

6 September 2021

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Dear Jamie and Craig

PC7 ROTOKAURI NORTH – UPDATED TRANSPORTATION REVIEW

1. Introduction and Summary

As requested, we have carried out a review from a transportation perspective of Plan Change 7 (PC7) at Rotokauri North. PC7 relates to an area of future-urban zoned land that is within the Rotokauri North Structure Plan area.

1.1. Background

In our previous letter¹ we provided a review of the updated ITA² attached to Submission 35 by Green Seed Consultants Ltd (the Requestor). The Requester has subsequently provided an ITA Addendum³.

The purpose of this review is to:

- = Review changes to the layout of the structure plan;
- = Review the additional traffic modelling provided by Commute;
- = Review the plan change provisions with a focus on transport and staging provisions; and
- = Provide responses to the transport related Further Submissions.

1.2. Summary

From a transport planning perspective, the ultimate location and transport connections generally appear appropriate and provide good links to significant transport corridors (SH1, SH39 and the minor arterial). However, the proposal is inadequate in terms of the support for passenger transport (PT) corridors and multi-modal connections to the wider area beyond the structure plan area. This is due to out of sequence nature of the timing and the lack of existing services and safe facilities for pedestrians, cyclists and bus users along nearby transport corridors.

There are very few options to provide interim public transport services or walking and cycling connections until the remainder of Rotokauri is developed. The out of sequence nature of the plan change does not initially support the provision of public transport services and will likely rely on private vehicle travel unless a funding agreement for demand responsive services is in place. Relying on the private vehicle will not reduce or manage vehicle kilometres travelled (VKT) or reduce carbon emissions. Unless infrastructure and funding constraints are resolved it appears unlikely that an effective public transport service can be provided to the early stages of the development.

The structure plan map should be amended to identify the future PT routes and bus stops, and off-road walking and cycling facilities within the area to connect the open space with parks, business zone and the minor arterial network.

¹ Rotokauri North Private Plan Change ITA – Transportation Review, Gray Matter Ltd, 24 August 2020

² Rotokauri North Proposed Plan Change Integrated Transport Assessment, Commute, 20 March 2020

³ Rotokauri North – Revised Structure Plan / Traffic Modelling, Commute, 22 July 2021

PC7 results in significant additional traffic on the existing local road network. The traffic changes that result from the development are sensitive to the timing and provision of the minor arterial network and staging of development. In my view, either the mitigation should be built as part of development or a staging plan should be part of the structure plan so that the implementation of transport infrastructure is clearly defined within the planning provisions, rather than relying on future assessments.

Based on the current LTP, it is unlikely that the minor arterial network will be constructed until the mid-2030's, a period of around 15 years. The ITA Addendum states that *"any additional movements along Exelby Road outlined below is expected to be temporarily only until the Minor Arterial Road is complete."* It appears a realistic timeframe for these temporary effects on Burbush and Exelby Roads could be 15 years. For comparison, a temporary speed limit may not be imposed for longer than six months, and infrastructure safety assessments such as warrants for right turn bays have been based on 10 year return periods⁴.

The proposed infrastructure responses lack in emphasis for providing interim transport solutions that reflect safe system design principles and Vision Zero. We are concerned that the proposed Implementation Plan will result in adverse incremental and cumulative effects, including a risk of death and serious injury crashes because of the mainly rural and peri-urban network context.

Our review and assessment of the ITA and proposed Implementation Plan concludes that the proposed triggers are too high and changes are required to lower them and reduce the risk of adverse effects. The proposed triggers for infrastructure improvements are based on a number of assumptions which have not been sensitivity tested. Triggers for some elements have not been included (e.g. Exelby Road north of Burbush Road and the Exelby/ Rotokauri Road intersection), and triggers and requirements for shared paths are unclear.

2. Revised Proposal

PC7 seeks to rezone 140 hectares of land to medium-density residential, allowing for the development of up to 2,000 dwellings, plus a neighbourhood commercial centre (Business 6 Zone). The revised proposal for the road hierarchy is shown on Figure 2. The key differences between the previously proposed structure plan layout (as shown on Figures 1, 2 and 3 of our August 2020 review) and the current proposal are:

- = Removal of the Collector 2/ SH39 intersection; and
- = Realignment of previous Collector 2 and identification as a local transport corridor.

⁴ Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management, Austroads 2020

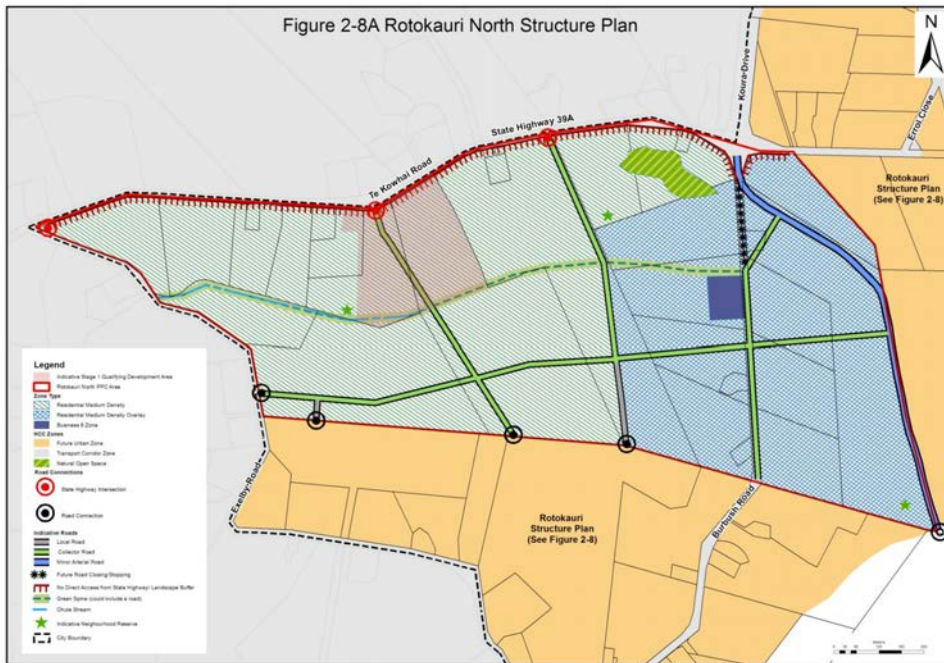


Figure 1: Previously Proposed Structure Plan

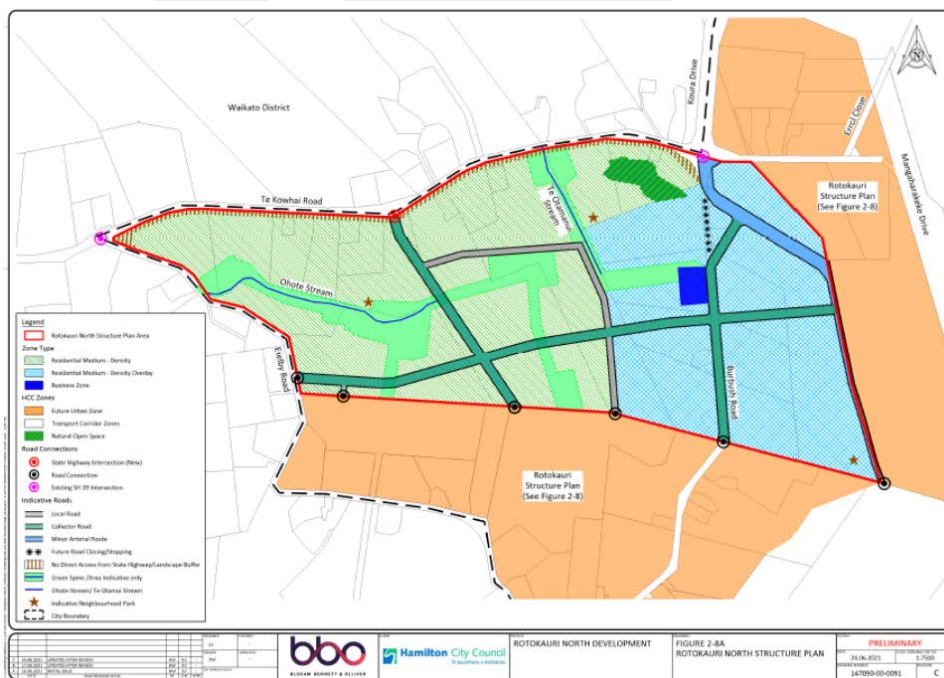


Figure 2: Updated Structure Plan

We understand that the ICMP has been revised to a predominantly piped network which should address our previous concerns relating to road safety impacts from design of swales and potential flooding. Matters identified in our earlier assessment may still be relevant for consideration during detailed design (e.g. cover between stormwater culverts, road pavement and underground services).

The approach to specifying transport corridor cross-sections has changed. All reference to cross-sections specific to this zone have been removed. The proposal will rely on the form of transport corridors described at Tables 15-6a) and ii).

3. ITA Review

3.1. ITA Overview

Council's recent focus areas in Access Hamilton of increasing mode shift and Vision Zero for road safety are not reflected in the ITA or the Addendum.

The national Road to Zero strategy for 2020-2030 outlines a plan to stop people being killed or injured on our roads. It is based on the Vision Zero approach and supporting the GPS outcome seeking healthy and safe people.

As a city, Hamilton has a Vision Zero aspiration for road safety – *“This means we will not accept the death of any person on our transport system. We will design and deliver infrastructure that recognises humans are fallible and that when we make a mistake, we should not pay for it with our life”⁵*.

Access Hamilton identifies investment opportunities in transport activities across a range of modes. It has a strong focus on improving accessibility for pedestrians and cyclists and public transport users and supporting new growth areas. Investment in the transport system aims to deliver a reduction in serious injuries by 30% by 2028 and 60% by 2048, with an overarching goal of zero deaths. It also aims to create a more accessible city with mode share for public transport, walking and cycling increased from 14% to 29% by 2028 and the percentage of short trips (<2km) undertaken by foot increased to 50%.

The out of sequence nature of the plan change does not initially support a culture of walking and cycling and relies on vehicle travel. This will not reduce or manage vehicle kilometres travelled (VKT) or reduce carbon emissions.

We remain concerned that significant adverse safety effects (low probability, high severity/consequence) are likely from increasing traffic volumes using both Burbush Road and Exelby Road south of the site. These roads have 80km/h speed restrictions, are 5.5-5.7m wide and there are no facilities for walking and cycling which increases the risk of conflict of these vulnerable users with vehicles. The proposed infrastructure responses lack in emphasis for providing adequate transport solutions that reflect safe system design principles and Vision Zero.

3.2. Updated Traffic Modelling

We have reviewed the revised traffic modelling provided in the ITA Addendum (Commute, 22 July 2021). Two 2041 scenarios have tested development of 2,000 dwellings with (Option 3R) and without the minor arterial (Option 3S).

