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Waikato District Council  
Ngaruawahia

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**Issued via email:**

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[James.Fuller@aecom.com](mailto:James.Fuller@aecom.com),

Dear Donna and Wayne

**Waikato District Plan Review: Horotiu West Proposed Deferred Residential Zoning**

With regard to the above, we are pleased to provide our initial assessment of traffic and transportation matters assessing the potential ability of the Horotiu West site to support residential development in future. This assessment should be read in the context of the Urban Design and Landscape Design Statement provided by AECOM.

**1. Masterplan Concept and Transport Network Ethos**

The site area being considered within this assessment for potential future residential development is shown in **Figure 1**.



**Figure 1: Horotiu West Masterplan Concept (AECOM)**

The site can reasonably be expected to yield between 250 and 280 residential units provided in a number of different densities and unit typologies.

The masterplan considers connections to the existing transport networks at Kernott Road and Great South Road, with a hierarchy of transport routes being provided on site as follows:

- Main street (19m wide) providing primary means of access to the site and connecting to Great South Road and Kernott Road. A main street is expected to have a 7m wide carriageway accommodating traffic and cycles, 2.5m wide inset parking bays and 1.5m wide footpaths to both sides. This street allows for bus access with an alternative layout providing a 3m shared space for combined pedestrian and cycle use;
- Secondary streets (12m wide) provide secondary, local access. This is reflected in a reduced carriageway width of 5.5m, inset parking (2.5m wide) to one side of the street only. Cycle share the carriageway with cars and other traffic, whilst pedestrians have a 1.5m wide footpath to both sides of the road; and
- Laneways (8m wide) branching off from secondary streets providing access to rear garages and lane facing houses. These operate as a 5m wide shared space and are expected to contain minimal parking.

The road hierarchy presented in the masterplan demonstrates that consideration has been given to the different nature needed on different levels of road within the hierarchy. Planning for walking, cycling and public transport access has been included and appropriately reflects the design principles supported by NZS 4404:2010 'Land Development and Subdivision Infrastructure' and the current road layout provisions in the Waikato District Plan (Appendix A3, Table 4). In addition to the road hierarchy, a network of green spaces is anticipated which can provide an additional element to roadside walking and cycling network.

The road network for the masterplan has also been developed with consideration being given to network resilience. The network of on-site roads and the dual points of access from the existing road network ensure as much connectivity as possible within and to the site, delivering network resilience for the masterplan area.

## 2. External Connections

### 2.1 Kernott Road

Kernott Road is currently a narrow local road, rural in nature, that provides access to a small number of residential properties. For the most part, it is sealed, however there is an unsealed section at its southern end. The existing Kernott Road is shown in the following photographs.



**Photograph 1: Kernott Road looking South**



**Photograph 2: Kernott Road looking North to Intersection with Horotiu Bridge Road**

Kernott Road meets Horotiu Bridge Road at a stop controlled t-intersection. There is a footpath along the southern side of Horotiu Bridge Road and Horotiu Primary School is nearby to the west. This intersection lies within the 50km/h zone and has visibility of at least 100m in each direction. This is suitable for the speed environment.

The existing layout of Kernott Road would not support increased residential development within Horotiu West and is lacking provision for pedestrians, particularly in relation to providing connectivity to the school. It is recommended that any deferred residential zoning for Horotiu West allows for and requires upgrading of Kernott Road to match the standards (or suitable alternative) set out for the main street in **Section 1**.

## 2.2 Great South Road

Great South Road was formerly State Highway 1 (SH1) and continues to form part of the strategic road network, providing primary access to the Waikato Expressway (WEX). It varies in character along its length and outside the Horotiu West site, is generally rural in nature with no footpath or specific cycle provision (cyclists can use the hard shoulder). At its intersections with WEX and Horotiu Bridge Road, footpaths and cycle lanes are in place.

The masterplan proposes forming a new intersection with Great South Road along the narrow frontage the Horotiu West site has to that road. This connection provides network resilience for the masterplan area and also avoids placing the entirety of traffic demand that could reasonably be expected to arise from development on Kernott Road.

