there are residential dwellings.

The proposed expansion site is to north of the site in Living Zone.

3. EXISTING TRANSPORT DATA

3.1. Surrounding Transport Network

Great South Road, SH1, is a high volume national route carrying 22,243 vpd (01N-519) in the New Zealand Transport Agency One Network Road Classification (ONRC)[1]. The NZTA State Highway Traffic Volumes data records 26,823 vpd (10.4% HVs) just north of Taupiri[2]. The corridor meets the ONRC criteria[3] for a National (high volume) route because of the number of heavy vehicles (> 1200 HVs/day).

In the vicinity of the site, SH1 has a 70 km/hr posted speed limit. North of the site, the carriageway consists of a total seal width of around 13.5m with a 2.5m northbound shoulder, 3.5m traffic lanes, a 1.5m southbound shoulder and a 2.5m flush median. South of the site, the seal width on the approach to the signalised intersection with Tregoweth Lane widens to accommodate a southbound left turn lane (into Tregoweth Lane) at the signals. There is a solid median island at the signals on the northern leg. The southern approach to the intersection includes a right turn lane into Tregoweth Lane and a northbound through lane.

There is a footpath along the eastern side of SH1. No pedestrian crossing facilities are provided. The North Island Main Trunk (NIMT) Railway Line runs parallel to SH1 on the eastern side.

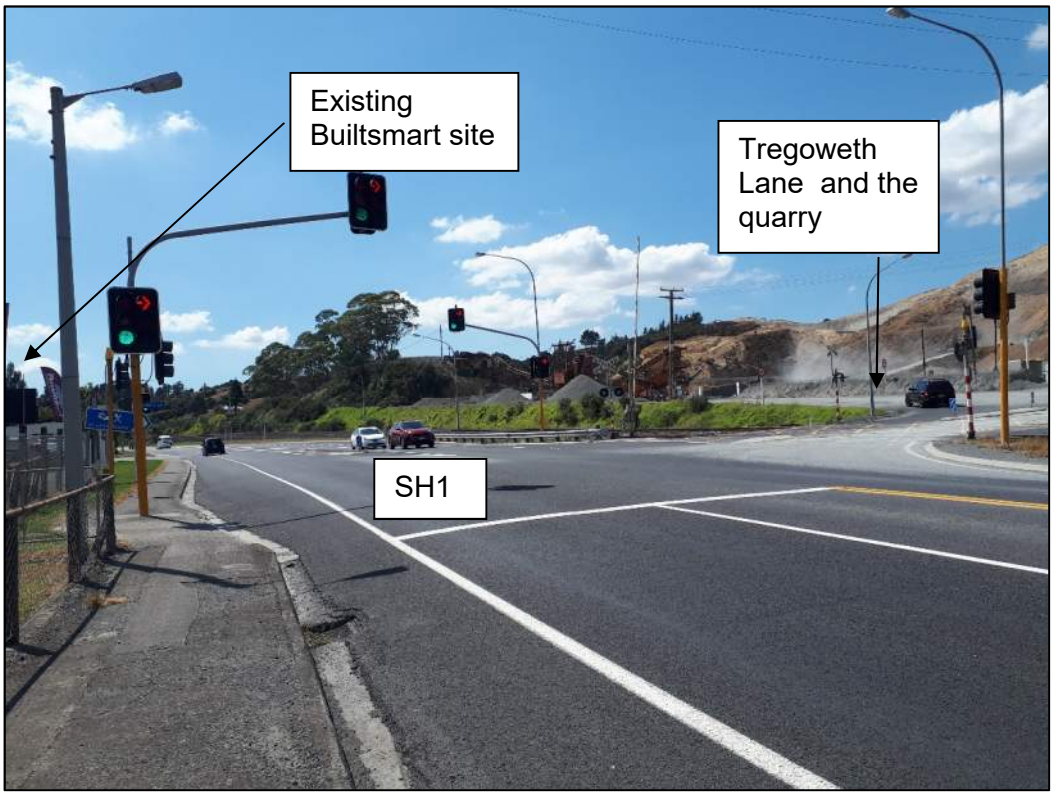


Figure 3: SH1 at the southern approach to the Tregoweth Lane traffic signalised intersection.

Tregoweth Lane carries around 130 vpd (4% HVs) and is a low volume (<200 vpd) in the ONRC[4]. It is a local road in the District Plan road hierarchy and has a 50 km/hr posted speed limit. Tregoweth Lane

[1] https://nzta.maps.arcgis.com/apps/webappviewer/index.html?id=95fad5204ad243c39d84c37701f614b0
[2] Telemetry site 19 – Nth of Gordonton Rd (ID:01N00526). https://www.nzta.govt.nz/resources/state-highway-traffic-volumes/
[3] https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/functional-classification.pdf
[4] Mobileroad.org traffic volume estimate (11/11/2018) and ONRC

provides access to the quarry and other rural and industrial activity on the eastern side of the NIMT railway and at the northern end connects at the Rayner Road/Ralph Street roundabout in Huntly.

North of the site and on the eastern side Jackson Street provides access to residential properties and a WDC water supply plant. Jackson Road has been stopped so that it does not connect directly to Great South Road and vehicle access to Jackson Street is via George Street. It is a local road in the District Plan road hierarchy.

We understand the safe and appropriate speed for this section of Great South Road has been confirmed by NZTA to be 60 km/hr. We would expect that during the revocation process WDC and NZTA will review the speed limit with a view to reducing it to the safe and appropriate speed (60 km/hr).

3.2. Crash History

We have completed a search of the NZTA Crash Analysis System (CAS). There have been thirteen reported crashes within the vicinity of the site within the recent 5 year period (2014-2018 and 2019), including:

- Ten crashes at the Tregoweth Lane traffic signals or on the approach to the intersection;
  - Eight were rear end type crashes with two of the crashes resulting in minor injury- none of these related to entranceways;
  - One crash resulted in two serious injuries when two motorcycles travelling southbound overtook a slowing truck approaching the intersection and they motorcycles crashed into the end of the raised median island; and
  -
  - One crash involved a southbound truck that did not stop at the red traffic signal colliding with a merging left turning vehicle from Tregoweth Lane.
- One crash involved a southbound vehicle turning right into the Placemakers site being struck by a speeding northbound motorcycle. This crash occurred in 2019 and resulted in two serious injuries. The crash reports that the car turning into Placemakers did not give way to the oncoming northbound motorcycle and included speed as a factor; and
- Two crashes occurred north of the existing vehicle crossing were also rear end crashes involving southbound vehicle. Driver inattention/attention diverted is listed as a factor. Note that these are not shown on the CAS collision diagram (Figure 4).

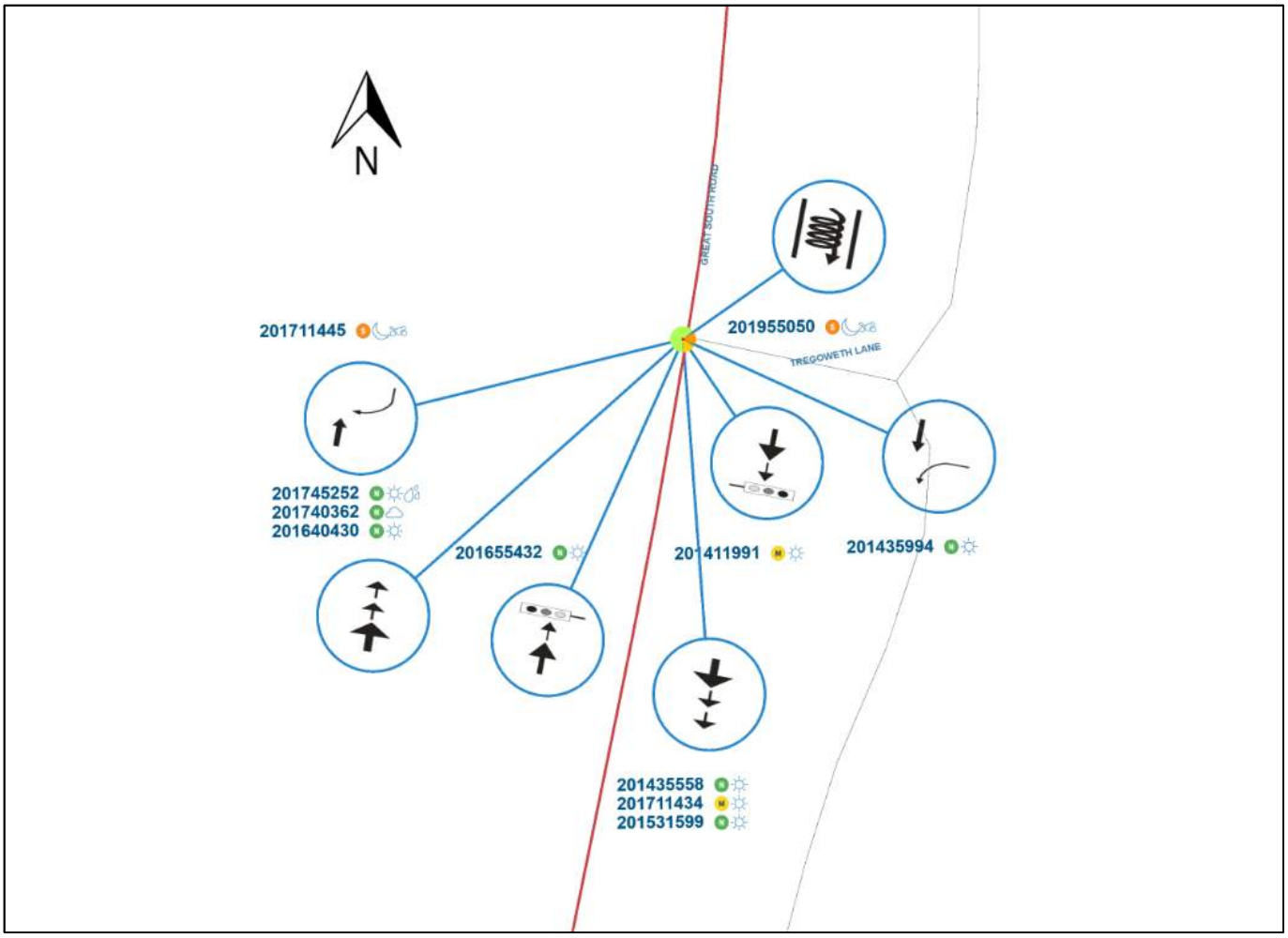


Figure 4: Collision Diagram (2014-2019 (includes one crash in 2019))

Of the reported rear end crashes, four of them involved northbound vehicles and the other six involved vehicles travelling south. None of the rear end crashes recorded property access as a factor, cause or location.
With the exception of the motorcycle crash at Placemakers, there have not been any reported crashes relating to vehicles entering or exiting driveways or property. The single reported crash that involved a driveway occurred at 8pm on a Friday night which is outside of Placemakers' business hours.

4. COMMITTED ENVRONMENTAL CHANGES

4.1. Planned Land Use Changes

The PDP does not include any zone changes in the surrounding area that would result in any changes to the land use compared to the ODP. Essentially the PDP expects the quarry activity on the eastern side of SH1 with industrial activity south of the site and residential to the north of the site.

4.2. Planned Road Network Changes

The Huntly section of the Waikato Expressway (WEx) is under construction with it's opening to traffic expected in early 2020. The revocation of Great South Road will follow and is expected to be revoked to WDC as Road Controlling Authority by the end of 2020. By this time, the traffic volumes on Great South

Road are expected to be significantly reduced. The Waikato Regional Transportation Model (WRTM[5]) expects 15,000 vpd in 2021.

5. EXISTING ACTIVITY

5.1. Existing Activity: 494 Great South Road

The existing activity at 494 Great South Road is the Builtsmart transportable house production. The site includes construction of pre-fabricated transportable houses. There is a large factory/warehouse where houses are constructed and materials are stored.

Figure 5: House construction underway on site.