We have extracted traffic volumes from the various scenarios and converted the two-hour volumes to peak hours using conversion factors provided by Stantec. Comparisons are also provided between the base and development scenarios to better understand the changes in traffic volumes. This analysis is provided at Attachment A.

My understanding is that the current WRTM is under-reporting residential trips and there is risk that the model is understating trips on the road network.

3.2.1. 2021 Scenario

The revised 2021 scenario includes 150 dwellings. No updated modelling of the SH39/ Collector intersection in the 2021 scenario is provided in the ITA Addendum. We support the proposal for this intersection to be constructed as a roundabout to support the new collector.

These dwellings are located in the area previously identified as Stage 1, consistent with the earlier Special Housing Area proposal. However, all reference to this stage have been removed from the proposal and

⁵ <https://www.hamilton.govt.nz/our-services/transport/accesshamilton/Pages/default.aspx>

the ITA Addendum states that *“this is not intended as any determination that the PPC should be limited to a first stage of 150 dwellings in this location – it has been run as a test model only”*.

We are concerned that developing an initial stage elsewhere in the structure plan area could result in different travel behaviour. For example, development of 150 dwellings in the south-east corner with access to Burbush Road is likely to result in more traffic using Burbush Road when compared to this scenario. We are concerned that the staging is unclear and that the travel behaviour from the initial stages of development are not well understood. This is supported by the statement in the ITA Addendum⁶ that *“The reduction in volumes along these corridors may indicate sensitivity of the corridor as a route choice”*.

The transport effects of 150 lots developed with access to SH39 appear acceptable. In our view other scenarios should have been tested to better understand the transport effects that would arise from initial development in a different location within the structure plan area. There is a risk that staging development in other locations could result in unacceptable interim effects. Without that assessment we consider a cautious approach to be appropriate to avoid unexpected adverse effects on safety.

3.2.2. 2041 With Minor Arterial (Scenario 3R)

The most notable changes between the base and this scenario are:

- = An increase in traffic on the future minor arterial connection to Te Kowhai Road (location H) which more than doubles from 200-300veh/hr in the base to 660-870veh/hr in the modelled scenario.
- = Traffic on SH39 (Koura Drive) increases by 40% to around 1,050-1,200veh/hr.
- = Traffic volumes on the east-west collector (location F3) are low, 50-70veh/hr.

The increase in trips on the arterial network and appears reasonable, noting that no modelling of the impacts at the SH1/39 interchange has been provided.

The performance of the 2041 scenario with the whole of the minor arterial and collector network in place is consistent with the expected base network and is considered acceptable. This assumes that urban upgrades have been completed to Exelby and Burbush Roads as well as full development of the future transport network in Rotokauri.

3.2.3. 2041 Without Minor Arterial (Scenario 3S)

It is important to understand that the 2041 ‘without’ scenario only excludes the part of the minor arterial within the structure plan area, other connections to Te Kowhai Road East and Taiatea Drive remain in the model. An annotated version of the modelled network is provided below. In this scenario traffic can use the future collector and minor arterial network to connect to Te Kowhai Road and avoid using Exelby Road to the south.

⁶ ITA Addendum, Section 3.3.1 (page 7)

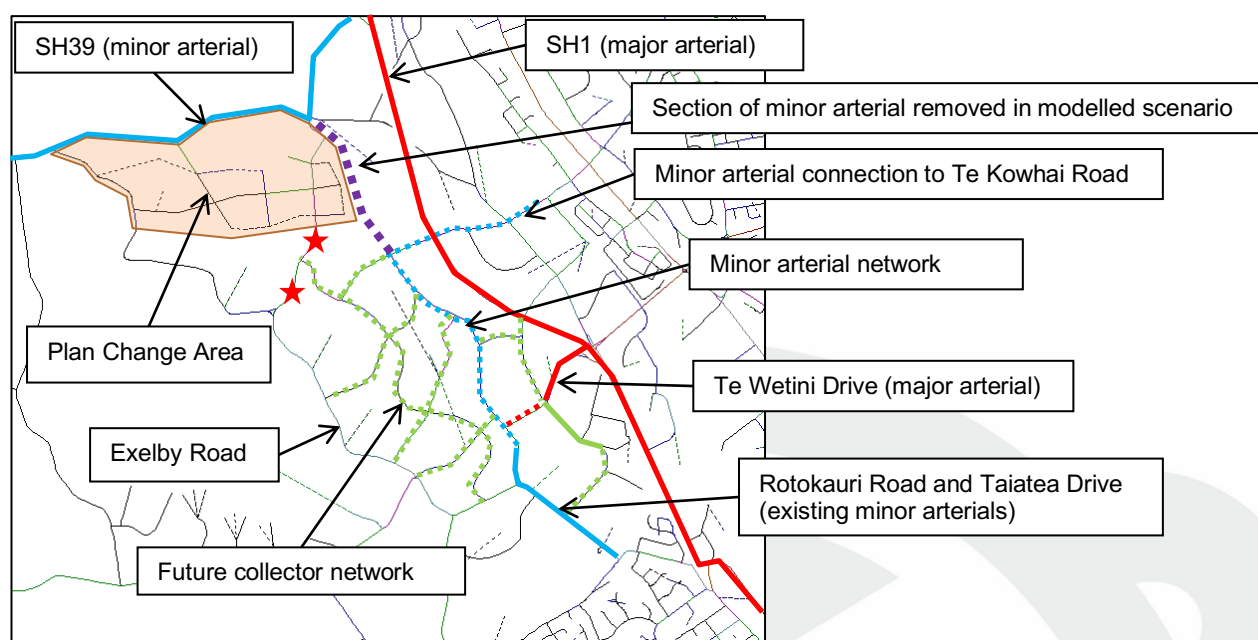


Figure 3: Network modelled in the 'Without Minor Arterial' scenario

The most notable changes between the modelled 'with' and 'without' minor arterial scenarios are:

- = The without scenario has 40% less traffic on the southern portion of the minor arterial (location F2) as a result of traffic transferring to Exelby Road (location E) and the parallel north-south collector road.
- = Traffic on the future minor arterial connection to Te Kowhai Road (location H) decreases in the AM and increases in the PM peak.
- = Traffic on SH39 (Koura Drive) increases by 10% (an additional 100veh/hr).
- = Traffic on Exelby Road increases by 15% (an additional 100veh/hr).

The model outputs (refer to Attachment A) show that this east-west minor arterial (location H) carries 660-870veh/hr with the minor arterial and 580-930veh/hr without the minor arterial. This indicates that this connection plays a significant role in connecting Rotokauri to employment at Te Rapa. Without this connection the traffic volumes on SH39 and the Burbush/ Exelby Road corridor will increase significantly as 500-1,000veh/hr would be redistributed elsewhere.

HCC is currently designating the minor arterial network and is seeking a 15 year lapse period. However, there is no funding in Council's LTP 2021-2031 for land acquisition or construction of the minor arterial network. In my view it appears unlikely that the minor arterial network will be constructed until the mid-2030's, a period of around 15 years. The ITA Addendum states that *"any additional movements along Exelby Road outlined below is expected to be temporarily only until the Minor Arterial Road is complete."* It appears a realistic timeframe for these temporary effects on Burbush and Exelby Roads could be 15 years.

We note the developer has recently been quoted in the media⁷ indicating that "with the whole development is expected to take five to seven years to complete". If this is the case the wider infrastructure assumptions in the WRTM modelling are incorrect and testing a scenario with full development and no wider arterial network would be necessary.

⁷ <https://www.stuff.co.nz/waikato-times/news/300397251/hundred-million-dollar-pitch-for-2000-homes-built-in-rotokauri>

More detailed assessment of the proposed mitigation is discussed in the following sections.

3.3. Exelby Road and Burbush Road Corridors South of the Proposal

Exelby Road currently has a sealed width of 5.5m although it does narrow further on some curves. In 2020 the traffic volume was estimated as 550veh/day north of Burbush Road and 850veh/day south of Burbush Road. Burbush Road currently has a sealed width of 5.7m and an estimated traffic volume of 850veh/day. The peak hour traffic volume on both roads is approximately 100veh/hr⁸. The horizontal and vertical alignment is poor, especially on Exelby Road. Neither Exelby Road or Burbush Road meet the current rural road standard as they lack sealed shoulders.



Figure 4: Roadside environment along Exelby Road

The modelling shows that in 2021 with 150 dwellings the traffic volume on Exelby Road (Location E, south of Burbush Road) will increase to approximately 275veh/hr, almost three times the current hourly volume⁹. On Burbush Road the modelled volume is approximately 150veh/hr. We would expect this to be higher if the initial stages of development had direct access to Burbush Road, rather than to SH39.

⁸ Assuming the peak hour is 15% of daily traffic volume

⁹ Although the 2021 base model indicates the peak hour volume as 200-250veh/hr

In the 2041 modelled scenarios:

- = Exelby Road (Location E, south of Burbush Road) has approximately 550veh/hr with the minor arterial in place, increasing to 600-750veh/hr without the minor arterial; and
- = Burbush Road (Location D) has approximately 350veh/hr with the minor arterial in place, increasing to 900-1,000veh/hr without the minor arterial.

The proposal is to provide seal widening of both roads to provide a 7.7m sealed width (5.7m carriageway plus 1m sealed shoulders). The ITA Addendum has relied on NZS4404 to determine this standard. RITS states that “... all references within Section 3.3 (NZS 4404) to Table 3.2 (NZS 4404), shall be taken instead to refer to the table in the relevant district plan” and the District Plan¹⁰ does not provide standards for rural roads. Austroads provides the following guidance on the width of rural roads. In general, these are wider than those outlined in NZS4404 due the wider carriageway (3-3.5m lanes vs 2.75m) and a more granular approach to shoulder widths.

Element	Design AADT				
	1–150	150–500	500–1000	1000–3000	> 3000
Traffic lanes ⁽¹⁾	3.7 (1 x 3.7)	6.2 (2 x 3.1)	6.2–7.0 (2 x 3.1/3.5)	7.0 (2 x 3.5)	7.0 (2 x 3.5)
Total shoulder	2.5	1.5	1.5	2.0	2.5
Minimum shoulder seal (2),(3),(4),(5),(6)	0	0.5	0.5	1.0	1.5
Total carriageway	8.7	9.2	9.2–10.0	11.0	12.0

Figure 5: Austroads Rural Road Standards¹¹

Widening Exelby Road to provide a 7.7m sealed width will encounter challenges due to current vertical and horizontal alignment meaning that earthworks and drainage improvements will be required along much of the affected road. The increase in traffic increases the risk of crashes at vehicle crossings along the affected roads. On Exelby Road there are 35 vehicle crossings which will need to be adjusted to accommodate the widening. As illustrated in the photos above, roadside hazards such as trees and power poles will need relocating or protecting.