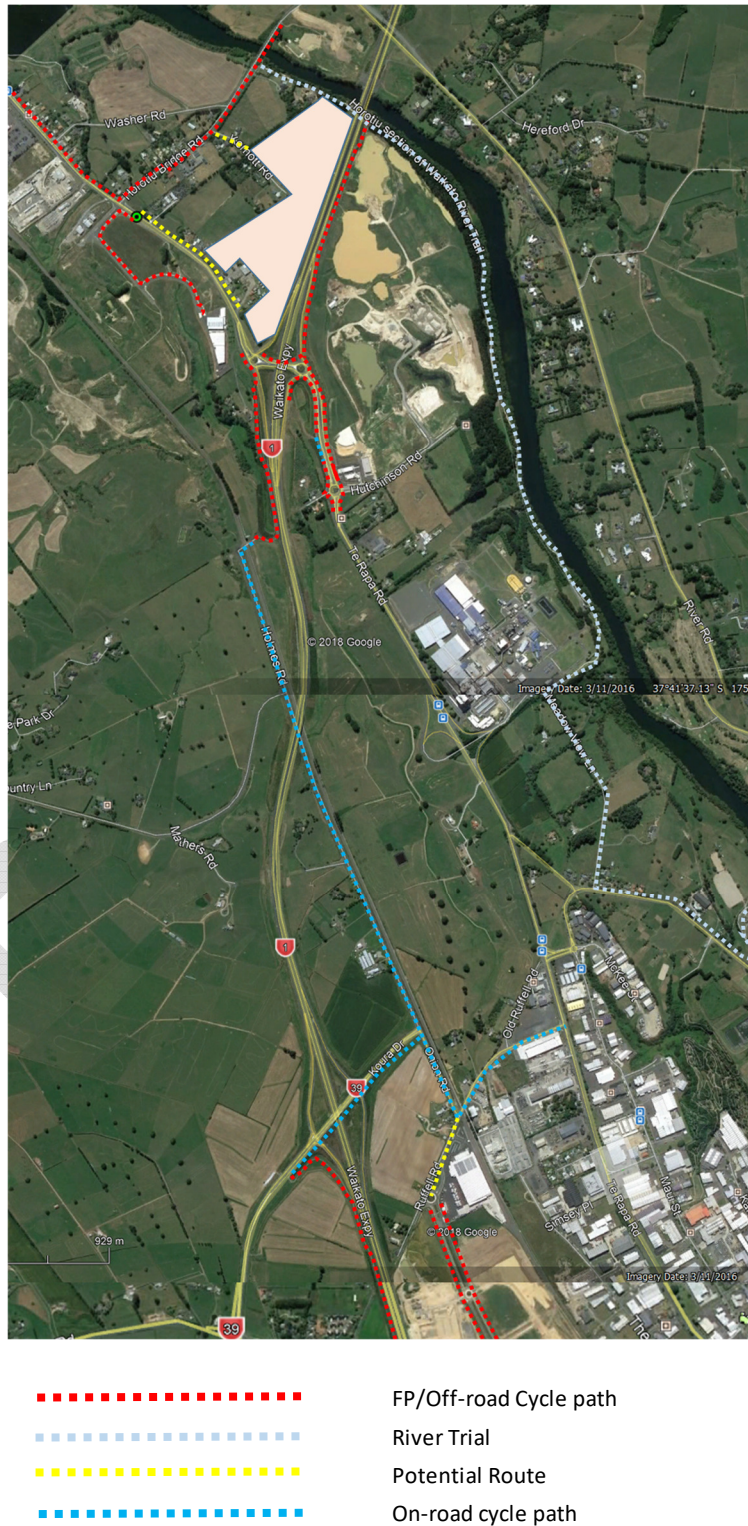
The site frontage lies within a 70km/h zone on Great South Road and has over 200m visibility in each direction. This is suitable for the speed environment. The new intersection is also in excess 300m from the adjacent intersections

The existing layout of Great South Road can potentially support a new intersection (See **Section 3** for further assessment), however, in order to ensure good pedestrian and cycle access for a potential future residential development at Horotiu West, it is recommended that any deferred residential zoning allows for and requires a footpath connection on the east side of Horotiu Bridge Road to be completed as well as formalising on-road cycle lane provisions between WEX and Horotiu Bridge Road.



## 2.3 Walking and Cycling

The existing cycling and walking network around the potential deferred residential zone at Horotiu West would require additional connectivity to link the site to the rest of Horotiu, as discussed in **Sections 2.1** and **2.2**. **Figure 2** shows that, subject the aforementioned upgrades, the Horotiu West site has similar levels of pedestrian and cycle connectivity to the wider region as the rest of Horotiu.