The existing site arrangement has a large shed that is partially enclosed (one side open) which is divided into 12 individual bays for the purpose of constructing each house. The arrangement allows houses to be moved between the bays and around the site as needed during the construction process. The office building is located in the northeast corner of the site next to a show home that is available for visitors to walk through. The show home is located along the SH1 frontage. The gross floor area of the existing buildings is around 2,950 m2.

The existing activity employs 10 (FTE) office staff and around 30 trade staff. The site operational hours are 7.30am- 5.00pm Monday to Friday and 8am – 12pm Saturdays. The current production is around 1-2 houses per week, a total of 70-80 houses per year. Once completed, houses are transported by specialist house transporters during the night under the requirements of over-dimension permits. House transporters arrive during the afternoon (around 2pm), the houses are loaded and leave the site around 10pm. Transportation of complete house units occurs on Sundays through to Thursdays.

[5] Version 2500

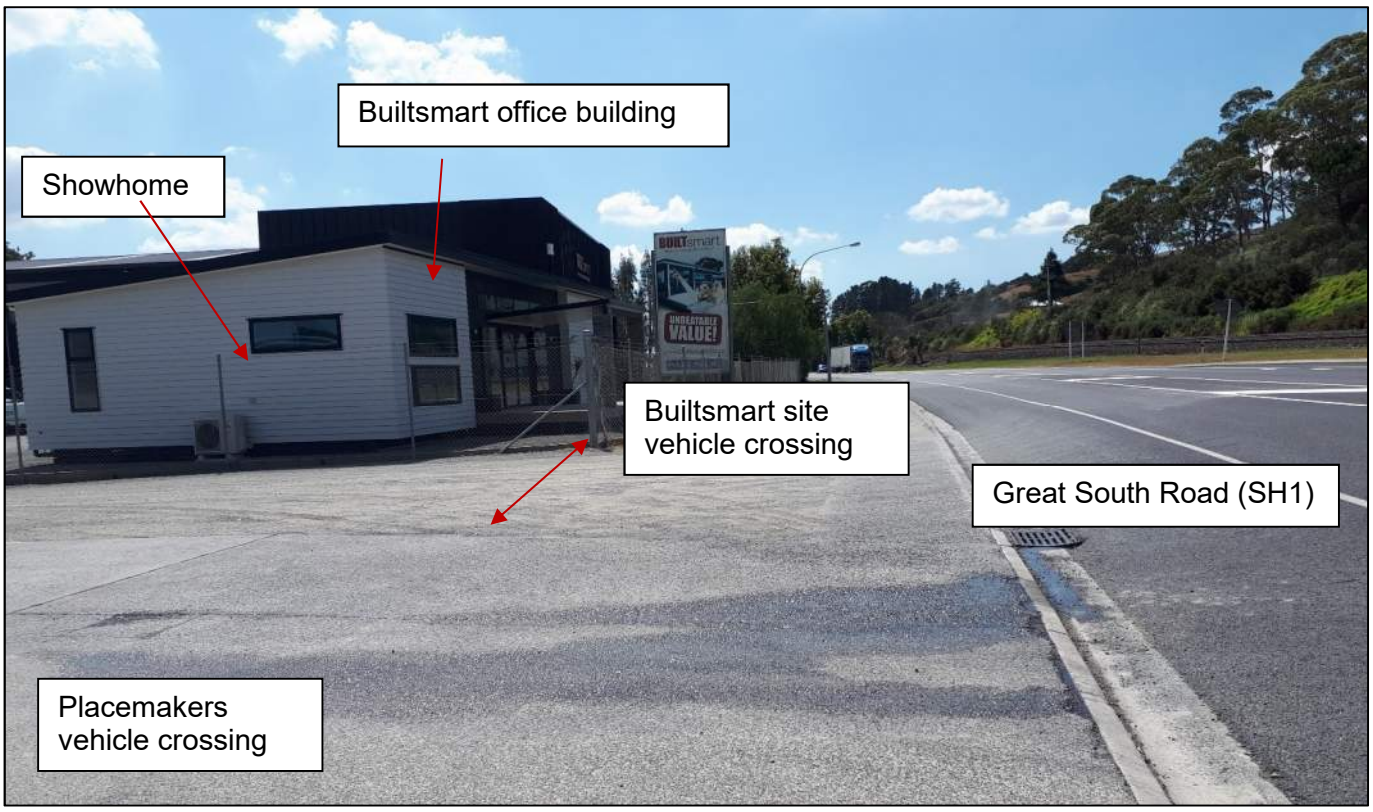


Figure 6: Photograph of the front of the site and the display showhome.

The existing vehicle crossing is 10m wide at the boundary and is adjoined to the Placemakers vehicle crossing. It is secured with a gate set back from the road. The crossing and internal car parking area is unsealed. Parking on-site is within the yard although the spaces are not formally marked. During our site visit, we observed fifteen cars parked along the building frontages and along the fence. The southwest corner of the site was being used for storage of trailers and materials, however there was space available for more cars to park.

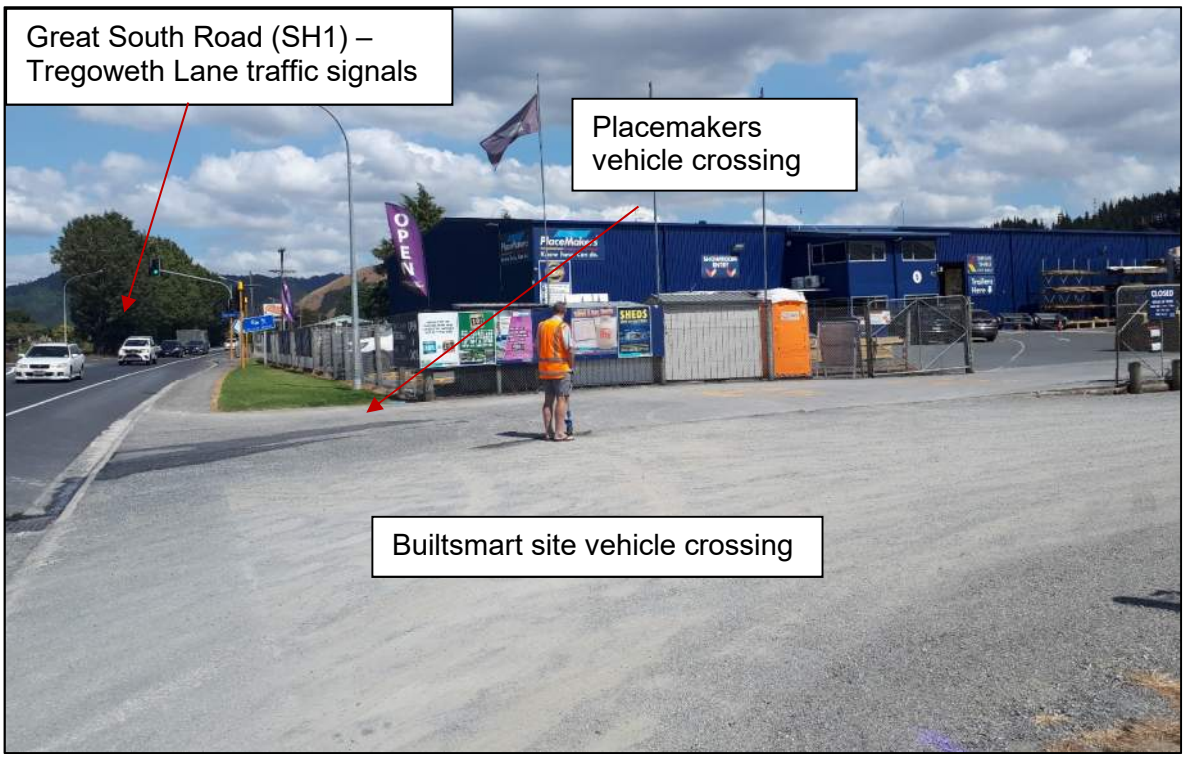


Figure 7: Existing vehicles crossing and the Placemakers vehicle crossing.

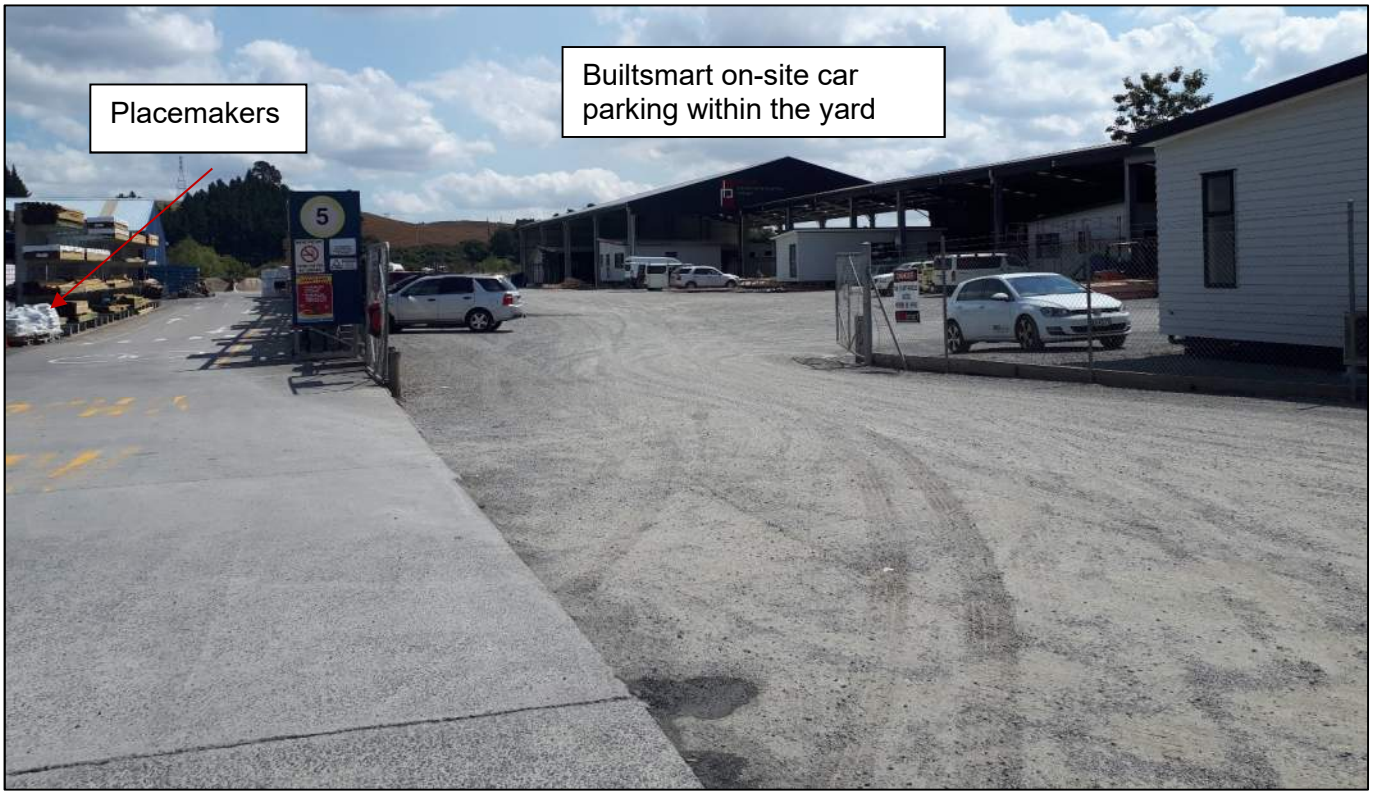


Figure 8: Photograph of the existing site entranceway and car parking area

5.2. Existing Activity: 478-492 Great South Road, 2B-4 Jackson Road

The properties are within the Living zone and the land use is both residential and rural/residential with a total of three dwellings and the remainder of the land is paddocks. There are three existing vehicle crossings to Great South Road and one vehicle crossing to Jackson Road.

Figure 1: Photograph of the neighbouring property (view from the gate of 492 Great South Road towards the northwest).

5.3. Trip Generation of Existing Use

5.3.1. Existing Industrial Activity: 494 Great South Road

Based on information provided by the applicant, the existing trip generation for the site is presented in Table 1.