The ITA Addendum uses a traffic volume threshold of 3,500veh/day for a collector road. NZS4404 uses 2,500veh/day for rural roads and 8,000veh/day for urban roads. The District Plan does not use traffic volumes to define hierarchy, instead relying on the function of the road.

Commute provided¹² the following graphs of daily traffic volumes at two locations on Burbush Road. The locations are either side of the future collector link to Te Kowhai Road and are shown as red stars on Figure 3.

This assessment is based on assumptions including a linear rate of growth over 20 years and the relationship of peak hour to daily volumes. Assuming a linear growth rate, the graphs indicate that a volume of 2,500veh/day is reached after 2-5 years of development (indicated by the red vertical line). This equates to development of 200-500 dwellings without the minor arterial. In both the base model and with the minor arterial in place this increases to 8 years (or 800 dwellings). The implementation plan proposes higher thresholds of 600 and 1,500 dwellings.

¹⁰ Volume 2, Appendix 15, Table 15-6a)i)

¹¹ Austroads Guide to Road Design, Part 3: Geometric Design, Table 4.5

¹² Email from Leo Hills to Alastair Black dated 12 August 2021

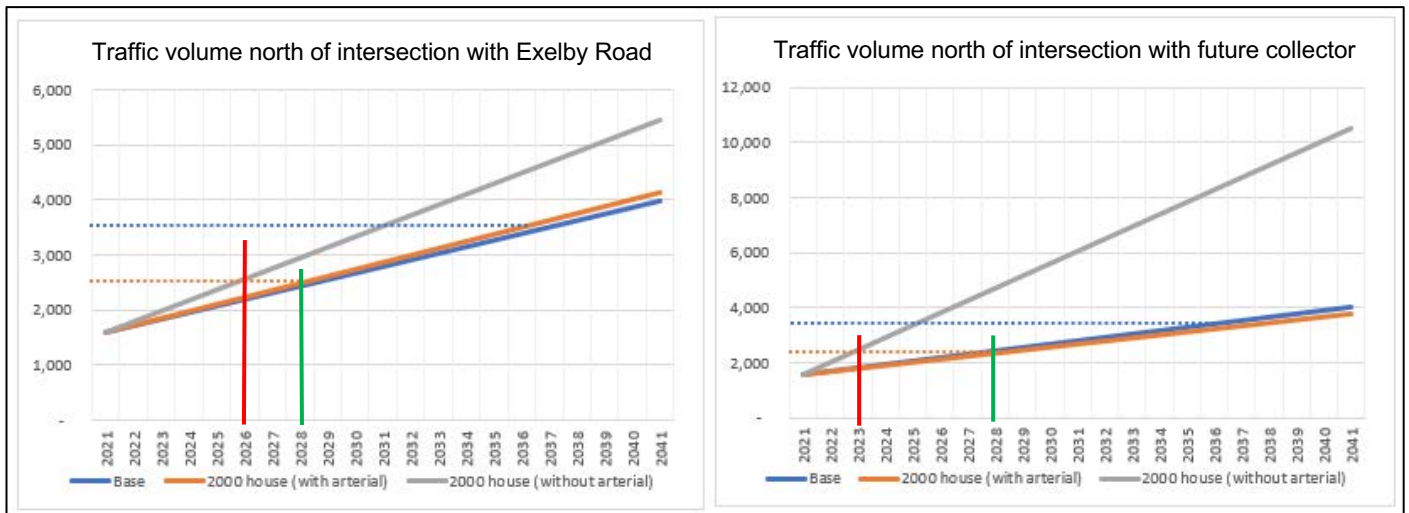


Figure 6: Daily Traffic Volumes on Burbush Road

The modelling predicts less traffic on the section of Exelby Road between SH39 and Burbush Road (west of the plan change area). In the scenario without the minor arterial and based on a threshold of 2,500veh/day, approximately 80% of the development could take place prior to widening. I am concerned that the staging (both size and location) will influence the traffic volumes on Exelby Road and this is not reflected in the modelling. As discussed earlier we have concerns with this corridor including the lack of sealed shoulder, narrow sealed width, poor horizontal and vertical alignment, and in my view an upgrade to this rural portion is likely to be triggered by safety concerns (rather than efficiency effects) which would not be fully addressed by the proposed widening.

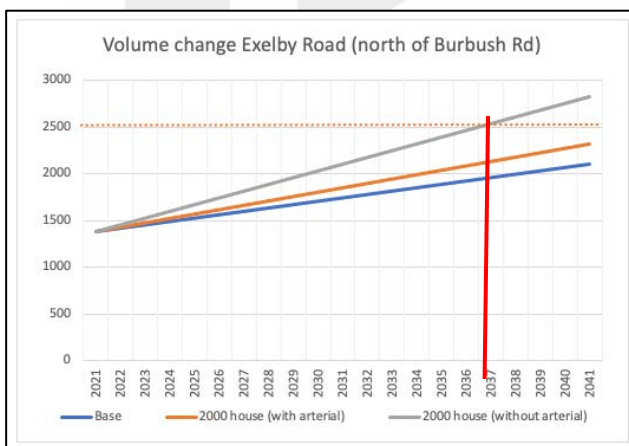


Figure 7: Daily Traffic Volumes on Exelby Road

In our view the triggers for widening on Burbush Road and Exelby Road provided in the Implementation Plan are too high. Due to uncertainty in delivery of the minor arterials, along with uncertainty in staging and location of the proposed development we consider that widening of Burbush Road and Exelby Road (south of Burbush Road) should be triggered by 200 dwellings without the minor arterial and 800 dwellings with the minor arterial.

3.4. Burbush Road/ Exelby Road Intersection

We agree that improvements are required to the Burbush Road/ Exelby Road intersection to address the safety effects arising from additional movements through this intersection. The ITA Addendum provides an assessment of efficiency effects, it does not provide an assessment of the proposed intersection from a safety perspective.

The current intersection has poor vertical and horizontal alignment which limits sight distance from the proposed intersection. The available sight is less than 100m looking left and around 150m looking right. For an 90km/h design speed safe intersection sight distance¹³ (SISD) of 214m is required, reducing to 151m at 70km/h.



Figure 8: Sight distance looking left and right from proposed T-intersection



Figure 9: Southbound approach on Burbush Road illustrates difference in level and poor visibility

The risk of adverse safety effects is not limited to right-turns from Burbush Road into Exelby Road, the limited sight distance increases the risk of rear-end crashes and crashes from vehicles turning right out of Exelby Road. As discussed above the minor arterial network may not be in place for 15 years, so any improvements need to consider the increased crash risk from the additional traffic over a prolonged period.

The 2021 modelling indicates very little right-turning traffic at this intersection (1-2veh/hr) and a right-turn bay does not appear warranted. In 2041, the modelling shows that Burbush Road will carry approximately 300-400veh/hr with the minor arterial in place, increasing to 900-1,000veh/hr without the minor arterial. The WRTM represents this unusual intersection layout with three nodes, with a right-turning volume of 85-

¹³ Austroads Guide to Road Design, Part 4A: Unsignalised and Signalised Intersections, Table 3.2

100veh/hr in the PM peak period (2041 without the minor arterial). With the minor arterial turning volumes decrease to around 20-30veh/hr.

Plotting these through and turning volumes on the figures for Austroads warrants¹⁴ indicate a right turn bay is warranted with a turning volume of around 15-20veh/hr and the through volume is around 300veh/hr. Assuming a linear growth rate and without the minor arterial a right-turn bay is triggered with around 20% of total development¹⁵ or 400 dwellings.

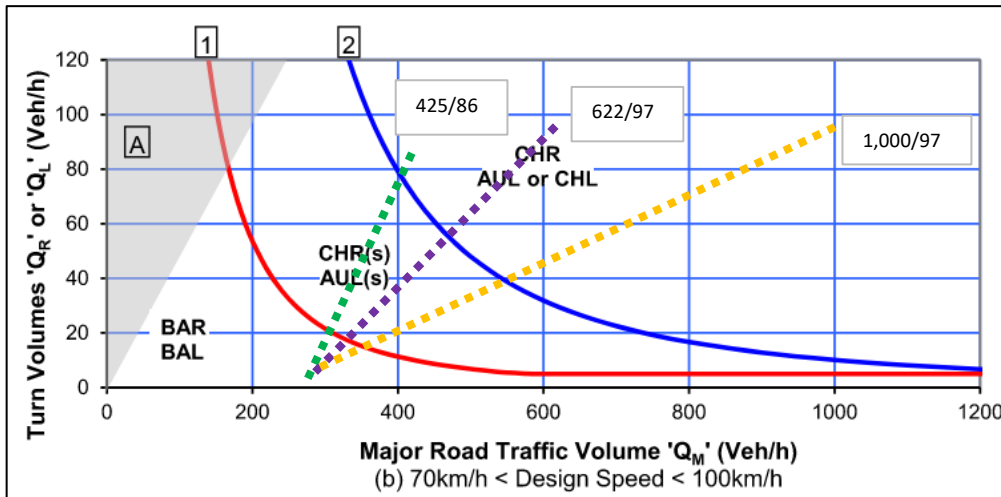


Figure 10: Traffic Volumes and Warrant at Burbush Road/ Exelby Road intersection

The concept provided at Figure 22 of the ITA Addendum does not show the proposed right-turn bay. Construction of improvements to the Burbush Road/ Exelby Road intersection will be challenging as the intersection straddles the HCC/ Waikato DC boundary and Burbush Road is located very close to the road reserve boundary which may impact on the ability to construct an Austroads compliant right-turn bay. It is unclear if complying sight distance can be provided for a right-turn bay at this intersection due to the vertical and horizontal geometry.



¹⁴ Austroads Guide to Traffic Management, Part 6: Intersections, Interchanges and Crossings Management, Section 3.3.6 and Figure 3.25

¹⁵ Calculated as $20/86 = 23\%$ and $20/97 = 21\%$.

Figure 11: Burbush Road/ Exelby Road Intersection

We have used the Safe System Assessment Framework¹⁶ to subjectively assess the impact of increasing traffic volumes at the existing intersection. There are two changes between the existing and proposed assessments, increase in exposure for all crash types and introducing pedestrians to the future environment. Run-off road crashes are included due to the narrow carriageway and alignment of Burbush Road through the intersection. The result is an increase in the total score from 8 to 23 (or 20/256 if pedestrians are excluded from the future scenario).