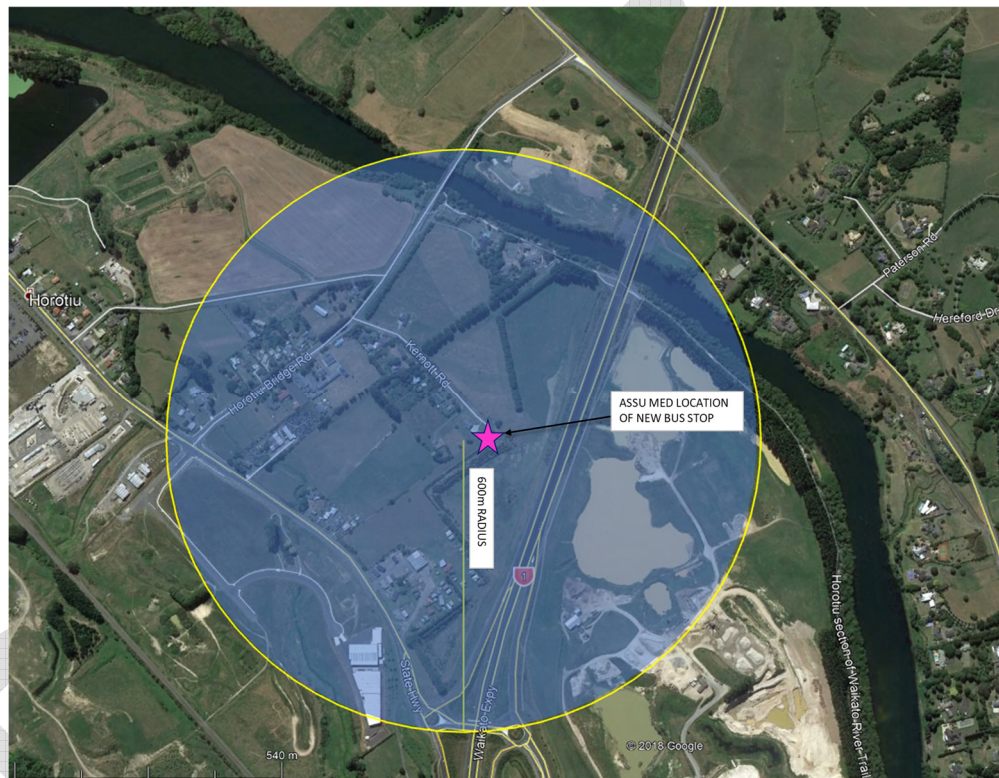
**Figure 2: Walking and Cycle Route Options**

There are existing long-distance paths alongside WEX (Holmes Road and Onion Road) and the Waikato River (Te Awa river path) which provide connectivity to the wider region by these modes.

## 2.4 Public Transport

The masterplan allows for potential future public transport connections through the design of the main street. The Regional Public Transport Plan (RPTP) identifies a preferred maximum walk distance to a bus stop of 600m and sets the target that urban areas achieve 90% coverage to this level.

**Figure 3** shows the extent of coverage that can potentially be achieved assuming a centrally located bus stop is provided.



**Figure 3: Potential Public Transport Service Coverage**

At present, Route 21 Northern Corridor travelling between Hamilton Transport Centre and Huntly passes the site. This could potentially be diverted into Horotiu West to provide the public transport access. An assessment of travel time taking into account diversion in to the site shows that the effect would be to potentially add around three minutes to the journey time for the entire route. This is assessed as being a feasible diversion that has the potential to provide complete bus coverage to the Horotiu West site.

## 3. Traffic Effects

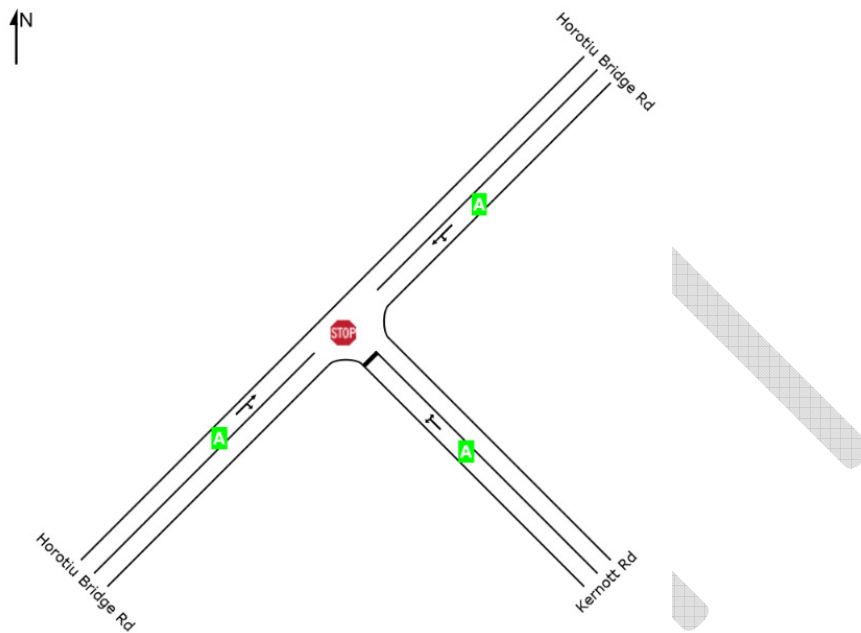
The traffic effects of the potential deferred residential zoning should be considered at a strategic level. It is proposed that the Waikato Regional Transport Model (WRTM) be used in future to assess the detailed effects. WRTM household trips have been calibrated to the Household Travel Survey through the WRTM development process. Applying these to the potential 250 units that could be expected to be developed within the deferred residential