Type	Daily trips		Peak hour trips	
	Light vehicles	Heavy vehicles	Light vehicles	Heavy vehicles
Staff	24	0	5	0
Visitors	14	0	0	0
Contractors/trades	38	0	9	0
Deliveries (includes courier deliveries and Placemakers deliveries)	12	4	2	2
House transport (OD loads)	2[6]	1	0	0
Total for the existing site activity	**95 vpd (5 HVs)**		**16 vph (2 HVs)**	

Table 1: Trip Generation of Existing Activity: Industrial activity

The site is located next door to Placemakers. Material deliveries from Placemakers occur directly via forklift since the gates are well set back there is no need for theses deliveries to travel along Great South Road. Other building materials are generally delivered from Carter Holt Harvey (Hamilton) with 60% of all deliveries expected from the south and 40% from the north. Staff and trades trips are likely to be 60%

[6] Assume each OD load has two pilot vehicles

from the north (local) and 40% from the south (Hamilton). The daily trip generation of the existing industrial activity is 95 vpd and 16 vph during the peak hour. Note that the assessment of over-dimension (OD) trips is conservative at 2 HVs per day since the current production is only 1-2 houses per week.

5.3.2. Existing Living Zone Activity: 478-492 Great South Road, 2B-4 Jackson Road

Based on published trip generation rates[7] the trip generation of the existing living zone activity is expected to be 40 vpd and 5 vph during the peak period.

5.3.3. Total Trip Generation of Existing Use

The total trip generation from the combined industrial and living zone activities on the existing and proposed expansion sites is 135 vpd and 21 vph during the peak hour.

6. PROPOSAL

6.1. Proposal

Builtsmart proposes to expand the operation to increase the construction of transportable homes. The proposal is to increase construction at a rate of around 80 additional houses per year, with 150 houses in year 1 up to maximum production of 400 per year. Additional workshop/factory space is needed to facilitate the increase in production. Builtsmart propose to expand into the properties immediately to the north which are Living Zone. Because industrial activity is prohibited within the Living Zone, a private plan change is proposed.

6.1.1. Proposed Private Plan Change

The proposed Private Plan Change seeks to change the following properties from Living Zone to Industrial Zone:

- 492 Great South Road
- 186 Great South Road
- 478 Great South Road
- 4 Jackson Road; and
- 2B Jackson Road.

We understand that Builtsmart has agreement for purchase or long-term lease of the affected properties listed above.

6.2. Proposed Site Layout and Activity

The proposal is to construct two new buildings to facilitate the increased production of houses and provide for building supplies storage areas. An office extension is also proposed. The proposed activity is the expansion of the existing production of pre-fabricated transportable houses to up to 400 houses per year. 31 additional bays will be provided within the site expansion, a total of 43 building bays.

The front half of the unsealed car park area within the existing site will be surfaced and the parking spaces demarcated providing 36 spaces for staff and visitors. The existing vehicle crossing will be retained for staff and visitors. A second vehicle crossing is proposed for trades into the expansion site. This will be gated and used by materials delivery trucks, trades vehicles and house transporters to access the working area. This area will be concrete. The existing operation will be modified so that all loading and working areas are accessed from the northern side and the new vehicle crossing. A new fence will contain the staff and visitor parking area so that work areas are separate to the office and area accessed by the public. We

[7] NZTA Research Report 453: Trips and Parking related to Land use Table C.1 Land Use category 7.3 Dwelling (rural)

understand the building bays and store areas are accessed from the northern side (via the trades entrance). A proposed gate separating the staff/visitor car park area from the work area will allow vehicle access (for light vehicles) between the existing and new areas to avoid the need for entering Great South Road. The existing vehicle crossings within the expansion site will be removed and replaced with a new heavy vehicle crossing located approximately 65m to the north of the existing vehicle crossing, around 20m north of the property boundary.

The proposed site layout is included in Appendix 1 and in Figure 9.

Figure 9: Proposed site layout (snipped from the Site Master Plan included in Appendix 1).

The proposal includes:

- 280m^2 of existing office;
- 170m^2 of office extension;
- 2,250m^2 of existing building (stores, building bays and amenities);
- 2 new buildings (3,300m^2 and 2,200m^2);
- Five stock houses and one show home (approx.. ;
- Concrete hardstand area within the work zone (9,000m^2);
- 36 marked parking spaces, asphalt surfaced and accessed from the existing vehicle crossing;
- 54 additional unmarked car park spaces within the expansion area (concrete hardstand) accessed from the proposed vehicle crossing; and
- A loading bay accessed from the proposed new trade vehicle crossing; and
- Bicycle spaces (9 spaces) provided next to the office accessed from the existing vehicle crossing.

The proposed expansion is expected to increase staff to a total of 15 office staff and 65 trades staff.

The proposal removes three existing vehicle crossings to Great South Road and replaces these with a new crossing to Great South Road. The existing vehicle crossing at 2B Jackson Road will remain although

it will not be used for operational access to the Builtsmart site. It will be retained for emergency purposes and for WRC access to stop banks for operational and maintenance purposes.

Figure 10: Aerial of the proposed site and the existing vehicle crossings that will be removed (red arrows). The proposed new vehicle crossing is indicated by the yellow star and the existing vehicle crossing are the yellow arrows.

The proposed new vehicle crossing is 10m wide at the boundary and is located on the inside of a large radius curve. We have checked the visibility on site to confirm the sight distance required for a 80 km/hr speed environment (165m) can be achieved in both directions.

The proposal is able to satsify the transport rules and development standards in the District Plan. There may be a need for dispensation for not marking parking spaces in the construction area, and potentially for having a section of fence or gate that can be opened for overdimension movements.

Figure 11: Photograph of the visibility to the south and north form the proposed new vehicle crossing.

6.3. Trip Generation of Proposal

6.3.1. Basis of Assessment

The current delivery schedule is based on provision of product needed for one or two houses rather than full loads of product being delivered and stored on site. At the current production of 1-2 houses per week, product and materials are delivered to the site on a house by house basis. We understand that the proposed increased production along with additional building and storage space means that materials and hardware will be delivered as full loads and stored on site since the turnover and use of materials will be greater and more frequent. As a ratio, the number of service/delivery trips per house will be less than the current operation.

The current production of 1-2 houses per week, with 4 HV/day for material deliveries, is equivalent to between 10-20 HV trips per house produced. The proposed expansion includes storing materials on site and restocking bulk supplies on a regular basis expected to be once per month. This would apply to trusses, paint, external cladding materials etc. The applicant expects the heavy vehicle deliveries to be half the existing (on a per house basis). On that basis, this would be 5-10 HV trips per house produced (at 8-10 houses per week = 40-100HV trips per week). To be conservative, we have adopted 15 HV trips per day for the full capacity scenario. These movements would be a mix of trucks and truck and trailer vehicle configurations.

The production is expected to be a gradual increase of around 80 per year, up to full capacity of 400 houses per year. Based on the current production of around 70-80 houses per year, we have presented the expected trip generation for the initial year 1 expansion (150 houses) in Table 2. We consider this assessment to be conservative for year 1 as we have based the trip generation on the expected full capacity staff and assumed the existing production method of 10-20 HV trips per house. We have assessed the trip generation for year 1 (150 houses) based on the increase in production and increase in staff. This is expected to be a conservation approach, particularly for the heavy vehicle deliveries since the expansion will mean a change in operation with bulk product stored on site.

6.3.2. Expected Trip Generation

Type	Existing (70-80 houses per year, 10 office staff, 30 trades) 1-2 houses per week		Ratio/Basis for Year 1 trip generation assessment	Year 1 (150 houses, staff increase to 15 office staff, 65 trades) 2-3 houses per week	
	Daily	Peak hourly		Daily	Peak hourly
Staff (existing vehicle crossing)	24 vpd	5 vph	2.4 trips/day per staff	36 vpd	8 vph
Visitors (existing vehicle crossing)	14 vpd	0 vph	0.175 visitor trips/day per house	26 vpd	0 vph
Trades staff/contractors (proposed vehicle crossing)	38 vpd	9 vph	1.3 trips/day per trade staff	85 vpd	20 vph
Deliveries (proposed vehicle crossing)	12 vpd (4 HVs)	2 vph (2 HVs)	10-20 HV trips per house	23 vpd (9 HV[8])	4 vph (4 HVs)
House transport (OD loads)[9] (proposed vehicle crossing)	2 vpd (1 HV)	0 vph	(based on 6 trips per house)	4 vpd (2 HV)	0 vph
Total for the existing site activity	**95 vpd (5 HVs)**	**16 vph (2 HVs)**		**174 vpd (11 HVs) 32 vph (4 HVs)**	

Table 2: Trip Generation of Proposal at Year 1 (150 houses)

The expected trip generation of the proposal in year 1 is 174 vpd (11 HV/day) and 34 vph (4 HVs/hr) during the peak.

This is likely to be conservative based on full staff numbers being implemented in year 1.

We have presumed the ratio of 2.4 (150 houses to 400 houses) increase from year 1 to full capacity to assess staff, trades and visitor trip generation. Our assessment allows for bulk storage and fewer material deliveries per house (5-10 HV trips/house).

Our assessment of full production on site expects 420 vpd (20 HVs/day) and 77 vph (9HVs/hr).

Our assessment is based on:

Type	Existing Situation	Year 1	Full Capacity
Existing vehicle crossing (staff parking and visitors)	93 vpd (4 HVs/day) 16 vph (2 HVs/hr)	62 vpd 8 vph	145 vpd 20 vph
Proposed vehicle crossing (trades and deliveries)	0	112 vpd (11 HVs/day) 24 vph (4 HVs/hr)	265 vpd (15 HVs/day) 57 vph (9 HVs/hr)
House transport (OD loads)	2 vpd (1 HV)	4 vpd (2 HVs/day)	9 vpd (5 HVs/day)
TOTAL	**95 vpd 16 vph**	**178 vpd (13 HV/day) 32 vph**	**420 vpd (20 HV/day) 77 vph**

Table 3: Summary of Trip Generation

As a check, our assessment of the trip generation of the proposed production (420 vpd) is 4.4 times the existing trip generation (95 vpd). This is slightly less than the ratio of the production increase (400 houses

[8] To be conservative we have applied the existing activity ratio to obtain HV loads
[9] Assume each OD load has two pilot vehicles

is 5x the existing 80 houses), however we would expect efficiencies in the production, deliveries, staffing etc. and consider that our assessment of 420 vpd is likely to be conservative.

6.3.3. Typical Trip Generation Rates for Industrial activities

The NZTA RR453 includes typical rates for trip generation of industrial activities within New Zealand.

Table C.1 Land Use Category	Percentile	Rates (per 100m² GFA)		Existing (2,700 m² GFA)		Proposed (9,000 m² GFA)	
		Peak Hour Trips	Daily Trips	Peak Hour Trips	Daily Trips	Peak Hour Trips	Daily Trips
4.1 Warehousing (21 peak hour surveys, 2 daily surveys)	15%	0.2	1.9	5.4	51	18	171
	50%	0.9	2.1	24	57	81	189
	85%	1.0	2.4	27	65	90	216
4.2 Contractor (7 peak hour surveys)	15%	0.4	No data	11	No data	36	No data
	50%	2.8	No data	76	No data	252	No data
	85%	6.2	No data	167	No data	558	No data
4.3 Manufacture (18 peak hour surveys, 6 daily surveys)	15%	0.5	7.6	14	205	45	684
	50%	1.4	17	38	459	126	1,530
	85%	2.7	30	73	810	243	2,700

Table 4: Trip generation comparison based on GFA and the NZTA RR453 trip generation rates

The data presented in Table 4 illustrates that the trip generation of industrial activities tends to be activity specific. We consider that the existing trip generation of 459-810 vpd based on the closest defined activity (manufacturing) (at 50% and 85%ile rates) overstates the trip generation. Our assessment of trip generation, at 420 vpd for the proposed (400 houses/year) and 95 vpd for the existing (80 houses/year), based on existing movements on the site is within the general range of trip generation for the different types of industrial activity and is around mid-range (less than manufacturing and more than warehousing).

We have therefore adopted 420 vpd for our detailed assessment of the Builtsmart proposal.