	Run-off Road	Head-On	Intersection	Other	Pedestrian	Cyclist	Motorcycle
Exposure	1/4	0/4	1/4	0/4	0/4	1/4	1/4
Likelihood	1/4	0/4	1/4	0/4	0/4	1/4	1/4
Severity	2/4	0/4	2/4	0/4	0/4	3/4	1/4
Product	2/64	-	2/64	-	0/64	3/64	1/64
Total	8/320						

Table 1: Safe System Matrix Assessment - Existing Layout and Existing Volumes

	Run-off Road	Head-On	Intersection	Other	Pedestrian	Cyclist	Motorcycle
Exposure	3/4	0/4	3/4	0/4	1/4	2/4	2/4
Likelihood	1/4	0/4	1/4	0/4	1/4	1/4	1/4
Severity	2/4	0/4	2/4	0/4	3/4	3/4	1/4
Product	6/64	-	6/64	-	3/64	6/64	2/64
Total	23/320						

Table 2: Safe System Matrix Assessment - Existing Layout and 2041 Volumes

The treatment selection and hierarchy (Table 4.7 of Safe System Assessment Framework) includes a roundabout as a Safe System treatment option influencing both the likelihood and severity of crashes at this intersection. Providing a turning lane is identified as a 'supporting treatment' that only influences the likelihood of crashes. Given the complex environment, a roundabout provides a safer form of intersection by reducing the number of conflict points and better managing vehicle speeds. However, the topography presents a challenge for designing a compliant roundabout and significant earthworks could be required.

In my view the 600 dwelling trigger in the proposed Implementation Plan is too high and the intersection improvement appears warranted following development of around 400 dwellings. In my view intersection improvements should be coordinated with widening of the Burbush Road/ Exelby Road corridor (i.e. following development of 200 dwellings).

3.5. Exelby Road/ Rotokauri Road Intersection

The increase in traffic also increases the risk of crashes at the Exelby Road/ Rotokauri Road intersection south of the Plan Change area. The ITA Addendum did not provide an assessment of the Exelby Road/ Rotokauri Road intersection or how the intersection aligns with the safe system design principles¹⁷.

¹⁶ Safe System Assessment Framework, Austroads, AP-R509-16 (February 2016)

¹⁷ Austroads Safe Systems Framework, Table 4.7 provides a hierarchy of treatments at intersections that are compatible with the Safe System. These include grade separation, roundabout, raised platforms, left-in/left-out treatments, banning selected movements and reducing the speed environment/ speed limit.

Exelby Road intersects with Rotokauri Road on the outside of the tight horizontal curve. This results in sight distance of around 65m for northbound vehicles turning right into Exelby Road. Austroads requires stopping sight distance¹⁸ (SSD) of 139m for a 90km/h design speed. The curve is posted with a 45km/h speed advisory, at a design speed of 60km/h SSD reduces to 65m.



Figure 12: Exelby Road/ Rotokauri Road Intersection



Figure 13: View from Rotokauri Road when turning right into Exelby Road

In both the 2021 scenarios the right-turn volume is around 140veh/hr. Demand for right turn could be higher if the initial development has direct access to Burbush Road. The 2041 scenarios model this intersection¹⁹ as a roundabout with a fourth leg into future residential development east of the intersection. With the minor arterial and collector networks in place 355veh/hr are expected to make this right-turn in the PM peak, increasing by 75veh/hr to 430veh/hr with the development. In my opinion, the turning volumes could be higher without the parallel routes provided by the future minor arterial and collector networks.

¹⁸ Austroads Guide to Road Design, Part 3: Geometric Design, Section 5.3

¹⁹ WRTM node 2946

The outcome of a Safe System Assessment of this intersection would be similar to that for the Exelby Road/ Burbush Road intersection above.

In my view, the increase in traffic will result in a significant increase in demand for right turns into Exelby Road. The volume will be sensitive to how/where the development is staged and whether the minor arterial has been constructed. In my view the appropriate safe system treatment for this intersection is a roundabout.

No trigger was identified in the proposed Implementation Plan. In my view intersection improvements should be coordinated with widening of the Burbush Road/ Exelby Road corridor (i.e. following development of 200 dwellings).

3.6. Walking and Cycling

3.6.1. Interim Connections

There are very few options to provide interim walking and cycling connections until the remainder of Rotokauri is developed. The only existing connection close to the development is the shared path on Koura Drive which provides a connection to the shared path alongside the Waikato Expressway.

The out of sequence nature and the lack of safe facilities for pedestrians and cyclists means that travel from the development is likely to rely on the private vehicle until the remainder of Rotokauri is developed. Development relying on the private motor vehicle is inconsistent with the strategic framework for transport including the Access Hamilton objectives for mode shift.

In our view, all development in Rotokauri North needs to provide a continuous connection to the existing walking and cycling network, i.e. the shared path on Koura Drive, to provide an alternative route for active modes.

3.6.2. Off Road Facilities

Walking and cycling facilities will be provide within the transport corridors as required by the District Plan and the provisions of this Structure Plan. No other off-road facilities are currently included on the Structure Plan.

To achieve Council's objectives for mode shift and connectivity the structure plan should include a network of off-road paths connecting open space, neighbourhood parks, sports park, the business zone, future land uses such as schools and the minor arterial network. The green spine provides the best opportunity to provide this off-road facility, noting that connections should be provided across the streams/waterways to prevent these features becoming barriers to walking and cycling. Detailed design will need to consider CPTED matters such as lighting and passive surveillance.

The proposed minor arterial designation includes separated walking and cycling facilities on both sides of the arterial with connections to the shared path on the western side on the Waikato Expressway at Te Kowhai Road/ Errol Close in the north and at the Te Kowhai Road and Chalmers Road underpasses further south of the site. The off-road facilities within the structure plan should provide direct connections to these strategic paths which are external to the site.

I understand that HCC has proposed changes to the location of the neighbourhood parks which will influence the location of an off-road path network. There may also be other limitations on path locations identified through the ICMP. I recommend that an off-road network be identified on the Structure Plan map. An indicative network is shown below. The related District Plan provisions should provide for a degree of flexibility to allow the routes to match the detailed subdivision layout and site specific constraints identified during detailed design.

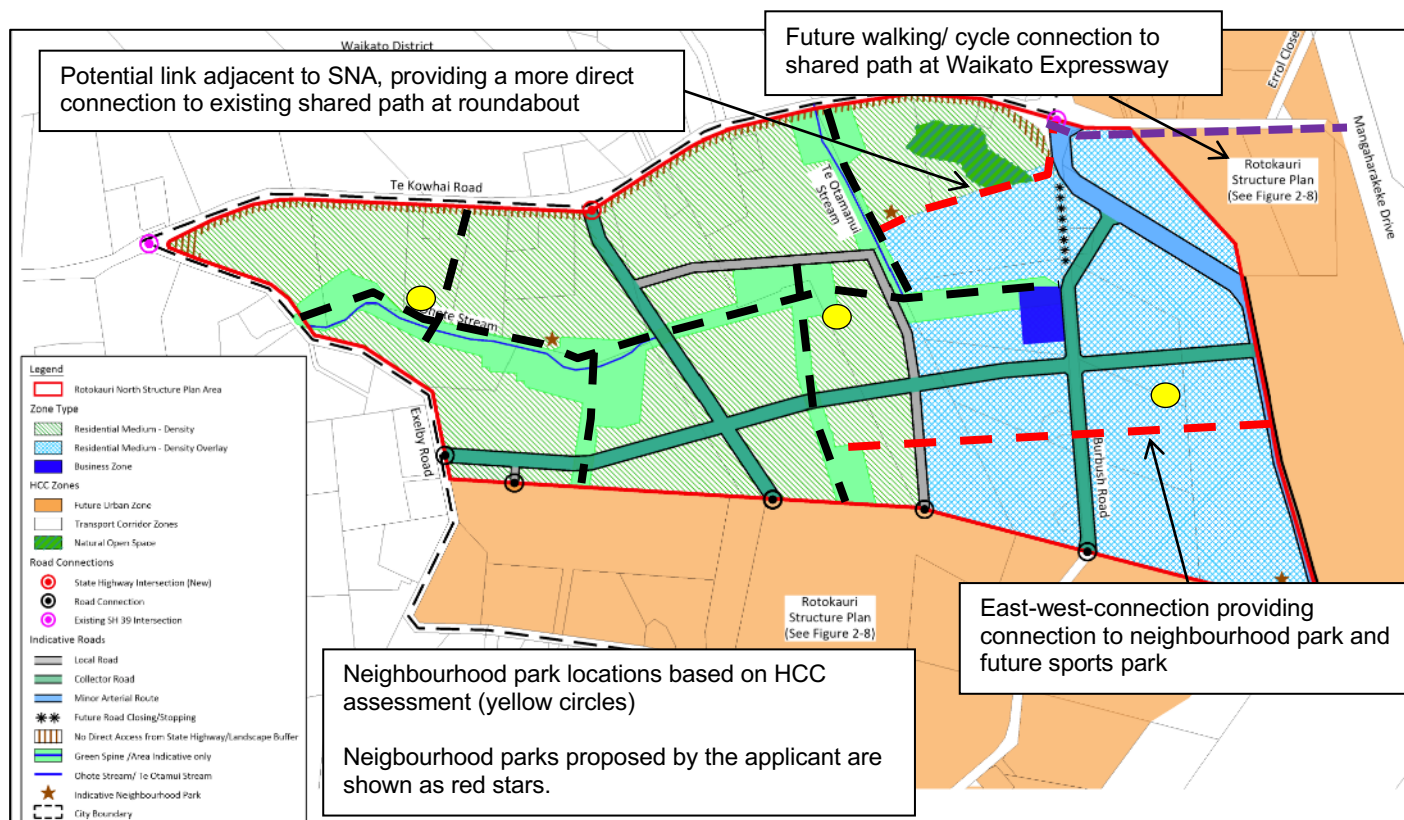


Figure 14: Recommendations for Off-Road Walking and Cycling Facilities

3.6.3. Shared Path on SH39

The original reason for a shared path on SH39 was to provide a walking and cycling connection to the previously proposed stage 1 of the development as there were no alternatives for a walking and cycling connection until the remainder of Rotokauri was developed.

The previous Structure Plan and Implementation Plan²⁰ identified a specific stage 1 that could be connected to the existing walking and cycling network by a shared path constructed alongside SH39. Staging is no longer included in the proposal and it is difficult to provide District Plan provisions requiring a continuous walking and cycling connection to be provided from initial development at an unknown location to the existing shared path on Koura Drive. For example, initial development with access to Exelby Road would require more than 2km of shared path to be constructed along SH39. Through separate provisions, development with access to Burbush Road requires the urban upgrade of Burbush Road which will include a footpath and cycle facilities. The provisions need to ensure that the Burbush Road upgrade includes a continuous connection to the existing shared path which may be challenging depending on timing for the diversion of Burbush Road.