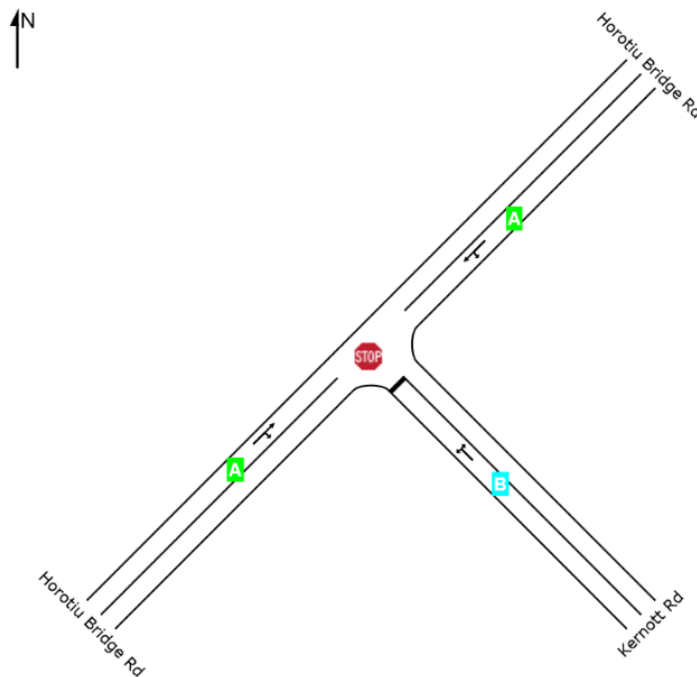
zone leads to 235 trips in the AM peak two-hour period and 244 in the PM peak two-hour period.

### 3.1 Kernott Road / Horotiu Bridge Road

SIDRA analysis has been used to model the intersection at estimated traffic demands in 2041. Based on the assumed traffic volume and distribution, the intersection and the expected Level of Service for AM and PM peak is likely to be as per **Figure 4 and 5**.