Typical industrial rates/nett ha are around 30 vph. For the 2.4 ha site (nett) that means 72 vph and around 720 vpd. Industrial zoning could result in higher traffic than Builtsmart but Great South Road will have significant reserve capacity.

6.3.4. Trip Generation Assignment

We understand that material deliveries are split 40%/60% Huntly (north)/Hamilton (south) and staff and trade trips are split 60%/40% Huntly (north)/ Hamilton (south). We have applied the same ratio to visitors as for staff. The proposed expansion is expected to generate 420 vpd distributed between two vehicle crossings.

During the peak hour, the trip assignment is displayed in Table 5.

Type	Northbound (right turn in, left turn out)	Southbound (left turn in, right turn out)	Full Capacity
Existing vehicle crossing (staff parking and visitors)	12 vph	8 vph	145 vpd 20 vph
Proposed vehicle crossing (trades and deliveries)	34 vph 4 HVs/hr	23 vph 5 HVs/hr	265 vpd (15 HVs) 57 vph (9 HVs/hr)
TOTAL	**46 vph**	**31 vph**	**420 vpd** **77 vph**

Table 5: Trip assignment to network

6.3.5. Summary – Trip Generation

Our assessment of the proposed activity is based on the trip assignment presented in Table 6.

Vehicle Crossing Scenario		Redundant residential crossings (x4)	Existing vehicle crossing (main entry)	Proposed new vehicle crossing (trades/services entry)	Total
Daily	Existing	40 vpd[10]	95 vpd	0 vpd	135 vpd
	Proposed (Year 1)	0	62 vpd	112 vpd	174 vpd
	Proposed (Full capacity)	0	145 vpd	265 vpd	420 vpd
	Nett change	**-40 vpd**	**+50 vpd**	**+265 vpd**	**+285 vpd**
Equivalent car movements (daily ecms)[11]	Existing	40 ecms	105-115 ecms	0	145-155 ecms
	Proposed (Year 1)	0	62 ecms	134-156 ecms	196-218 ecms
	Proposed (Full capacity)	0	145 ecms	295-325 ecms	440-470 ecms
	Nett change (existing to full proposal)	**-40**	**+30-40 ecms**	**+295-325 ecms**	**+285-325 ecms**
Peak hourly	Existing	5 vph	16vph	0	21 vph
	Proposed (Year 1)	0	8 vph	24 vph	32 vph
	Proposed (Full capacity)	0	20vph	57 vph	77 vph
	Nett change (existing to proposed full capacity)	**-5 vph**	**+4 vph**	**+57 vph**	**+56 vph**

Table 6: Summary of existing and proposed trip generation

The proposal removes three existing vehicle crossings to Great South Road and replaces with one new crossing. There is a nett increase of 285 vpd from the existing situation distributed between two crossings.

- Existing activity (including the residential activities): 135 vpd and 21 vph;
- Year 1 proposed activity (150 houses/year): 174 vpd and 32 vph
- Full capacity of proposed activity (400 houses/year): 420 vpd and 77 vph.

6.4. On-site Parking and Loading

The proposal includes 36 marked car park spaces on site with access from the existing vehicle crossing. The FTE staff proposed is 15 office staff and 65 trades staff. All trades are expected to use the proposed trades vehicle entry and will be working from their vehicles with tools etc.

There are 36 marked car spaces proposed within the existing area in front of the office. Visitors and office staff will use this space. 15 FTE staff are anticipated and the 36 spaces are expected to meet the demand from office staff and visitors (customers, office deliveries and other office visitors). The District Plan requirement is 1 space per 100 m^2 GFA for industrial activities. Based on 9,100 m^2 the requirement is 91 spaces. The proposal includes sufficient space for 56 unmarked spaces within the expansion area (concrete hardstand) and with the proposed 36 marked spaces, the District Plan minimum parking requirement is met.

[10] Includes 30 vpd from the existing Jackson Road vehicle crossing

[11] The range of ecms for the proposed situations takes into consideration the range if truck and trailers or truck only units.

Two spaces are required to be marked as accessible and we recommend marking two accessible spaces within the area in front of the office. A loading space for an 8m truck is proposed within the servicing area accessed from the trades vehicle crossing. 9 bicycle spaces are proposed to meet the District Plan requirement of 1 for every 10 on-site car spaces. The gate for the proposed trades vehicle crossing is set back 22m to allow a truck and trailer to wait without obstructing the traffic lane and swept paths have confirmed that there is sufficient space on-site for a truck and trailer to turn in a single manoeuvre and exit the site in a forwards motion.

The dimensions for the yard have been based on the existing operation and we understand that the space required for house transporter trucks to load and manoeuvre, based on the existing operation has been considered in determining the proposed site layout and manoeuvring space (22m, 25m and 30m to allow manoeuvring of loaded house transporters). We understand the longest house is 19m. The transportation of houses will be completed by specialist equipment and teams under the conditions of over-dimension permits. The applicant is comfortable that the dimensions provided will be sufficient for the specialist trucks and trailers to manoeuvre. We understand there are a number of features that the trailers can have to manoeuvre in constrained environments.

We have completed the design vehicle (18m semi-trailer) swept paths at the vehicle crossing and within the site to confirm that the design vehicle can circulate and manoeuvre within the site. Refer to Appendix 3 for swept paths. The vehicle crossing has been designed for the NZ design vehicle (18m semi-trailer). In NZ, larger vehicles (High Productivity Motor Vehicles (HPMV)) require permits to travel on public roads. To check, we have completed swept paths using a larger 25m B-train double axle vehicle and the swept paths show that the vehicle crossing is suitable to accommodate larger B-train trucks. The swept paths show there is no clearance outside the painted flush median. During detailed design, the lane widths (and flush median width) should be checked and the appropriate widths confirmed.

Within the site, in the front row a 25m B-train would not be able to turn in a single manoeuvre. This means that it would need to reverse within the site to allow full turning in the turn around area. The consequence of a reversing truck includes higher exposure to other vehicles and pedestrians on site, however it is within the operational side of the site and can be managed on-site without affecting access. The allocation of carriageway space between lanes and the flush median road marking at the vehicle crossing should be reviewed as part of the detailed design.

6.5. Pedestrians, Cyclists and Passenger Transport

There is an existing footpath along the western side of Great South Road along the proposed site frontage. There may be some staff who travel as pedestrians or cyclists but the demand is expected to be low given the nature of the activity and the industrial nature of most the surrounding land. Great South Road does not include dedicated cycle facilities. The site will provide 9 bicycle spaces in accordance with the District Plan requirement, which is expected to be in excess of the likely demand.

Great South Road is serviced by the Waikato Regional bus route 21 Northern Connector (Hamilton to Huntly/Te Kauwhata). The service runs at 30-60 minute frequencies and there is bus stop on Great South Road located at the end of Jackson Road. This is within 250m of the proposed vehicle crossing to the site.

7. CONSULTATION WITH NZTA

We met with NZ Transport Agency (NZTA) representatives where we presented and discussed the applicant's proposal at a high level. They indicated that revocation of SH1 and handover to Waikato District Council would be likely to occur around 6 months after the opening of the WEx. Based on the WEx opening in early 2020, revocation is expected by 2021.

The NZTA Network Engineer requested the following (items in brackets are the heading sections within this report where we have dealt with the comment):

- Confirm swept paths at the entranceway and for right turns (Appendix 3);
- Traffic volumes and expected origin-destination trips (6.5)
- Details of the internal layout and circulation (6.7); and
- Signage, lighting and stormwater arrangements (discussion below).

We understand the applicant is planning to install new signage with the proposal however we have not been provided with details of the sign layout or location. Any advertising signs should be located in private property to avoid adverse impacts on sight distance and should follow the NZTA Advertising Sign guide brochure[12] and comply with the District Plan or consent conditions.

The site is not expected to be operational (in terms of production) during the hours of darkness and we do not consider that lighting is specifically required at the vehicle entranceway. There will be vehicle movements at night with the transportation of houses during off peak periods. However these will be subject to over-dimension permits. There is existing streetlighting along Great South Road and as a result of the positioning of the new vehicle crossing, a streetlight may need to be relocated. This can be confirmed during detailed design and should include confirmation that it meets the requirements of the RITS (Regional Infrastructure Technical Specifications) and that the road lighting remains appropriate.

Indicative stormwater treatment is shown on the proposed plan (Figure 9). Further details are contained elsewhere within the application.

8. DISTRICT PLAN ASSESSMENT

8.1. Activity Status

The District Plan provisions do not allow industrial activity within the Living Zone. Therefore we have assessed the proposed activity (site expansion) against the provisions of the District Plan within the Industrial Zone (Light industrial W) (Chapter 24). At full production, the proposed expansion is expected to exceed the trip generation limit of 250 vpd and would be a restricted discretionary activity. The proposal is expected to generate 265 vpd at the new vehicle crossing and 145 vpd at the existing vehicle crossing.

8.2. Assessment of Appendix A2 of the District Plan

Our assessment of the proposal against the transportation provisions of the District Plan is provided in Appendix 2. The proposal does not comply with the following District Plan provisions:

[12] http://www.nzta.govt.nz/assets/resources/advertising-sign-alongside-sh/ad-signs-brochure.pdf

Item	Rule (relevant parts of the rule)	Assessment
A14 Access and vehicle entrances	A14.1 Any activity is a permitted activity if: c) every access and road entrance is laid out and constructed to comply with the standards in: i. Tables 4, 5 and 6, and ii. Figures 4 to 10, and iii. Appendix B (Engineering Standards) except that in the Rangitahi Peninsula Structure Plan Area, and the primary access route thereto (Opotoru Road), alternative standards may be applied in relation to access gradients and seal width. e) on a site with legal access to 2 roads, the activity only accesses the road with the lower classification in the road hierarchy in Table 8 (where the roads have the same classification, access is only to the road with the lower average daily traffic movements, unless it is considered unsafe),	The proposed new vehicle crossing does not comply with Table 5 minimum separation between vehicle accesses. Within a 80 km/hr speed environment, the District Plan requires minimum separation distance of 100m between vehicle accesses. The proposed vehicle crossing is 65m from the existing vehicle crossing. The proposal includes a new vehicle crossing from Great South Road however has legal access to Jackson Road. No new vehicle access to Jackson Road is proposed.
A14.A Road Network - Safety and Functions	A14.A.1 Any activity is a permitted activity if: a) no new entrance is created from a State highway; and b) in relation to direct vehicle entrances onto a State highway no increase in Equivalent Car Movements/Day from or to an existing vehicle entrance resulting from any new activity, or expansion of existing activities requiring a resource consent under this Plan, is created;	The proposed expansion closes three existing vehicle crossings to SH1 and opens a new crossing. The activity is expected to generate 420 vpd, a nett increase of in excess of 200 vpd (total increase of 285-325 ecms from the existing).

Table 7: City Plan Transportation Provisions

9. COMPLIANCE WITH POLICY AND OTHER FRAMEWORKS

This section outlines national, regional, and local policies and objectives related to transport and provides comment on the proposed plan change and its consistency with, or support for, the relevant objectives and policies.

9.1. National Transport Objectives

9.1.1. GPS 2018

The Government Policy Statement (GPS 2018) on land transport takes effect on 1st July 2018. It sets out how the National Land Transport Fund will prioritise spending over the next 10 years. The four strategic priorities for GPS 2018 are safety, access, environment and value for money.

The proposed plan change is not in conflict with the GPS and supports its focus on access and regional economic development by locating the proposed industrial activity close to a main transport route (Waikato Expressway).

9.1.2. NZTA Documents

NZ Transport Agency is responsible for a number of national plans including the National Land Transport Programme, the Integrated Planning Strategy and is also responsible for the operation of the state highway network. This includes the Waikato Expressway / State Highway 1 (Great South Road).

The proposed plan change does not conflict with NZTA strategies and plans.

9.2. Regional Transport Objectives

9.2.1. RPS

Waikato's Regional Policy Statement (RPS) sets out policies and objectives that address resource management issues in the region.