We are concerned that provisions proposed by the Requester to trigger implementation of the shared path are unclear. For example, what form would a temporary solution have? Any interim or temporary connection needs to provide a 3m shared path (not just a cycleway) with a permanent surface, e.g. concrete or asphalt. Our recommendation for triggers is provided below.

²⁰ ITA, Commute, 20 March 2020

Transport corridor construction or improvement	Requesters Proposed Development Trigger	Recommendation
<p>Pedestrian/Cycle Connection: Provision of a 3m shared path (or dedicated cycle facility, or a combination of both) to connect to SH39 / Burbush Road roundabout</p> <p>Dedicated facilities for walking and cycling (or a shared path) are to be provided on the collector roads within the Rotokauri North area.</p>	<p>The first new residential dwelling/lot must provide for a connection to SH39/Burbush Road intersection. This connection may include a combination of permanent and temporary solutions (including “off road” solutions).</p> <p>Each subsequent stage of subdivision/development for additional dwellings/lots must maintain a connection to SH39/Burbush Road intersection. This may include a combination of permanent and temporary solutions (including “off road” solutions), until such time that a permanent connection is in place.</p>	<p>Any development with a connection to SH39 or Exelby Road shall provide a continuous 3m shared path from the development to the SH39 / Burbush Road roundabout.</p> <p>Any development with a connection to Burbush Road shall provide continuous walking and cycling facilities from the development to the SH39 / Burbush Road roundabout.</p>

Table 3: Shared Path Trigger and Provisions

3.7. Public Transport

Once the wider Rotokauri area is developed the proposed collector corridors within Rotokauri North will provide for public transport. However, in the interim the proposal is inadequate in terms of the support for passenger transport as there are no appropriate external links. The WRC submission states that provision of public transport *“is also subject to a viable road network being established to allow the efficient and effective operation of public transport.”*

WRC previously provided two options for provision of PT services to Rotokauri (refer to Appendix 5 of the HCC Report on technical planning and infrastructure matters). They have provided²¹ an updated view based on the revised structure plan. The sketch confirms the minimum infrastructure requirements at the terminus. I note that it would be preferable for the turnaround facility to be provided within the structure plan area, rather than at the minor arterial intersection which is likely to be signalised. The proposed provisions (Rule 3.6A.4.6) require PT infrastructure such as bus stops to be provided as part of developing new transport corridors. We recommend that the PT routes and bus stops identified by WRC are included on the structure plan map.

Both PT routes require development of transport infrastructure by others, HCC for the eastern route along the minor arterial and other developers for the western route on the future collector network. The timing of these corridors is very uncertain and it is likely that any interim services will rely on the existing roads. As discussed above the current network consists of relatively narrow rural roads and we have safety concerns at the intersections.

We understand that there is no public transport funding for out of sequence developments. Therefore, any initial services are likely to be demand responsive public transport services, which typical comprise flexible routes and scheduling, use of small or medium vehicles and can provide door-to-door services. An option to provide funding for a demand responsive service would be through a Private Developer Agreement between the Requester and WRC.

²¹ Email Andrew Carnell to Alastair Black, 18 August 2021.

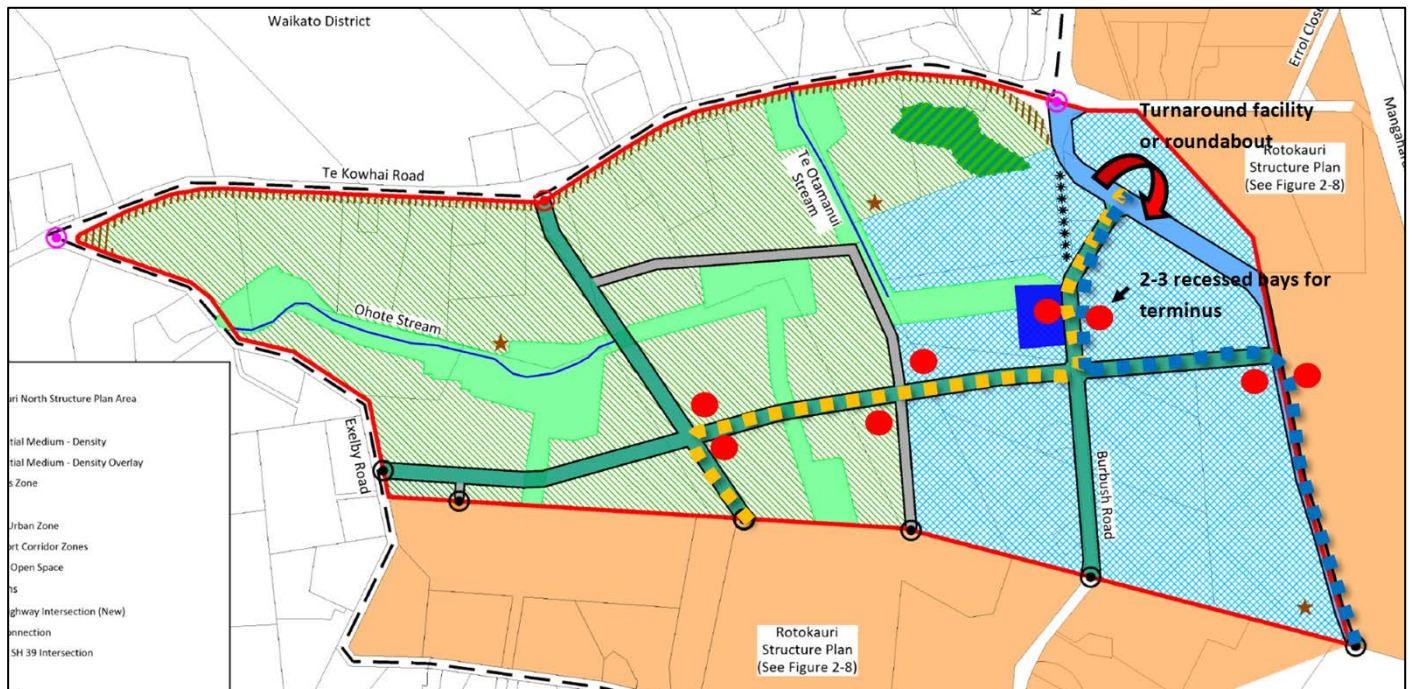


Figure 15: WRC Preferred PT Route

In summary, the out of sequence nature of the plan change does not initially support the provision of public transport services and will likely rely on private vehicle travel unless a funding agreement for demand responsive services is in place. Relying on the private vehicle will not reduce or manage vehicle kilometres travelled (VKT) or reduce carbon emissions. Unless infrastructure and funding constraints are resolved it appears unlikely that an effective public transport service can be provided to the early stages of the development.

4. Implementation Plan and Staging

4.1. Overview

In our view, either the full mitigation should be built as part of initial development or a detailed and fixed staging plan should be part of the structure plan so that the implementation of transport infrastructure is clearly defined within the planning provisions, rather than relying on future assessments which may or may not trigger construction of improvements. This is especially important with regard to the potential for adverse transport effects on Exelby Road and Burbush Road. In our view, these effects and infrastructure responses should be identified as part of the plan change. This is consistent with the RPS Policy 6.3 which seeks that *“new development does not occur until the provision for appropriate infrastructure ... is in place”*. The modelling demonstrates traffic volumes, and therefore the transport effects, are sensitive to provision of the minor arterial network, which is unlikely to be constructed for 15 years.

We are concerned that the proposed Implementation Plan (ITA Addendum, Section 5) could result in adverse incremental and cumulative effects. For example, small scale development (say 10 dwellings) is unlikely to justify mitigation of the scale and cost outlined in the Implementation Plan. However, a series of small developments (say 20 developments/stages each with 10 dwellings) will have cumulative traffic effects that will require likely mitigation. If mitigation is not provided by the developer(s), HCC will be required to provide the mitigation. HCC currently has no funding for transport infrastructure in Rotokauri Structure Plan meaning that funding would need to be diverted from other projects or programmes identified in the LTP. A rule providing a minimum development scale would assist in addressing the risk of incremental cumulative effects from small developments.

4.2. Specific Comments

The following table provides comments on these works identified in the proposed Implementation Plan. None of the proposed staging/ infrastructure triggers relate to the 150 dwelling modelled scenario. The proposed triggers of 600 and 1,500 dwellings are based on a number of assumptions which have not been sensitivity tested.

Project	Proposed Upgrade	Trigger with Minor Arterial	Trigger without Minor Arterial	Reviewer Comments
SH39/ new road roundabout	Single lane roundabout at intersection of SH39 / New Collector Road	First dwelling with connection to SH39 via the new Collector Road	Same	Agree
Burbush Road upgrade (along site frontage)	Urban upgrade (both sides) along the site frontage through to SH39	Any new roading connection from the site to Burbush Road	Same	Agree. Unclear if this triggers the requirement to realign the northern section of Burbush Road.
Exelby Road upgrade (along site frontage)	Urban upgrade (eastern side). Upgrade of entire carriageway to western side (rural). Along the site frontage through to SH39	Any new roading connection from the site to Exelby Road	Same	Agree, although no detail on the likely cross-section is provided. Provisions should specify collector standard. Discussed in more detail below.
Burbush Road / Exelby Road link from the PPC site to the south urban upgraded roads (from others)	Rural road seal widening to the south to meet urban road in rest of Rotokauri	Any new roading connection to Burbush Road and PPC dwellings exceeding 75% or 1500 dwellings. Widening to 7.7m (including sealed shoulders)	Any new roading connection to Burbush Road and PPC dwellings exceeding 30% or 600 dwellings. Widening to 7.7m (including sealed shoulders)	As discussed above, the proposed triggers are too high Challenges identified for implementation/ construction of the widening
Exelby Road from the PPC site to the intersection with Burbush Road	Not identified	Not identified	Not identified	Widening required Safety concerns likely to trigger upgrade of the length Challenges identified for implementation/ construction of the widening
Exelby Road / Burbush Road intersection	Intersection upgrade	None	Upgrade to priority intersection with right turn bay after 30% PPC (600 houses)	As discussed above, the proposed triggers are too high Right-turn bay may not be the most appropriate treatment. Preferred safe system treatment likely to be a roundabout
Exelby Road / Rotokauri Road intersection	Not assessed	Not assessed	Not assessed	Improvements should be coordinated with widening of the Burbush Road/ Exelby Road corridor. Preferred safe system treatment likely to be a roundabout

Project	Proposed Upgrade	Trigger with Minor Arterial	Trigger without Minor Arterial	Reviewer Comments
Bus provision within site	Provide bus route(s) as required throughout site	As development occurs	Same	The PT routes should be shown on the structure plan map. Provision should include requirements to provide PT infrastructure Uncertainty around the timing and funding of PT services. Potentially requires a PDA to fund initial demand responsive services
SH39 Shared Path	3m shared path (or dedicated cycle facility, or a combination of both) to connect to SH39 / Burbush Road roundabout	As development occurs forming the main collector roads where walking and cycling are provided. This is anticipated to occur incrementally to match the relevant development frontage. However, the first stage of any development should make a connection (even via any temporary measures) to enable cycling provision from day 1.	Same	All development needs to provide a continuous connection to the existing shared path on Koura Drive from day 1. Separate and equivalent provisions are required to provide paths for development with access from SH39 and Exelby Road which are different to development from Burbush Road. Any connection should at least be a shared path (not a cycleway) and provide for both walking and cycling.