**Figure 4: AM Peak LOS for Kernott Rd / Horotiu Bridge Rd-2041**



**Figure 5: PM Peak LOS for Kernott Rd / Horotiu Bridge Rd-2041**

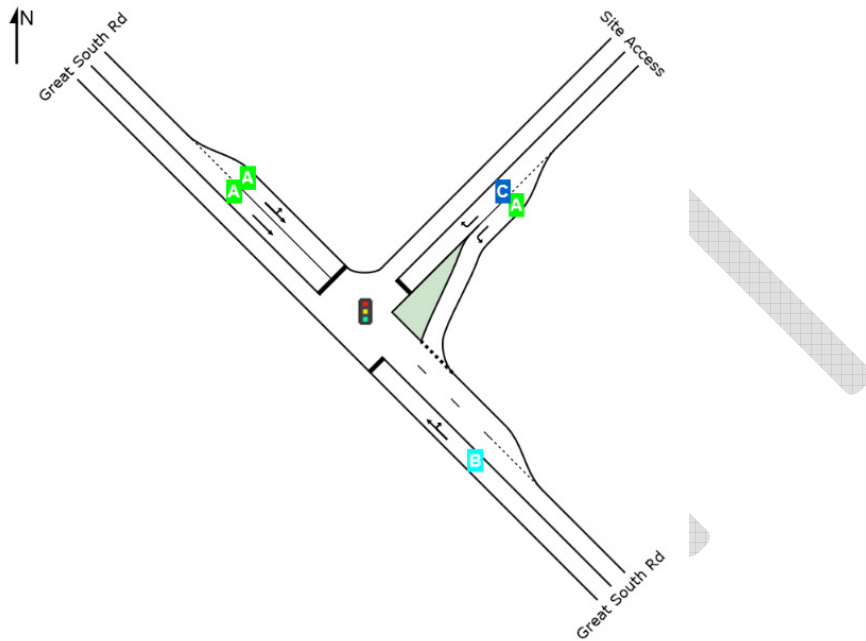




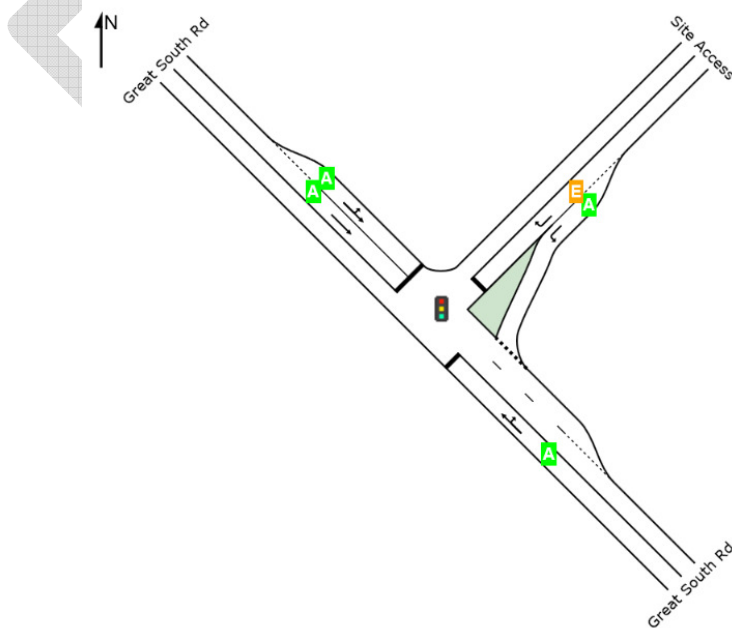
This suggests that the existing stop-controlled t-intersection, with upgrades to Kernott Road as discussed in **Section 2.1** could potentially support the proposed deferred residential zoning.

### 3.2 Great South Road / Site Access


SIDRA analysis has been used to model the intersection at estimated traffic demands in 2041, based on a signal controlled t-intersection. Based on the assumed traffic volume and distribution, the intersection and the expected Level of Service for AM and PM peak is likely to be as per **Figure 6 and 7**.



**Figure 6: AM Peak LOS for Great South Rd / Site Access -2041**



**Figure 7: PM Peak LOS for Great South Rd / Site Access -2041**



This suggests that the any new intersection will need to be signal controlled and some localised lane widening provided.

### 3.3 Wider Network

Based on WRTM analysis recently undertaken in association with the Te Awa Lakes development in Hamilton City, it is expected that by 2041, there will be some congestion at the following locations, both with and without that development:

- Horotiu Bridge Road / Great South Road signals,
- Great South Road / Washer Road intersection;
- Great South Road / Horotiu Road intersection;
- The section of Great South Road from the Horotiu Interchange to Horotiu Road
- Te Rapa Road into Hamilton City; and
- WEX between Horotiu Interchange and Taupiri Interchange.

WRTM analysis for the potential deferred residential zone at Horotiu West has not yet been undertaken, however, based on the two-hour traffic demands identified above and the currently assumed traffic distribution to the network, it would be reasonable to expect that the effects of this zoning may require some off-site mitigation. This can be identified as part of the WRTM analysis which is recommended to be undertaken prior to the deferred residential zoning being made live.

## 4. Conclusions

Overall, it is concluded that the proposed deferred residential zoning can be supported from a traffic and transportation perspective on the basis of:

- The proposed transport hierarchy within the site is in general accordance with the principles of NSZ4404 and the current Operative District Plan;
- The development can support public transport connectivity to RPTP standards;
- The internal transport network supports walking and cycling. It is recommended that the existing facilities along Great South Road be extended to meet those provided at the Horotiu Interchange as part of any deferred residential zoning;
- Kernott Road being upgraded to urban standards and the intersection with Horotiu Bridge Road being retained as a give way t-intersection, subject to more detailed analysis;
- A new intersection with Great South Road can be created to serve the site and can comply with the intersection separation distance and visibility design standards of Austroads. There are existing crossings that are close to the potential new intersection but given the nature of the activities on those sites, it is assessed that eh effects can be mitigated;
- The new intersection with Great South Road is likely to be a signal controlled t-intersection; and
- Further analysis is needed to confirm wider network effects. At this stage, it is anticipated that some off-site mitigation may be needed by 2041.





Overall it is assessed that deferred residential zoning can be supported in this location subject to the above mitigations and further detailed analysis to confirm their details.

Yours sincerely  
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