The proposed plan change supports the RPS by expanding an existing industrial activity that has direct access to strategic transport links, supporting the efficient use of infrastructure and supporting economic outcomes.

9.2.2. RTP 2015-2045 (2018 update)

The Waikato Regional Transport Plan (WRTP 2015-2045) has been updated in 2018. It includes a number of objectives and policies based around three key problems:

- protecting the function of our strategic corridors in the context of growth pressures in and around Hamilton, the North Waikato and in the upper North Island
- tackling our complex road safety problem and the disproportionate number of deaths and serious injuries in the region
- providing for the access and mobility needs of our communities in a changing social, demographic, economic and technological landscape.

The proposed plan change is not in conflict with any WRTP objectives. By expanding an existing industrial activity in an area where most of the surrounding activity is industrial, it supports objectives related to economic development and facilitating freight movements on strategic corridors (Great South Road and Waikato Expressway) and supports future growth areas.

WRPTP 2015-2025 (2018 update)

The Waikato Regional Public Transport Plan (WRPTP 2015-2025) identifies public transport services that will be provided by the Waikato Regional Council over the next 10 years. The goal for public transport is *"A growing and affordable public transport system that contributes to the economic, social and environmental vitality of the region."*

The proposed plan change is not in conflict with the WRPTP.

9.3. Local Transport Objectives

9.3.1. Future Proof

The Future Proof strategy identifies Huntly as a key growth area and identifies employment options in heavy industrial. Whilst the proposal is not heavy industrial, it is consistent with the Future Proof key outcomes for Huntly (employment in industrial areas and population growth).

9.4. Waikato District Plan

The site is located next to a strategic transport corridor, in an area surrounded to the south and east by industrial development.

The District Plan contains objectives, policies and rules that will govern development within the proposed plan change site. The PDP is currently in the further submissions phase with submissions closing on 19 July 2019.

The relevant objectives and policies of both the ODP and the PDP and how the proposed plan change supports them is presented in Appendix 4.

The plan change proposal does not conflict with the relevant objectives and policies of both the ODP and the PDP and supports the relevant transportation objectives and policies.

10. DISCUSSION

The increased production is expected to be gradual with Year 1 production resulting in around 40 additional traffic movements per day. The timing of the increased production is likely to be after the opening of the Huntly Section of the Waikato Expressway which is expected in early 2020 and the traffic volume on Great South Road will be less than the current situation. Traffic volumes on Great South Road are predicted to reduce to around 15,000 vpd[13]. As part of the revocation of Great South Road we expect the speed to be reviewed since the safe and appropriate speed is 60 km/hr. WRTM shows a reduction with WEx in place (nominally 2021) to around 15,000 vpd rising to 18,400 vpd in 2051. We understand that the WRTM is being reviewed but we do not consider an ITA update to be necessary. The removal of regional traffic from Great South Road along with the combination of reduced speed limit and reduction in traffic volume will change the traffic environment. Detailed design will take into account actual and expected traffic flows and the speed environment at the time. The proposed new vehicle crossing does not meet the separation distance required by the District Plan for a 80 km/hr speed environment. The District Plan requirement is 40m for a lower speed environment of 70 km/hr which would be exceeded by the proposed arrangement.

The existing cross section of Great South Road provides a flush median which facilitates access for vehicles accessing vehicle crossings including the Placemakers and Builtsmart sites. There are no vehicle crossings on the Eastern side of Great South Road.

The crash history indicates a number of rear end crashes on the approach to the intersection (Tregoweth Lane) which are mostly associated with the approach to the intersection but also note one reported crash involved a vehicle turning at the Placemakers site. This crash time is outside normal business hours and involved a speeding motorcycle. During the peak periods there will be heavy vehicles making deliveries to the Builtsmart site, the worst case will be in the AM peak when there are 34 vph (4 trucks) turning right into the trades entry. A right turn bay is warranted[14] due to the traffic volumes on Great South Road, however given the close vicinity to the Tregoweth Lane intersection and other accesses, a right turn bay may create confusion for some drivers and the right turn movement is not expected to be a significantly dominant movement since most of the material deliveries are expected from Hamilton. We consider that the existing flush median and wide shoulders are appropriate to facilitate access and are being used by the existing Placemakers and Builtsmart sites with no known issues. There will be additional turning movements at the new vehicle crossing, however the traffic volume on Great South Road will reduce. The potential safety effects are an increase in turning movements, however the risk is not expected to increase since the through traffic is going to reduce. The layout and allocation of space for lanes and median should be checked and confirmed at detailed design to ensure the arrangement is suitable at the vehicle crossing. The Tregoweth Lane signals mean that vehicles are likely to be slowing on the approach or accelerating away from the intersection and speeds are likely to be lower than our assessed typical speed environment (of 80 km/hr). The combination of good visibility, gaps from the signals and the flush median allowing additional space is expected to mean vehicles can access the site safely. To ensure vehicles use the appropriate vehicle crossing and trucks do not enter the public car park, signs will be required at the vehicle entries. Evaluation of Transportation Effects

10.1. Summary of Effects

The likely effects relate to additional traffic including heavy vehicle movements and a new vehicle crossing. In total, the proposed industrial activity within the plan change area could generate around 420vpd with 77

[13] WRTM 2500_2021

[14] Austroads Guide to Road Design Part 4:Intersections and Crossings-General, Figure A10b Turning Lane Warrants for design speed less than 100 km/h.

vph during the peak period. The proposal includes two vehicle crossings to Great South Road with heavy vehicle consolidated to a single point and public and staff vehicles directed to a separate area. The proposal will remove around 10 vpd from the local network (Jackson Road) since vehicle access is proposed from Great South Road and a nett increase of 285 vpd to Great South Road.

The following table comments on the key traffic aspects and effects.

Traffic Aspect	Comment on Effects – Builtsmart specific activity	Comment on Effects – Plan Change – Industrial
Safety effects	The proposal introduces a new vehicle crossing but removes three existing residential crossings. The proposal consolidates heavy vehicle access to the new crossing and light vehicles to the existing Builtsmart crossing. There will be an increase in movements at the crossings which increases the potential for conflict and therefore the potential to reduce safety. However there is good visibility and the flush median and wide shoulders provide space to ensure turning vehicles do not obstruct through vehicles. The environment is expected to change following the opening of the Waikato Expressway with traffic diverted from Great South Road. The reduction in traffic volume on Great South road will contribute to mitigating the potential adverse safety effects of the proposal. There is history of rear end crashes on the approaches to the Tregoweth Lane intersection. The proposed new vehicle crossing is located around 130m north of the signalised intersection and 65m north of the existing site vehicle crossing. The separation between the proposed vehicle crossing and the existing signalised intersection meets the District Plan minimum requirement. Once SH1 is revoked there will be less traffic on Great South Road and the speed limit is expected to be reviewed (lowered). There may be a short time before SH1 is revoked when the site is in operation and therefore higher exposure of site vehicles to through traffic. However, this would be for a short time and there does not appear to be any reason to expect a disproportionate increase in rear end crashes as a result of the proposal. Vehicles turning right into the site are expected to be able to use the flush median without obstructing through traffic on Great South Road to shelter and wait to turn. There will be larger loads transporting houses but these will be under the conditions of over-dimension permits, including requirements for temporary traffic management.	Proposals have to comply with District Plan standards for access (e.g. District Plan Appendix A2 Transportation) so there should be no adverse safety effects. Location in urban Huntly provides options to reduce travel conflict by reducing travel demand (walk and cycle) and potential severity (lower speeds).
Efficiency effects	The existing trip generation of the combined residential and Builtsmart activity is in the order of 135 vpd with 21 vph during the peak hour. The trip generation of the site is expected to increase to 420 vpd (nett increase of 325 vpd), however this is expected to be a gradual increase with a total of 178 vpd in year 1. Given that the proposal is gradual and likely to coincide with the revocation of Great South Road which will result in a reduction in traffic, the proposal is unlikely to result in an increase in delay at near-by intersections. The proposal includes using the existing flush median to facilitate turning at the new vehicle crossing. The width of lanes and the flush median road marking at the vehicle crossing can be reviewed as part of the detailed design.	Network capacity is adequate and reserve capacity will increase when the Huntly section of the Waikato Expressway opens. The location within Huntly contiguous with industrial area provides opportunities for efficiencies from colocation/proximity to similar activities.

Traffic Aspect	Comment on Effects – Builtsmart specific activity	Comment on Effects – Plan Change – Industrial
Parking effects	The proposal means there will be a total of 36 marked on-site parking spaces for staff and visitors within the existing site with additional 56 unmarked spaces available within the work area for trades and services. This meets the District Plan minimum parking requirement and the demand is expected to eb contained on site. Loading and servicing will occur within the work area and an 8m loading space is provided. We recommend two spaces be marked as accessible within the public car park area. The proposal is unlikely to result in any off-site parking effects.	District Plan rules apply – no new adverse effects.
Construction effects	There will be heavy vehicle traffic during the construction of the expansion. These effects can be mitigated through development of temporary traffic management plans. Other construction related effects such as tracking of debris onto the road can be managed through a construction management plan.	District Plan rules apply – effects likely to be mitigated through corridor access conditions.

Table 8: Assessment of Traffic Effects

The traffic effects of Builtsmart are typical of industrial activities that would be permitted in an Industrial Zone. Typical industrial trip generation would be around 720 vpd (2.4 ha @ 30 vph (peak) x nominal 10 hours). The proposed Builtsmart expansion includes a single vehicle crossing to Great South Road for the site which covers four properties with frontage to Great South Road. In the future, if other general industrial activities occupy the separate titles, Rule A14.1 sets out the standards for new vehicle crossings and intensification of use of existing crossings, including limiting permitted activities to 200 vpd in an industrial zone. We consider that the existing A14 rules in the District Plan would adequately manage the potential effects of intensification of use of the existing vehicle crossing or additional crossings by requiring further assessment.

11.2. Options for Mitigation

The potential adverse effects of the development can be mitigated by:

- Detailed design review and approval by WDC;
- Permanently closing the existing vehicle crossings;
- Forming a new heavy vehicle crossing in accordance with the District Plan Appendix A Figure 7 for Heavy commercial- urban entrances that will provide for trades and service vehicles;
- Marking a HV loading bay within the trades and services area;
- Signage at the vehicle crossings to direct visitors to the appropriate vehicle entry;
- Surfacing the existing vehicle crossing;
- Surfacing and marking 36 parking spaces within the car park area at the main entry for staff and visitors, including two accessible spaces; and
- Construction Management Plan to manage construction traffic effects.

These can be managed through a layout in the District Plan, a consent, building consent process or Corridor Access Request controls.

12. CONCLUSION

From a transportation perspective, the proposed industrial expansion is appropriately located with direct access to the arterial network and in an area of surrounding industrial land use. The timing of the development is likely to coincide with the revocation of Great South Road so it is no longer a State

Highway. Rezoning to industrial is consistent with the District Plan objectives and policies relevant to transport, including infill development, employment in areas of population growth, consolidation of access and consistency with the network capacity.

The proposed industrial activity within the plan change area could generate around 420vpd (Builtsmart proposal) with 77 vph during the peak period to around 720 vpd (typical industrial activity). The proposal includes two vehicle crossings to Great South Road with heavy vehicle consolidated to a single point and public and staff vehicles directed to a separate area. The proposal will remove around 10 vpd from the local network (Jackson Road) since all vehicle access is proposed from Great South Road and a nett increase of 285 vpd to Great South Road. The proposal results in an overall reduction of two vehicle crossings to Great South Road. The plan change could result in different activities or layouts, all of which would have to comply with the District Plan, protecting against unexpected safety and efficiency effects.

The plan change proposal does not conflict with the relevant objectives and policies of both the ODP and the PDP and supports the relevant transportation objectives and policies.

There appears to be no reason related to transportation why the proposed plan change or an equivalent land use consent should not proceed. There are likely to be minor beneficial effects from location in the urban area compared to development elsewhere.