Table 4: Comments on Proposed Implementation Plan

The proposed implementation plan does not clearly identify a trigger for realigning the northern section of Burbush Road. The proposed implementation plan requires that development with access to Burbush Road triggers the urban upgrade and we assume that this would include the realignment.

As discussed above the triggers for widening of the existing rural road and upgrading the Exelby Road/ Burbush Road intersection are too high. Based on our assessment above, a more appropriate trigger for upgrading this intersection and widening of both Exelby and Burbush Roads is 200 dwellings.

4.3. Exelby Road Cross-Section

The ITA Addendum does not provide detail on the proposed cross-section for Exelby Road along the site frontage where it will have both urban (east side) and rural (west side) interfaces. The relevant standards from the Operative Hamilton and Proposed Waikato²² District Plans are:

- = Urban
 - 3m lanes
 - 2m wide recessed parking
 - 2m wide footpath
 - 1.5m on-road cycle lane.
 - 2m service corridor
- = Rural
 - 3.5m lanes
 - 1.5m shoulder

²² Waikato Proposed District Plan, Table 14.12.5.14 (Notified version)

- Berm subject to specific design.

In our view, the urban standard is most appropriate. However, HCC is moving towards providing separated cycle lanes on collectors and a shared path or two-way separated cycleway may be preferred at the time of detailed design and upgrade of Exelby Road.

4.4. Summary

We are concerned that the proposed Implementation Plan could result in adverse incremental and cumulative effects. Without a mechanism to control these cumulative effects, it is likely that HCC will be required to upgrade the transport infrastructure. However, HCC has no funding for transport infrastructure in Rotokauri meaning that funding would need to be diverted from other projects or programmes identified in the LTP.

Our review and assessment of the ITA and proposed Implementation Plan concludes that the proposed triggers are too high and changes are required. Triggers for some elements have not been included (e.g. Exelby Road north of Burbush Road and the Exelby/ Rotokauri Road intersection), and the triggers for shared paths for initial development are unclear.

5. Submissions

A table summarising our review of the transport related submissions is provided at Attachment C. Where appropriate we have included specific discussion on the submission points in the assessment above.

The submission points made by Waka Kotahi NZTA have been addressed through:

- = Altering the structure plan map to:
 - Remove of the second collector road intersection to SH39;
 - Confirm that the collector road intersection to SH39 will be formed as a roundabout;
- = Vehicle access to SH39 is to be managed through Policy 3.6A.2.4d) and Rule 23.7.8e)iii). The rule states: "No vehicle crossing(s) may have direct access to or from State Highway 39".

Other submission points such as the SH39 shared path and requirements for consultation with Waka Kotahi require further amendments to the provisions.

The transport-related submission points made by WRC have been addressed through:

- = Rule 3.6A.4.5 which specifies the public transport infrastructure to be provided by the developer(s) on the identified public transport routes. Although the structure plan map needs to be updated to include the preferred routes and bus stop locations.
- = Rule 25.14.4.3n)ii)A) which requires that a Broad ITA includes consultation with WRC and HCC on the provision of public transport services and infrastructure.

6. Conclusion

From a transport planning perspective, the ultimate location and transport connections generally appear appropriate and provide good links to significant transport corridors (SH1 and SH39). However, the proposal is inadequate in terms of the support for passenger transport corridors and multi-modal connections to the wider area beyond the structure plan area. This is due to out of sequence nature of the timing and the lack of existing services and safe facilities for pedestrians, cyclists and bus users along nearby transport corridors. I consider there is a significant lack in emphasis for providing adequate transport solutions and improvements from the commencement of development that reflect safe system design principles and Vision Zero.

There are very few options to provide interim public transport services or walking and cycling connections until the remainder of Rotokauri is developed. The out of sequence nature of the plan change does not initially support the provision of public transport services and will likely rely on private vehicle travel unless a funding agreement for demand responsive services is in place. Relying on the private vehicle will not reduce or manage vehicle kilometres travelled (VKT) or reduce carbon emissions. Unless infrastructure and funding constraints are resolved it appears unlikely that an effective public transport service can be provided to the early stages of the development.

The structure plan map should be amended to identify the future PT routes and bus stops. Off-road walking and cycling facilities should be identified to connect the open space with parks, business zone and the minor arterial network.

PC7 results in significant traffic on the existing local road network. The changes are sensitive to the provision of the minor arterial network and staging of development. In my view, either the mitigation should be built as part of development or a staging plan should be part of the structure plan so that the implementation of transport infrastructure is clearly defined within the planning provisions, rather than relying on future assessments.


Based on the current LTP, it is unlikely that the minor arterial network will be constructed until the mid-2030's, a period of around 15 years. The ITA Addendum states that *"any additional movements along Exelby Road outlined below is expected to be temporarily only until the Minor Arterial Road is complete."* It appears a realistic timeframe for these temporary effects on Burbush and Exelby Roads could be 15 years. The proposed infrastructure responses lack in emphasis for providing interim transport solutions that reflect safe system design principles and Vision Zero. For example, roundabouts may be necessary at the Exelby Road/ Burbush Road and Exelby Road/ Rotokauri Road intersections to address issues with increased traffic volumes, speed environment and sight distance.

We are concerned that the proposed Implementation Plan will result in adverse incremental and cumulative effects. Without a mechanism to control these cumulative effects, it is likely that HCC will be required to upgrade the transport infrastructure. However, HCC has no funding for transport infrastructure in Rotokauri meaning that funding would need to be diverted from other projects or programmes identified in the LTP.

Our review and assessment of the ITA and proposed Implementation Plan concludes that the proposed triggers are too high and changes are required. The proposed triggers for infrastructure improvements are based on a number of assumptions which have not been sensitivity tested. Triggers for some elements have not been included (e.g. Exelby Road north of Burbush Road and the Exelby/ Rotokauri Road intersection), and triggers and requirements for shared paths are unclear.

If you have any questions, please do not hesitate to contact us.

Yours sincerely



Alastair Black
Transportation Engineer



Alasdair Gray
Civil/Transportation Engineer

Attachment A: Summary of Traffic Model Outputs



Rotokauri Plan Change - WRTM Modelling

Scenario	Ref.	Location	AM Peak (2hr volumes)	WRTM 2hr volume	1hr volume (0.571)	Diff compared to Base		Diff compared to Development		PM Peak (2hr volumes)	WRTM 2hr volume	1hr volume (0.556)	Diff compared to Base		Diff compared to Development	
2021 Base	A	Exelby Road (north)	142 + 99	248	142					81 + 143	224	125				
	B	SH39 (west)	247 + 157	404	231					234 + 290	524	291				
	C	Exelby Road (nth of Burbush)	154 + 99	253	144					82 + 153	235	131				
	D	Burbush Road	151 + 135	286	163					144 + 177	321	178				
	E	Exelby Road (nth of Lee)	252 + 290	542	309					299 + 260	559	311				
2021 Development (150hh, single connection to SH39)	A	Exelby Road (north)	139 + 92	231	132	-10	-7%			74 + 138	212	118	-7	-5%		
	B	SH39 (west)	248 + 164	412	235	5	2%			239 + 289	528	294	2	1%		
	B2	SH39 (mid)	346 + 186	532	304	73	32%			270 + 396	666	370	79	27%		
	C	Exelby Road (nth of Burbush)	141 + 93	234	134	-11	-8%			75 + 141	216	120	-11	-8%		
	D	Burbush Road	122 + 124	246	140	-23	-14%			139 + 146	285	158	-20	-11%		
	E	Exelby Road (nth of Lee)	217 + 267	484	276	-33	-11%			281 + 222	503	280	-31	-10%		

Scenario	Ref.	Location	AM Peak (2hr volumes)	WRTM 2hr volume	1hr volume (0.571)	Diff compared to Base		Diff compared to Development		PM Peak (2hr volumes)	WRTM 2hr volume	1hr volume (0.556)	Diff compared to Base		Diff compared to Development	
2041 Base	A	Exelby Road (north)	20 + 49	69	39					32 + 20	52	29				
	B	SH39 (west)	410 + 306	716	409					432 + 474	906	504				
	B2	SH39 (north, Koura Drive)	654+602	1256	717					765+817	1582	880				
	C	Exelby Road (nth of Burbush)	255 + 109	364	208					108 + 273	381	212				
	D	Burbush Road	387 + 203	590	337					276 + 458	734	408				
	E	Exelby Road (nth of Lee)	409 + 514	923	527					607 + 587	1,194	664				
	G	Waikato Expressway	1029 +2058	3,087	1763					2180 + 1128	3,308	1839				
	H	Te Kowahi Road U/pass	261 + 91	352	201					138 + 442	580	322				
2041 Development (2,000hh) Option 3R	A	Exelby Road (north)	28+49	77	44	5	12%			53+30	83	46	17	60%		
	B	SH39 (west)	424+344	768	439	30	7%			447+449	896	498	-6	-1%		
	B2	SH39 (north, Koura Drive)	979+854	1833	1047	329	46%			994+1195	2,189	1217	337	38%		
	B3	SH39 (east)	550+439	989	565	156	38%			506+608	1,114	619	116	23%		
	C	Exelby Road (nth of Burbush)	288+103	391	223	15	7%			125+308	433	241	29	14%		
	D	Burbush Road	323+267	590	337	0	0%			302+364	666	370	-38	-9%		
	E	Exelby Road (nth of Lee)	335+596	931	532	5	1%			641+372	1,013	563	-101	-15%		
	F1	Minor Arterial (north)	453+1006	1,459	833	833	N/A			1147+600	1,747	971	971	N/A		
	F2	Minor Arterial (south)	241+324	565	323	323	N/A			450+554	1004	558	558	N/A		
	F3	Collector	72+15	87	50	50	N/A			32+91	123	68	68	N/A		
2041 Development Option (2,000hh, no minor arteria) Option 3S	G	Waikato Expressway	1063+2063	3,126	1785	22	1%			2232+1130	3,362	1869	30	2%		
	H	Te Kowahi Road U/pass	916+245	1161	663	462	230%			431+1134	1565	870	548	170%		
	A	Exelby Road (north)	59+74	133	76	37	93%	32	73%	53+30	83	46	17	60%	0	0%
	B	SH39 (west)	392+319	711	406	-3	-1%	-33	-7%	412+387	799	444	-59	-12%	-59	-13%
	B2	SH39 (north, Koura Drive)	1175+893	2068	1181	772	108%	134	13%	1047+1333	2380	1323	444	88%	106	9%
	B3	SH39 (east)	589+434	1,023	584		N/A	19	3%	470+558	1,028	572	68	13%	68	11%
	C	Exelby Road (nth of Burbush)	332+132	464	265	57	27%	42	19%	162+380	542	301	90	42%	61	25%
	D	Burbush Road	616+940	1,556	888	552	164%	552	164%	1160+793	1,953	1086	678	166%	716	193%
	E	Exelby Road (nth of Lee)	412+646	1,058	604	77	15%	73	14%	903+445	1,348	749	86	13%	186	33%
	F1	Minor Arterial (north)	0	0	0	0	N/A	0	0%	0	0	0	0	N/A	-971	-100%
	F2	Minor Arterial (south)	183+130	313	179	179	N/A	-144	-45%	246+370	616	342	342	N/A	-216	-39%
	F3	Collector	635+248	883	504	504	N/A	455	915%	310+674	984	547	547	N/A	479	49%
	G	Waikato Expressway	1106+2213	3,319	1895	132	8%	110	6%	2331+1144	3,475	1932	93	5%	63	3%
	H	Te Kowahi Road U/pass	817+203	1020	582	381	190%	-81	-12%	364+1048	1682	935	613	190%	65	7%

Attachment B: Transport Planning Policy Assessment

Updates/changes to our previous assessment are provided in *red italics*.

National

No change from August 2020 assessment.

Regional

The Waikato Regional Policy Statement has a strong focus on integrated management, including the integrated relationship between land use and development, and the transport infrastructure network²³.

Objective/Policy	Extract	Comment/relevance
Objectives for development of the built environment	3.12 e) include recognising and protecting the value and long-term benefits of regionally significant infrastructure.	Provides links to strategically significant corridors (State Highway 1 and State Highway 39). <i>Development relies on minor arterial corridor which is not funded in the LTP. Interim development could be in place for 15 years.</i>
Policy 6.1 Planned and co-ordinated subdivision, use and development	Information requirement: 6.1.8 (c) multi-modal transport links and connectivity, both within the area of new urban development, and to neighbouring areas and existing transport infrastructure; and how the safe and efficient functioning of existing and planned transport and other regionally significant infrastructure will be protected and enhanced.	Provides <i>on-road</i> walking / cycling infrastructure within the development area. <i>Off-road infrastructure needs to be identified on the structure plan map and developed to support a multi-modal network.</i> Surrounding area is still relatively rural in nature and therefore development unlikely to support multi-modal links to external areas – therefore reliance on private car in the short-medium term. Potential for significant effects on narrow rural roads and for on-street parking within the development

²³ Issue 1.4 (i)

Objective/Policy	Extract	Comment/relevance
Policy 6.3 Co-ordinating growth and infrastructure	<p>Management of the built environment ensures:</p> <ul style="list-style-type: none"> a) the nature, timing and sequencing of new development is co-ordinated with the development, funding, implementation and operation of transport and other infrastructure, in order to: <ul style="list-style-type: none"> i) optimise the efficient and affordable provision of both the development and the infrastructure; ii) maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure; iii) protect investment in existing infrastructure; and iv) ensure new development does not occur until provision for appropriate infrastructure necessary to service the development is in place; 	<p>(iv) indicates that infrastructure should be in place to service the development. The proposal supports changes to the road infrastructure and allows for walking and passenger transport facilities, however other modes are not currently well serviced in the area. <i>Construction of the minor arterial is not included in the LTP so interim effects may occur for extended period</i></p> <p><i>Triggers for infrastructure upgrades are too high</i></p> <p><i>Triggers not identified for some infrastructure elements.</i></p> <p><i>WRC does not have funding for interim PT services</i></p>
6.3.1 Plan provisions	<p>Regional and district plans shall include provisions that provide for a long-term strategic approach to the integration of land use and infrastructure and that give effect to Policy 6.3, including by ensuring as appropriate that:</p> <ul style="list-style-type: none"> a) roading patterns and design support the use of public transport; b) walking and cycling facilities are integrated with developments; c) the different transport modes are well connected; d) industry is located where there is good access to strategic transport networks and road, rail or freight hubs;..... 	<p>Ultimately will be consistent.</p> <p><i>Interim PT, walking and cycling networks are not well connected to other areas. Will rely on travel by private vehicle</i></p> <p><i>PT routes and off-road walking/cycling network needs to be identified on the structure plan map.</i></p>
Policy 6.15 Density targets for Future Proof area	<p>..." seek to achieve compact urban environments that support existing commercial centres, multi-modal transport options, and allow people to live, work and play within their local area."</p>	<p>New residential area may reduce demand for infill development. Already zoned as future urban.</p>
6A Development principles	<p>New development should:</p> <ul style="list-style-type: none"> a) support existing urban areas in preference to creating new ones; b) occur in a manner that provides clear delineation between urban areas and rural areas; c) make use of opportunities for urban intensification and redevelopment to minimise the need for urban development in greenfield areas; d) not compromise the safe, efficient and effective operation and use of existing and planned infrastructure, including transport infrastructure, and should allow for future infrastructure needs, including maintenance and upgrading, where these can be anticipated; e) connect well with existing and planned development and infrastructure; 	<p>These suggest that intensification or infill development would be preferable to developing this greenfields site. However, the District Plan recognises the area as future urban zoning and the site is well located to ultimately provide connections to strategically significant transport corridors (SH1 and SH39).</p> <p><i>Interim effects discussed elsewhere</i></p>

The Regional Passenger Transport Plan (2018-2028) includes a number of relevant policies. These include:

Objective/Policy	Comment/relevance
<p>P4 Transitioning to an integrated public transport network where all properties within Hamilton have access to a public transport solution between the hours of 6am and 9pm, seven days a week. This target may be achieved by a mixture of:</p> <ul style="list-style-type: none"> • scheduled public transport services • demand responsive ride-sharing services <p>Between the hours of 6am to 9pm access to public transport services should:</p> <ul style="list-style-type: none"> • Require a walk of 600 metres or less, and be available within 30 minutes or less of accessing a scheduled bus stop location or requesting a demand responsive ride-sharing service. • Progressively create a network of core public transport corridors that in time will become dedicated right-of-ways for public transport services and provide faster travel times during peak periods than a private car. 	<p>Proposal supports some aspects by stating that roads will accommodate public transport. However, is not possible to determine walking distance between dwellings and PT services as the local road layout has not been determined.</p> <p>There are currently no bus services in the vicinity of the area. <i>WRC's preferred PT routes and infrastructure need to be identified on the structure plan map.</i></p> <p>In the interim bus services will not be provided and the will be a reliance on travel by private vehicle. <i>Alternative is a demand responsive service, but may require funding agreement with the developer</i></p>
P5 Encourage walking and cycling access to core public transport corridors and hubs.	
P6 Encourage land use intensification adjacent to core public transport corridors and hubs.	
P7 Work with territorial authorities to review parking strategies and pricing policies to effectively manage parking supply around transport interchanges to encourage public transport growth.	Not relevant to this residential development.
P8 Encourage public and private ride-sharing solutions as part of the public transport system.	WRC submission indicates support for the public transport and walking and cycling aspects of the proposal. <i>Noting there are funding constraints.</i>

Local

The proposal is not fully consistent with the policies and objectives of the Hamilton City Operative District Plan (summarised in the following table) although it supports some aspects.

Objective	Policy Framework	Comment
Objective 2.2.1 Hamilton is characterised by an increasingly sustainable urban form.	<p>Towards a Sustainable City</p> <p>Policy 2.2.1a Development makes use of the identified opportunities for urban intensification.</p> <p>Policy 2.2.1b Development is designed and located to minimise energy use and carbon dioxide production, by:</p> <ol style="list-style-type: none"> Minimising the need for private motor vehicle use. Encouraging walking, cycling and the use of passenger transport. 	Not fully consistent. Location and existing public transport infrastructure do not minimise need for motor vehicle use.

Objective	Policy Framework	Comment
Objective 2.2.3 Promote safe, compact, sustainable, good quality urban environments that respond positively to their local context.	Urban Design Approach Policy 2.2.3a Development responds to best practice urban design and sustainable development principles, appropriate to its context. Policy 2.2.3b Development responds to Low Impact Urban Design and Development and Crime Prevention Through Environmental Design (CPTED) principles. Policy 2.2.3c Development enhances civic, natural heritage, cultural, ecology and surrounding public space networks.	Generally supports, or provides opportunity to contribute.
Objective 2.2.6 A range of housing types and densities is available to meet the needs of a diverse range of people and communities.	Residential Development Policy 2.2.6b Higher-density residential development is located within and close to the Central City, suburban and neighbourhood centres, hospitals, tertiary education facilities and parks, open spaces, and other areas of high social amenity.	Proposal provides medium density housing. Generally consistent with objective.
	Integrate Land Use, Transport and Infrastructure	
Objective 2.2.13 Land use and development is integrated with the provision of infrastructure (including transport, Three Waters services and open space).	Policy 2.2.13f Development should promote strong connections to, and use of, passenger transport and active modes of transport.	Allows for future connections.
Structure Plans Objective 3.3.4 An integrated and efficient pattern of land use and transportation so as to sustainably manage the impact of development on existing and planned transport infrastructure.	Policy 3.3.4a Integrated Transport Modelling is undertaken for all Structure Plan areas. Policy 3.3.4b Movement routes are integrated with surrounding neighbourhoods and existing and planned transport networks. Policy 3.3.4c Enable connectivity with other undeveloped adjoining sites. Policy 3.3.4d The transport network supports efficient passenger transport and opportunities for walking and cycling. Policy 3.3.4e Environmental impacts of building new transport corridor infrastructure are minimised. Policy 3.3.4f Opportunities for improved safety, accessibility, connectivity and efficiency within the transportation network are provided.	<i>Support some aspects:</i> <ul style="list-style-type: none"> Vehicle movement routes enable connections with adjacent areas. Allows for future passenger transport connections. However development not located to support existing passenger transport corridors and services. <i>Aspects not supported include:</i> <ul style="list-style-type: none"> Interim PT services will not be efficient Opportunities for off-road connectivity not identified on map Route for PT services not identified on map
	Transportation	