APPENDICES

Appendix 1: Proposed Site Layout

READ DRAWINGS CAREFULLY // MEASURETWICECUTONCE

WAIKATO RIVER

N

DRAWING SCALE BAR (IN MILLIMETRES) 0 2 4 6 8 10 20 30 40 50 60 70 80 90 100

EXISTING | NEW

25m

MATERIAL STORAGE AREA

11 12 9 10 7 8 5 6 4 3 2 1

LUNCH ROOM / TOILETS

NEW STORE

EXISTING STORE

EXISTING OFFICES

OFFICE EXTN.

18 PARKING SPACES

18 PARKING SPACES

STAFF & VISITOR CARPARK

SHOW HOME

LOADING SPACE

13 14 15 16 17 18 STORE 40 41 42 43

NEW BUILDING (110m X 20m)

ADDITIONAL PARKING AREA
56 PARKING SPACES (UNMARKED)

30m

STORE 23 22 21 20 19 35 36 37 38 39

24 25 26 27 28 29 30 31 32 33 34

NEW BUILDING (110m X 30m)

CONCRETE HARDSTAND AREA (9,000m2 TOTAL)

22m

10m

STOCK HOUSES

MAIN STORMWATER AREA

VISUAL / NOISE BUFFER (TBC)

PLACEMAKERS HUNTLEY

JACKSON ROAD

GEORGE DRIVE

BIKE PARKING/RACKS (9 TOTAL)

MAIN ENTRANCE

NEW TRADE ENTRANCE (22m SETBACK FROM ROAD)

GREAT SOUTH ROAD (SH1)

RETAINING STRUCTURE ALONG ROAD FRONTAGE (VARIES – UP TO 2.4m HIGH)

NORTH ISLAND MAIN TRUNK LINE (NIMT)

LEGEND

- EXISTING CADASTRAL BOUNDARIES
- BUILDING (EXISTING)
- BUILDING (NEW)
- PAVEMENT AREA (ASPHALT)
- PAVEMENT AREA (CONCRETE)
- PAVEMENT AREA (UNSEALED)
- VEGETATION (PLANTING/GRASS)
- ENVIRONMENTAL BUFFER
- STORMWATER AREA
- RETAINING STRUCTURE
- SITE FENCING

NOTES:

1. CONCEPT LAYOUT, FOR DISCUSSION PURPOSES ONLY
2. STORMWATER AREAS SHOWN ARE INDICATIVE ONLY AND SUBJECT TO CONFIRMATION
3. BASED ON INITIAL SITE CONCEPT PROVIDED BY BUILTSMART (APRIL 2019)

REV	DESCRIPTION	BY	DATE
D	FOR INFORMATION	LPM	20.06.19.
C	FOR INFORMATION	LPM	30.05.19
B	FOR INFORMATION	LPM	09.05.19
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APPROVAL STATUS: FOR INFORMATION

DESIGNED BY: —	DATE: —
DRAWN BY: L. MCCAFFREY	DATE: 24.04.19
APPROVED BY: —	DATE: —

CLIENT NAME: BUILTsmart Advanced Transportable Homes™

PROJECT NAME: BUILDSMART PRIVATE PLAN CHANGE

DRAWING TITLE: SITE MASTER PLAN GENERAL ARRANGEMENT

PRODUCED BY: TE MIRO WATER

DATE PRINTED: 20 June 2019

DRAWING SCALE: 1:1000	REVISION No.: D
DISCIPLINE: CIVIL ENGINEERING	
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Appendix 2: Waikato District Plan Assessment: Operative District Plan

Waikato District Plan Rules for Industrial Light Industrial (W) Chapter 24 – Transport related only

Item	Permitted	Resource Consent	Proposal's Compliance
Industrial Zone Rules: Land Use -Activities			
24.14 Access, vehicle entrance, parking, loading and manoeuvring space	24.14.1 Any activity is a permitted activity if: (a) access, vehicle entrance crossing, parking, loading, queuing, and manoeuvring space is provided in accordance with Appendix A (Traffic), and (b) no access, vehicle entrance crossing, parking, loading or manoeuvring space is within 10m of the Living Zone.	24.14.2 Any activity that does not comply with a condition for a permitted activity requires resource consent as stated in the appendix, or is a restricted discretionary activity if not otherwise specified. Discretion restricted to: • safety design for vehicles and pedestrians • means to avoid, remedy or mitigate effects on amenity • number, area, type and location of parking spaces • stormwater management • construction and materials of parking, loading and manoeuvring spaces • type and frequency of use.	a) Complies: see assessment below. b) Complies if the private plan change is progressed the access, vehicle entrance crossing, parking, loading or manoeuvring space are >10m from the Living Zone.

Item	Permitted	Resource Consent	Proposal's Compliance
24.15 Vehicle movements	24.15.1 Any activity is a permitted activity if: (a) it does not involve more than 250 vehicle movements per day; or (b) it is from the Huntly Power Station site shown as the Heavy Industrial Zone on Planning Map 29 and i. all traffic movements generated from all activities on the site combined (including those movements which were lawfully established prior to 5 December 2012 do not involve more than 750 vehicle movements per day, and ii. no more than 300 of these vehicle movements are Heavy Vehicle movements, or (c) it is from the Greenhill Quarry site as identified in Figure 24C(A), and i. all traffic movements generated from all activities on the site combined (excluding those movements which were lawfully established prior to 5 December 2012 do not involve more than 350 vehicle movements per day, and ii. no more than 150 of these vehicle movements are Heavy Vehicle movements, increasing to 200 once the Huntly Bypass section of the Waikato Expressway is open for public use, or (d) it is from land accessed via the Te Rapa Interchange adjacent to the Te Rapa Dairy Factory. NOTE: please refer to Appendix A for other rules applying to traffic movements.	24.15.2 Any activity that does not comply with a condition for a permitted activity is a restricted discretionary activity. In relation to an activity which does not comply with Rule 24.15.1(a), (b) and (c), discretion restricted to: • Effects of traffic movements on amenity including noise, dust, odour and the visual clutter of parked cars. 24.15.3 Any activity that does not comply with a condition for a restricted discretionary activity is a discretionary activity	**a) Does not comply** The proposal is for 420 vpd at full capacity with 77 vph during the peak hour.

Appendix A2 Roads, Access, Entrances, Parking, Loading, Queuing, Manoeuvring

Item	Permitted	Resource Consent	Proposals Compliance
A11 Parking, loading bays, service lanes, and manoeuvring space	A11.1 Any activity is a permitted activity if: a) parking and loading bays are provided that complies with Table 1 and Figures 1, 2 and 3, and Appendix B (Engineering Standards), and b) bicycle spaces are provided that comply with Table 2, and c) parking, loading bays and manoeuvring spaces are sealed, drained and permanently marked if 5 or more parking spaces are required, excluding parking spaces required for a dwelling, and	A11.2 Any activity that does not comply with a condition for a permitted activity is a restricted discretionary activity. Discretion restricted to: • number, area, type and location of parking spaces	Expected to comply. a) Based on 9,100 m^2 GFA, 91 car spaces and one HGV loading bay are required. 36 marked car spaces (including two accessible spaces) are proposed within the area accessed from the main vehicle crossing

Item	Permitted	Resource Consent	Proposals Compliance
	d) parking spaces and loading bays are not located on a shared access or living court, and are not obstructed when not in use, and e) parking, loading bays and manoeuvring spaces are located on the same site as the activity for which they are required, and f) in Business Zones a service lane is provided that complies with Table 4 and Appendix B (Engineering Standards), and so that a vehicle is not required to reverse to or from a road, shared access or across a footpath.	• area, design, gradient, stormwater management, construction and materials of parking, loading and manoeuvring spaces • accessibility of parking areas from on-site activities • type and frequency of use • safety design for vehicles and pedestrians • means to avoid, remedy or mitigate effects on amenity • location and connectivity.	Additional 56 spaces (unmarked) within the construction yard area. b) 9 bicycle spaces provided. c) All parking areas will be sealed and drained areas (concrete and asphalt areas). 36 spaces within the office frontage will be formalized and marked for staff and visitors. Unmarked spaces within the construction yard will be used by trades and service vehicles. One marked HGV loading space within the new area. 56 spaces will not be marked but can be accommodated within the construction yard area. d) Complies. e) Complies. All spaces located on site – two vehicle crossings to Great South Road. f) N/A -
A12 Manoeuvring space	A12.1 Any activity is a permitted activity if on-site manoeuvring space is provided so that: a) no vehicle is required to reverse to or from a road, or a shared access, and b) a 90 percentile car, as defined in Figure 2, can enter and exit all parking spaces without making more than one reverse movement, excluding spaces required for a dwelling, and c) a 90 percentile car, as defined in Figure 2, can enter and exit one parking space per dwelling, without making more than one reverse movement, and d) a 90 percentile truck, as defined in Figure 3, can enter and exit all loading spaces required under Table 1 without making more than one reverse movement. Note: (a) does not apply to Local Roads 'A' and 'B' in any of the Living Zones in the Te Kauwhata Structure Plan area, or to residential dwellings in the Rangitahi Living Zone.	A12.2 Any activity that does not comply with a condition for a permitted activity is a restricted discretionary activity. Discretion restricted to: • area, design, construction and materials of manoeuvring space • type and frequency of use • safety design for vehicles and pedestrians • road safety and efficiency • on-site manoeuvring.	Complies. Swept paths for semi-trailer design vehicle are included in Appendix 4. All vehicles can manouvre within site to exit in a forwards motion.

Item	Permitted	Resource Consent	Proposals Compliance
A13 Queuing space	A13.1 Any activity that provides on-site parking spaces, or is serviced by a drive-through facility, is a permitted activity if: a) on-site queuing space is provided in accordance with Table 3 for vehicles entering or exiting the parking, loading, manoeuvring or service area.	A13.2 Any activity that does not comply with a condition for a permitted activity is a restricted discretionary activity. Discretion restricted to: • adequacy of the queuing lengths to cater for the expected vehicle numbers • road efficiency safety design for vehicles and pedestrians.	Complies. a) 36 spaces provided from main vehicle crossing and minimum of 10.5m queuing length for 21-50 on-site parking spaces. More than 10.5m is available within the site (from main entrance). 56 unmarked spaces provided within the construction yard (trades vehicle crossing). Minimum of 10.5m queuing length for 21-50 on-site parking spaces. More than 10.5m is available within the site. Gates are set back within the site ensure a truck and trailer can wait in front of the gate without obstructing traffic on Great South Road.
A14 Access and vehicle entrances	A14.1 Any activity is a permitted activity if: a) the site has vehicle access to a formed road that is maintained by Council, and b) no more than 3 activities share a private access, and c) no access, access leg or right-of-way runs parallel to any road within 30m of the road, except within the Rangitahi Peninsula Structure Plan Area and the primary access route thereto (Opotoru Road) and, d) every access and road entrance is laid out and constructed to comply with the standards in: i. Tables 4, 5 and 6, and ii. Figures 4 to 10, and iii. Appendix B (Engineering Standards) except that in the Rangitahi Peninsula Structure Plan Area, and the primary access route thereto (Opotoru Road), alternative standards may be applied in relation to access gradients and seal width. e) no new entrance is created from a limited access road, and	A14.2 1. Any activity that does not comply with a condition for a permitted activity is a restricted discretionary activity if: 2. no new entrance is created from a limited access road. 3. Discretion restricted to: 4. matters addressed in permitted activity conditions 5. safety and efficiency of roads, entrances and access 6. stormwater management 7. effects on local amenity values 8. adequacy of the access for its intended use 9. space for utilities	Does not comply with separation between accesses. a) Proposed access to Great South Road. Currently maintained by NZTA. b) One activity, two vehicle crossings c)Complies d) Complies. Table 4 – not an access leg. Posted speed limit = 70 km/hr. - Table 5 – 80km/hr speed and arterial road. Required separation to side road is 120m (new vehicle crossing complies, existing vehicle crossing has around 65m separation to Tregoweth Lane).Required separation between accesses is 100m (does not comply

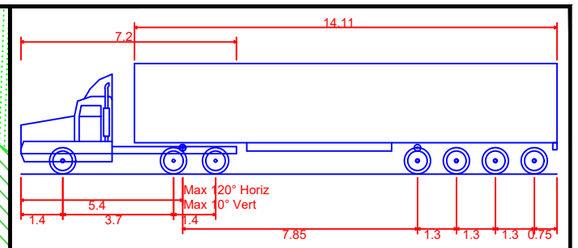
Item	Permitted	Resource Consent	Proposals Compliance
	f) on a site with legal access to 2 roads, the activity only accesses the road with the lower classification in the road hierarchy in Table 8 (where the roads have the same classification, access is only to the road with the lower average daily traffic movements, unless it is considered unsafe), and (fb) no access or entrance within 10 metres of a road has a gradient steeper than 12 degrees. OR if it is on land accessed solely via the Te Rapa Interchange, adjacent to the Te Rapa Dairy Factory.	10. the potential of the site or adjoining land for future development 11. traffic generation by activities to be served by the access. 12. Need for traffic control measures on district roads due to increased traffic from the activity. A14.3 13. Any activity that does not comply with a condition for a restricted discretionary activity is a discretionary activity.	as separation between the site vehicle crossings is 65m and the existing vehicle crossing adjoins the Placemakers access)) - Table 6 – 80 km/hr speed environment requires 165m sight distance from the vehicle entrance generating more than 40 vehicle movements per day (complies). Sight distance exceeds 165m in both directions. - Expected to comply with Engineering Standards. - Figure 7 – meets minimum dimensions in table for Heavy Commercial – Urban entrances. e) Does not comply - one new vehicle crossing f) Does not comply. Site has existing vehicle access to local road Jackson Road. Jackson Road is narrow 9m) and not suitable for heavy vehicles traffic and they would need to travel through existing residential areas. Fb) Complies. Not steep.
A14.A Road Network - Safety and Functions	A14.A.1 Any activity is a permitted activity if: a) no new entrance is created from a State highway; and b) in relation to direct vehicle entrances onto a State highway no increase in Equivalent Car Movements/Day from or to an existing vehicle entrance resulting from any new activity, or expansion of existing activities requiring a resource consent under this Plan, is created; and c) in relation to all other roads (except in the Industrial Zone) it is a new activity or expansion of an existing activity which:	A14.A.2 Any activity that does not comply with Rule A14.A.1(a) - (d) is a restricted discretionary activity. Discretion restricted to: Any adverse effects on the transport network. If the NZ Transport Agency is deemed to be a potentially affected person, any adverse traffic or transportation effects identified by	Does not comply. a) New entrance proposed from SH b) New activity and new vehicle entrance c) N/A since the proposal accesses SH d) Does not comply – more than 200 vpd

Item	Permitted	Resource Consent	Proposals Compliance
	i. does not generate any additional traffic movements; or ii. does not require a resource consent under this plan (except for a Controlled Activity): or d) it is a new activity or expansion of an existing activity in the Industrial Zone complying with A14.A.1(a) and (b) above, and: i. it does not involve more than 200 vehicle movements per day; or ii. it is from the Huntly Power Station site shown as the Heavy Industrial Zone on Planning Map 20.1, and all traffic movements generated from all activities on the site combined (including those movements which were lawfully established prior to 5 December 2012 do not involve more than 750 vehicle movements per day, and no more than 300 of these vehicle movements are Heavy Vehicle movements ; or iii. it is from the Greenhill Huntly Quarry site as identified in Figure 24C(A), and all traffic movements generated from all activities on the site combined (excluding those movements which were lawfully established prior to 5 December 2012 do not involve more than 350 vehicle movements per day, and no more than 150 of these vehicle movements are Heavy Vehicle movements, increasing to 200 once the Huntly Bypass section of the Waikato Expressway is open for public use. Note: For A14.A.1(c) please refer to Explanation and Reason 29.35A.	the NZ Transport Agency, and/ or the written approval of the NZ Transport Agency. Matters addressed in permitted activity conditions in A14.1 above. • the actual or potential impact of the activity (including safety and efficiency impacts) on a State highway, a national route or regional arterial road taking into account the activity's distance from, and intended use of, that State highway national route or regional arterial road. • intersection and/or access design including (but not limited to) berms, road markings and signage, through lanes, turning bays, slip lanes, sight distances, lighting, signalisation, surfacing and drainage.	
A14.B Road Network - Safety and Functions - Te Rapa Interchange	A.14.B.1 Notwithstanding Rule A14.A.1, any activity is a permitted activity if it is from land accessed via the Te Rapa Interchange adjacent to the Te Rapa Dairy Factory and the peak hour traffic flows do not exceed the following limits: AM Peak (7.30 - 9.30am) All Ramps - 300 vehicles per hour (vph) PM Peak (4.00 - 6.00pm) North Bound On-Ramp - 150 vph All other Ramps - 300 vph	A.14.B.2 Any activity that does not comply with Rule A14.B.1 is a restricted discretionary activity. Discretion restricted to: • effects of traffic generation on the safety and efficiency of the roading network.	N/A

Item	Permitted	Resource Consent	Proposals Compliance
	If the site is also accessed via another route, traffic movements via that/those other route(s) shall remain subject to the vehicle movement limits contained in Rules 24.15.1(a) and Appendix A Rule A14.1 and A14.A.1(d)a.		
A15 Road construction and maintenance	A15.1 Construction or maintenance of a road is a permitted activity if the work: a) complies with Appendix B (Engineering Standards), and b) does not create a new intersection with a limited access road, and either a) is undertaken by the council or other public road authority on a road that it owns or controls, or b) is required or authorised by a resource consent.	A15.2 Any activity that does not comply with a condition for a permitted activity is a discretionary activity	Expected to comply.
Table 1 Required Parking Spaces and Loading Bays	Industrial 1 space per 100 m2 GFA plus one HGV loading space		Complies – 91 spaces required and 92 provided plus a HGV loading space. 36 will be marked.
Table 2 Bicycle spaces	All activities –Bicycle spaces are provided at a ratio of 1 bicycle space for every 10 car park spaces required.		Complies- 9 spaces required and provided. There is sufficient space on site to accommodate more than 9 bikes.
Table 3 Queuing space	Minimum queuing length for 21-50 spaces is 10.5m Minimum queuing length for 50-15.5m		Complies.

Appendix 3: Swept Paths

0mm 100mm 200mm



Semi-Trailer	
Overall Length	17.900m
Overall Width	2.500m
Overall Body Height	3.695m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	10.000m

PLACEMAKERS
HUNTLEY

GREAT SOUTH ROAD (SH1)

KEY

- LEFT - IN / LEFT - OUT
- RIGHT - IN / RIGHT - OUT
- CLEARANCE (0.5m)

VEHICLE TRACKING ANALYSIS 17.90m SEMI - TRAILER

REF	AMENDMENT	APP'D	DATE

	BY	CHECKED	DATE
DESIGN	---		--
DRAWN	---		--

RECOMMENDED _____ DATE __/__/__

APPROVED _____ DATE __/__/__

OFFICE: gray matter

CLIENT: BUILTsmart Advanced Transportable Homes™

PROJECT: BUILDSMART PRIVATE SITE MASTER PLAN

SHEET TITLE: VEHICLE TRACKING ANALYSIS 17.90m SEMI - TRAILER

DRAFT

STATUS: FOR INFORMATION ONLY

GEODETIC & VERTICAL DATUM: ---

PLAN NUMBER: 193_01_100_I

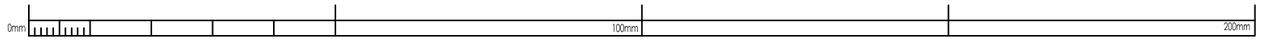
SHEET: Sketch 1

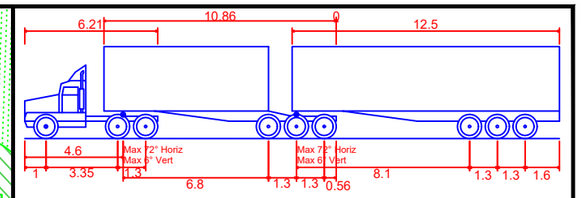
SCALE: 1:750 (@ A3)

REVISION: R0

CAD FILE 193_01_SKETCH_PLANS.DWG

ORIGINAL SIZE A3





B-Double (25.0m)- 12.5m Turning radius

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

PLACEMAKERS
HUNTLY

GREAT SOUTH ROAD (SH1)

KEY

- LEFT - IN / LEFT - OUT
- CLEARANCE (0.5m)

NOTES

1. THIS PLAN IS FOR INFORMATION ONLY.
2. REFER TO TE MIRO WATER PLAN 19013-C-0010 FOR OTHER DETAILS.

VEHICLE TRACKING ANALYSIS 25m B - TRAIN: 12.5m TURNING RADIUS (LEFT-IN / LEFT-OUT)

REF	AMENDMENT	APP'D	DATE

	BY	CHECKED	DATE
DESIGN	---		--
DRAWN	M George	N Mcminn	03/09/2019

RECOMMENDED ---------- DATE __/__/__

APPROVED ---------- DATE __/__/__

OFFICE: gray matter

CLIENT: BUILTsmart Advanced Transportable Homes™

PROJECT: BUILDSMART PRIVATE SITE MASTER PLAN

SHEET TITLE: VEHICLE TRACKING ANALYSIS 25m B - TRAIN: 12.5m TURNING RADIUS (LEFT-IN / LEFT-OUT)

STATUS: FOR INFORMATION ONLY

GEODETIC & VERTICAL DATUM: ---

PLAN NUMBER: 193_01_100_I

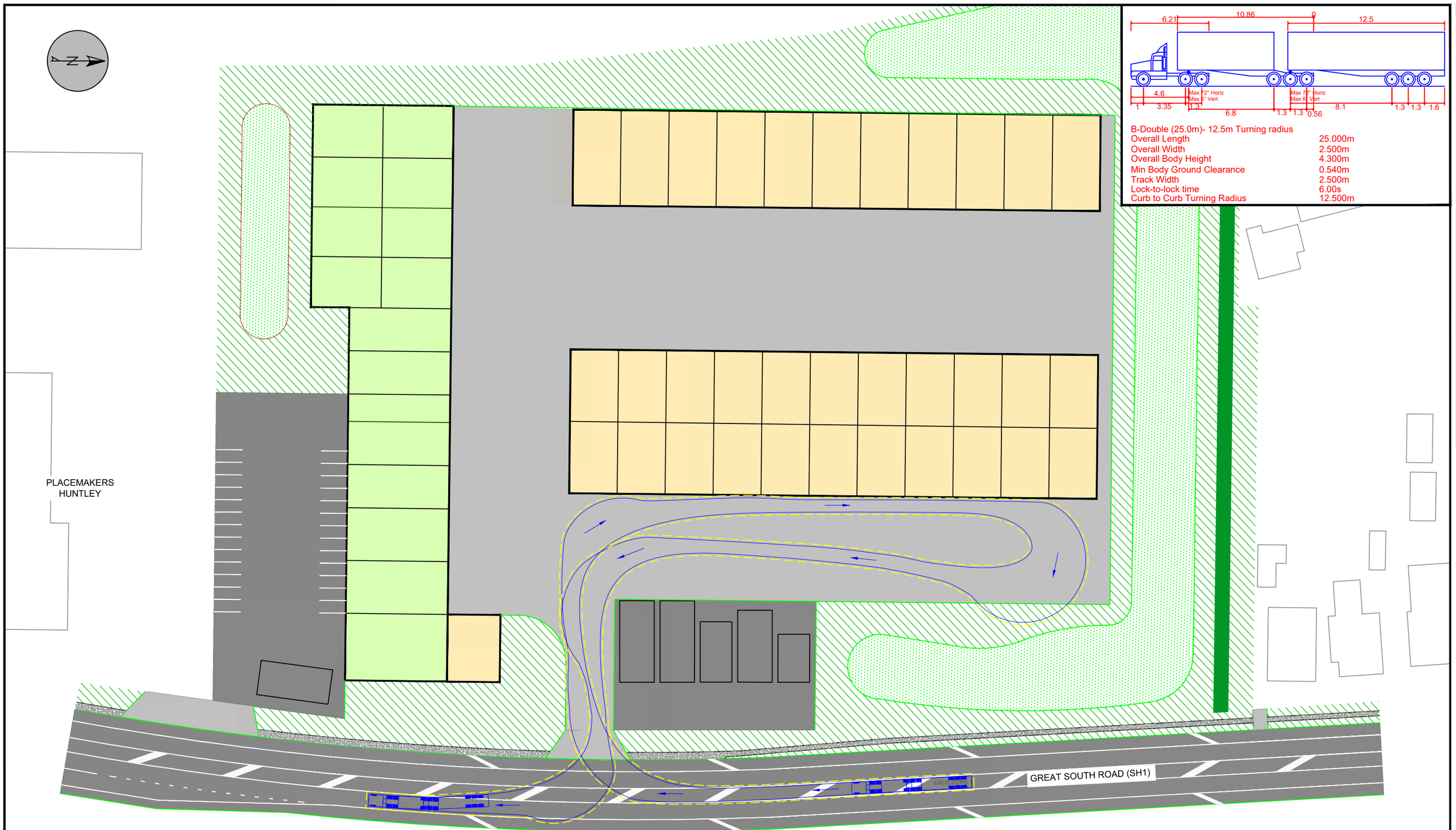
SHEET: Sketch 2

SCALE: 1:750 (@ A3)

REVISION: R0

CAD FILE 193_01_SKETCH_PLANS.DWG

ORIGINAL SIZE A3



REF	AMENDMENT	APP'D	DATE

	BY	CHECKED	DATE
DESIGN	---		--
DRAWN	M George	N Mcminn	03/09/2019

RECOMMENDED ---------- DATE -/-/-

APPROVED ---------- DATE -/-/-

OFFICE: gray matter

CLIENT: BUILTsmart Advanced Transportable Homes™

PROJECT: BUILDSMART PRIVATE SITE MASTER PLAN

SHEET TITLE: VEHICLE TRACKING ANALYSIS 25m B - TRAIN: 12.5m TURNING RADIUS (RIGHT-IN / RIGHT-OUT)

STATUS: FOR INFORMATION ONLY

GEODETIC & VERTICAL DATUM: ---

PLAN NUMBER: 193_01_100_I

SHEET: Sketch 3

SCALE: 1:750 (@ A3)

REVISION: R0

CAD FILE 193_01_SKETCH_PLANS.DWG

ORIGINAL SIZE A3

Appendix 4: Objectives and Policies of the Operative and Proposed District Waikato District Plan

Relevant ODP Objectives (District wide)	Relevant Policies	Comments on Proposed Plan Change
IA.2.1 Towns, villages and other defined growth areas are the focus of future residential, industrial and commercial development	IA.2.2 Industrial and commercial activities that do not have a genuine functional connection with the rural land or soil resource and that do not require a rural setting should not locate in rural areas. IA.2.4 New growth areas, including new rural residential areas, should be identified and planned for in conjunction with towns and villages where they support local services and minimise adverse effects on productive rural activities and lawfully established rural-based activities. IA.2.5 Urban development should occur in an integrated manner so that employment and recreation areas are easily accessible from residential areas.	The location of the plan change is contiguous with existing industrial areas and supporting activities. Located within Huntly town so accessible from residential areas.
IA.12.1 Sustainable district growth	a)Residential, commercial and industrial growth in towns, villages and defined growth areas. b)Rural resources safeguarded for productive rural activities. c)Tangata whenua enabled to make productive and sustainable use of ancestral lands. d)Efficient provision and use of infrastructure. e)Subdivision and development that results in high quality urban environments. f)Limited subdivision in Rural and Coastal zoned areas to support rural productive activities, housing choice or to protect land or features of ecological, cultural, heritage, recreational, access or landscape value. g)Rural residential development growth predominantly in the Country Living zone. h)Minimal conflicts between land uses. i)Maintenance of rural character.	Consistent land use with surrounding industrial areas with direct access to arterial network supports sustainable district growth objectives. Network capacity of Great South Road can accommodate additional traffic from proposed plan change area and reserve capacity will increase with the opening of the Huntly section of the Waikato Expressway.
6.2.1 Development that is connected or grouped around infrastructure.	6.2.5 Industry should be grouped: a) in a suitably defined area within towns and villages, or b) near a national or regional arterial route, or c) near the North Island main trunk railway, or d) where it can link to existing infrastructure or associated industries, or manage its effects on site.	Plan change expands an area of existing industrial activity so is consistent with surrounding land use grouping industry and linking to associated activities. Direct link to arterial network (and NIMT) supports the objectives for connected development.

Relevant ODP Objectives (District wide)	Relevant Policies	Comments on Proposed Plan Change
	6.2.6 Business and industrial activities should be separated from residential activities	
8.2.1 An integrated, safe, responsive and sustainable land transport network is maintained, improved and protected.	8.2.2 Design, construction and operation of roads should be consistent with their function in the road hierarchy. 8.2.2A Subdivision, use and development should not compromise the road function as specified in the road hierarchy. 8.2.2B Subdivision, use and development should be in a location and at a scale that is consistent with the existing or planned capacity and design of the roading network, and (aa) is consistent with the intended function of any roads that may be affected by the subdivision, use and development (roading hierarchy), and does not compromise the safety and efficiency of the roading network, and does not compromise the safety and efficiency of the railway network. 8.2.3 The integrated, safe, responsive and sustainable operation of the land transport network should be promoted through: carriageway, intersection and site design appropriate siting of and access for traffic generating activities traffic management, signage, road marking, lighting, and rest areas and parking as appropriate provision for pedestrians, cyclists and the disabled, including off road routes and connections including pedestrian malls provision of public transport provision for network utilities appropriate access for existing land uses railway crossing design. 8.2.5 Subdivision, use and development should be located and designed to connect safely to an existing road. 8.2.5ALand use activities should provide adequate on-site parking. 8.2.6Buildings, structures, night lighting, glare, advertising signs, aerial distractions and vegetation should not compromise the safe and efficient operation of the land transport network, or obscure RAPID numbers.	Industrial activity adjacent to the arterial route is consistent with function of the route with good connections to inter-regional markets. Arterial network can accommodate additional traffic and plan change is likely to coincide with increased spare capacity of Great south Road due to the opening of the Huntly Section of WEx. Access, parking and on-site circulation arrangements will need to comply with the District Plan standards (Appendix A2) protecting against any unexpected safety or efficiency effects.

Relevant PDP Objectives (District wide)	Relevant Policies	Comments on Proposed Plan Change
4.1.2 Urban growth and development Future settlement pattern is consolidated in and around existing towns and villages in the district.	4.1.3 Location of development (a)Subdivision and development of a residential, commercial and industrial nature is to occur within towns and villages where infrastructure and services can be efficiently and economically provided. (b)Locate urban growth areas only where they are consistent with the Future Proof Strategy Planning for Growth 2017.	Proximity to similar land use provides opportunities for efficiencies. Infill activity makes use of existing infrastructure and arterial network. Within Huntly town providing employment opportunities. Consistent with Future Proof Strategy outcomes for Huntly for industrial employment in areas of population growth. Contiguous with existing industrial use.
	4.1.4 Staging of development (a)Ensure that subdivision, use and development in new urban areas is: (i)located, designed and staged to adequately support existing or planned infrastructure, community facilities, open space networks and local services; and (ii)efficiently and effectively integrated and staged to support infrastructure, stormwater management networks, parks, and open space networks.	
	4.1.6 Commercial and industrial activities (a)Provide for commercial and industrial development in the following zones: (i)Business Town Centre; (ii)Business; (iii)Industrial; and (iv)Heavy Industrial. (b)Industry is only to be located in identified Industrial Zones and the industrial strategic growth nodes of: (i)Tuakau; (ii)Pokeno; (iii)Huntly; and (iv)Horotiu.	
4.1.7 Character of towns Development in the Residential, Village, Industrial and Business zones is attractive, connnected and	4.1.8 Integration and connectivity a)Ensure effective integration within and between new developments and existing areas, including in relation to public open space networks and infrastructure by: (i)Providing good access to facilities and services by a range of transport modes through the provision of integrated networks of roads, public transport, cycle, and pedestrian routes;	Consistent with the character of Huntly, the plan change provides infill development of existing sites in an area of industrial nature. Good access to existing road network and for pedestrians and public transport.

Relevant PDP Objectives (District wide)	Relevant Policies	Comments on Proposed Plan Change
reflects the existing character of town	4.1.13 Huntly is developed to ensure: (i)Infill and redevelopment of existing sites occurs; (ii)Reverse sensitivity effects from the strategic transport infrastructure networks are avoided or minimised; (iii)Development is avoided on areas with hazard, geotechnical and ecological constraints.	
4.6.1 Economic growth of industry The economic growth of the district's industry is supported and strengthened in industrial zones.	4.6.2 Provide Industrial Zones with different functions (a)Recognise and provide for a variety of industrial activities within two industrial zones that have different functions depending on their purpose and effects as follows: (i)Industrial Zone A.Recognise and provide for a range of industrial and other compatible activities that can operate in close proximity to more sensitive zones due to the nature and relatively limited effects of these activities, including visual impact from buildings and associated parking and loading spaces, outdoor storage, lighting, noise, odour and traffic, subject to appropriate separation distances.	Supports economic growth of industry by allowing an existing industrial activity to expand. Plan change makes industrial land available in an area of limited supply.
	4.6.3 Maintain a sufficient supply of industrial land Maintain a sufficient supply of industrial land within strategic industrial nodes to meet foreseeable future demands, having regard to the requirements of different industries to avoid the need for industrial activities to locate in non-industrial zones.	
	4.6.7 Management of adverse effects within industrial zones Manage adverse effects including visual impact from buildings, parking, loading spaces and outdoor storage, lighting, noise, odour and traffic by managing the location of industrial uses, bulk and form of buildings, landscaping and screening at the interface with roads and environmentally sensitive areas	
6.5.1 Land Transport Network An integrated land transport network where:	6.5.2 Construction and operation of the land transport network. Promote the construction and operation of an efficient, effective, integrated, safe, resilient and sustainable land transport network through: (i)Corridor, carriageway and intersection design which is appropriate to the road function as specified in the road hierarchy and in accordance with relevant guidelines; (ii)The appropriate design and location of sites accesses;	Supports the objective for an integrated land transport network. Consistent with the policies for construction and operation of the land transport network. Plan change is appropriately located adjacent to existing network. Activity will be subject to District

Relevant PDP Objectives (District wide)	Relevant Policies	Comments on Proposed Plan Change
i)All transport modes are accessible, safe and efficient; and ii)Adverse effects from the construction, maintenance and operation of the transport network are managed.	(iii)Traffic signage, road marking, lighting, rest areas and parking as appropriate; (iv)Provision for pedestrians and cyclists that addresses accessibility, including off-road facilities and connections; (v)Corridor and carriageway design which is sufficient to enable provision of public transport; (vi)Provision for other infrastructure, including where suitable low impact design stormwater facilities; (vii)Provision for stock underpasses where suitable access is not readily available; (viii)Discouraging the installation of new at grade road and pedestrian rail level crossings: A.Controlling the location of buildings and other visual obstructions within the sightline areas of rail level crossings; and B.Railway crossing design in accordance with the requirements of the rail operator.	Plan standards for access locations and standards, internal circulation and parking. Any new internal roads would be subject to District Plan Engineering standards and likely to result in consolidation of access points to the arterial road.
	6.5.3 Road hierarchy and function a) Provide a hierarchy of roads for different functions and modes of land transport while recognising the nature of the surrounding land use within the district.	
	6.5.4 Road standards Ensure that the construction and operation of roads is consistent with their function in the road hierarchy	
	6.5.5 Road safety Ensures that structures, lighting, signage and vegetation are located and designed so as to compromise the safe and efficient operation of the lane transport network, obscure RAPID numbers	
	6.5.6Network utility location Encourage the location of network utility infrastructure within transport corridors where the function, safety and efficiency of the transport network will not be compromised.	
	6.5.7 Vehicle access Control the location of new vehicle accesses to sites adjacent to other accesses and rail level crossings to improve the safety and efficiency of the land transport network.	