Objective	Policy Framework	Comment
<p>Objective 25.14.2.1 An integrated multi-modal transport network that meets national, regional and local transport needs and is:</p> <ul style="list-style-type: none"> • Responsive • Efficient • Affordable • Safe • Accessible • Sustainable • Integrated with land use 		<p><i>Support some aspects:</i></p> <ul style="list-style-type: none"> • <i>Interim safety concerns on existing rural network</i> • <i>Integration focus on private vehicles. No integration with PT services and off-road walking and cycling</i> • <i>Staging and delivery not integrated with infrastructure upgrades.</i>
<p>Land Use Integration: Policy 25.14.2.1a The transportation network and related infrastructure is planned, designed, constructed and managed in a manner that:</p> <p>i. Is consistent with and supports the land-use spatial framework for the City (Figure 2.1a in Chapter 2).</p> <p>ii. Promotes vibrant business centres.</p> <p>iii. Contributes to safe and efficient multi-modal transport corridors serving the Central City, business centres and other key destinations.</p> <p>iv. Contributes to a transportation network that:</p> <p>A. Is accessible to all users, including transport disadvantaged and mobility impaired.</p> <p>B. Maximises opportunities for walking, cycling and passenger transport.</p> <p>C. Creates good connections between residential areas, passenger transport services, schools, employment nodes, recreation areas, shops and other destinations.</p> <p>D. Provides a choice of routes and transport modes for travelling.</p> <p>v. Recognises the need for effective long-term solutions that are affordable and practicable.</p>		<p>Support some aspects</p> <ul style="list-style-type: none"> • Already zoned future urban • Allows for good connections within development area • Provides multiple connections to the network. • Includes a neighbourhood centre, reducing transport demand. <p>However, proposal does not support multi-modal network, in part due to its location, lack of existing passenger transport services and rural nature of surrounding area. The development will rely on travel by vehicle until adjacent land is developed to provide a cohesive network for travel by other modes (walk, cycling PT).</p> <p><i>No off-road network for walking and cycling identified</i></p>

Objective	Policy Framework	Comment
<p>Transport Network: Policy 25.14.2.1b The transportation network and related infrastructure is planned, designed, constructed and managed in a manner that:</p> <ul style="list-style-type: none"> i. Recognises the affordability of providing new public infrastructure and other actions to increase the capacity of the transport network to accommodate growth. ii. Enables flexible management of transport corridors to allow them to perform their function within the City's transport corridor hierarchy. iii. Promotes energy conservation and efficiency. iv. Promotes a safe and efficient transport network. v. Allows for network utility infrastructure, and streetscape amenity. vi. Provides access to and has regard for the safety and needs of the mobility impaired, transport disadvantaged, cyclists, pedestrians, passenger transport users, and others using the transport corridor to move from place to place. vii. Contributes to the social, economic, cultural and environmental needs of current and future users of the transport network. viii. Takes account of the whole of life operational and maintenance costs of the transport network. 		<p><i>Ultimately will be generally consistent, but potential for significant interim effects – safety, efficiency and affordability.</i></p> <p>Scope for flexible management.</p> <p>Scope to provide for alternative transport modes within development area, <i>but limited opportunity in interim stages.</i></p> <p>Lacks connection to existing passenger transport corridors and walking/cycling routes and further mitigation may be necessary.</p> <p>There is scope to support future services and links.</p>
<p>Adverse Effects of the Transport Network Policy 25.14.2.1c Adverse effects of new transport infrastructure and changes to the existing transport network on:</p> <ul style="list-style-type: none"> i) Amenity values of adjacent activities, ii) Cultural and heritage values, biodiversity, and iii) Safety, access and mobility of all users are minimised while recognising: iv) The function and the location that that part of the transport network has within the transport corridor hierarchy. v) The character and purpose of the zone in which it is located. 		<p>Supports – land is already zoned for future urban development.</p> <p><i>Upgrades of Exelby Road and its intersections are required to manage safety and efficiency effects on rural development on western side of the road</i></p>
<p>Policy 25.14.2.1d The design, location and quantity of parking infrastructure is managed in a way that:</p> <ul style="list-style-type: none"> i. Provides for special design requirements of transport network users. ii. Minimises adverse effects arising from an over- or under-supply of parking. iii. Minimises adverse safety and efficiency effects on the transport network. iv. Maximises opportunities for the efficient use of existing parking infrastructure. v. Trips by active modes and passenger transport are encouraged through integration with travel demand management and passenger transport options. 		Not applicable

Objective	Policy Framework	Comment
Adverse Effects on the Transport Network Policy 25.14.2.1e Adverse effects of subdivision, use and development activities on the transport network are avoided or minimised with particular regard to: <ul style="list-style-type: none"> i. Connections to, and integration with, the transport network ii. Reverse-sensitivity effects of land uses sensitive to adverse transport effects (e.g. noise). iii. Promoting streetscape amenity. iv. Ensuring performance, condition, safety, efficiency and long-term sustainability and affordability of the transport network. v. Ensuring trips by active modes and passenger transport are encouraged through integration with travel demand management and passenger transport options. vi. Protection of strategic and arterial transport networks, including associated intersections. 		<p>Proposed development is in an area already zoned for urban development, and therefore effects are generally anticipated but are disconnected to other areas of residential development. Development is out of sequence with Council's long-term planning <i>and funding</i></p> <p>Ultimately there is scope to support active modes and passenger transport within the development.</p> <p>Some connections to wider transport corridors are reliant on district / city wide changes (<i>e.g. construction of minor arterial by HCC</i>).</p>
	Policy 25.14.2.1f Integrated Transport Assessments shall be required for new subdivision, use or development of a nature, scale or location that has the potential to generate significant adverse transportation effects.	Refer to August 2020 assessment for detailed comments on the initial ITA.
	Urban Design	
Objective 25.15.2.5 Urban environments that integrate land use with transport planning to provide permeable, highly connected and sustainable transport networks.	Policy 25.15.2.5a Activities that are well located in respect of travel demand promote an efficient transport hierarchy and compact City around key nodes and circulation networks.	<p>The proposal supports this objective by providing links to transport corridors (State Highways 1 and 39).</p> <p><i>Interim staging do not support compact development due to being out-of-sequence</i></p>

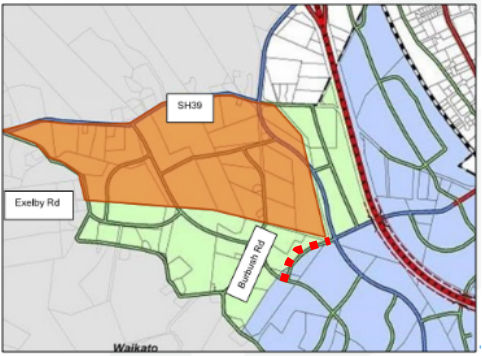
Attachment C: Transport Related Submissions

Updates to our responses are provided in *red italics*.

Submission Point	Name	Subject	Type	Submission Summary	Response
3.2	Ministry of Education	General	Support	Develop walking & cycling connections	Accept - Support the need for development of interim walking and cycling connections, as well as long-term development.
Various, Point 1	(7) Lance & Karen Managh (8) Tina & Simon Warnock (9) Dennis Dove & Diane Godden (10) Arie & Batami Pundak (11) Miranda Collinson (12) Rob & Barbara Barris (16) Peter & Kerry Santner (25) Kay & Mark Moroney (26) Tania Browning (27) Judith Browning (28) Ann Harvey (29) Shane & Antonia Withey (30) Nilesh Kumar & Raksha Singh (31) Shane & Virginia Henderson (32) Peter & Christine Frampton (33) Bruce & Robyn Whittaker Submitters 37-72	Structure Plan/ Infrastructure	Oppose	Removal of the Rotokauri North area inconsistent with Objectives 3.3.2 & Policies a)-d) and Objective 3.3.4 & Policies a)-d), & f) to provide for integrated development of roads & infrastructure	Accept We note that the Plan Change anticipates staged development. However, the Plan Change relies on further assessment and monitoring of these future sub-stages to confirm the infrastructure requirements. This is not consistent with the approach outlined in the District Plan where infrastructure improvements are identified ahead of development. Our preference is that the development staging, infrastructure improvement and triggers are clearly defined in the proposed provisions.
Various, Point 2	As above	Transport	Oppose	Removal of the Rotokauri North area from the existing structure plan will not be integrated with wider network of roading & staging of development & seeks updated ITA & construction of roading & upgrades.	Accept – Agree that amendments to the proposed provisions are necessary for assessment and monitoring of effects on Exelby and Burbush Roads. Our preference is that the development staging, infrastructure improvement and triggers are clearly defined in the proposed provisions.

Submission Point	Name	Subject	Type	Submission Summary	Response
13.1	NZ Transport Agency	Structure Plan	Supports	Supports Policy 3.6A.2.4d, Objective 3.6A.2.5, Policy 3.6A.2.5a Requests a new policy to ensure adverse effects of providing access to SH 39 are minor	Accept with amendments- the proposed policy. In Policy 3.6A.2.4d we recommend replacing “driveway crossings” with “vehicle crossings”. New policy – we recommend replacing “access” with “intersections” as Policy 3.6A.2.4d specifically deals with vehicle crossings. <i>New Policy 3.6A.2.4e) states “Avoid new roading connections with State Highway 39 that are not identified on the Rotokauri North Structure Plan”.</i>
13.2	NZ Transport Agency	Structure Plan/ Transport	Support with amendments	Rule 3.6A.4.2d)i) Request that prior to development a roundabout be constructed at intersection of SH39 at Collector Road 1 and removal of the other intersection.	Accept in part – a roundabout provides the safest solution for a high speed intersection. <i>The proposal has been amended so that access to SH39 is through a single roundabout</i>
13.3	NZ Transport Agency	Structure Plan/ Staging	Support with amendments	Supports an ITA to be developed at subsequent stages in consultation with NZTA Rule 3.6A.4.2d)iv) Requests a two-way cycle path shall be provided along SH39. Rule 3.6A.4.3b) Consequential amendments to the assessment criteria	Accept - amendment requiring provision of two-way path along SH39 <i>Clarification needed to reflect lack of information on staging and location of development. Walking and Cycling connection needed.</i> Accept - amendment requiring consultation with NZTA as part of ITA <i>Rule 3.6A.4.3.b does not specifically require consultation with NZTA, but does list four state highway intersections to be considered. A Broad ITA is already required to provide consultation with NZTA where the proposal has the potential to impact on the state highway (Appendix 15, Table 15-2b))</i>

Submission Point	Name	Subject	Type	Submission Summary	Response
13.4	NZ Transport Agency	Structure Plan/ Figures	Support with amendments	Appendix 2, Figure 2-8A: Does not support the additional collector access connection to SH 39 & requests amendment to Figure 2-8A	<p>Accept - We understand that providing this intersection increases accessibility and permeability of the development. Removing this intersection and providing a roundabout at the Collector Road 1/ SH39 intersection would minimise the impact on SH39.</p> <p><i>The proposal has been amended so that access to SH39 is through a single roundabout</i></p>
13.5	NZ Transport Agency	City Wide	Support	Supports Rule 25.14.4.1 K(ii) and Assessment criteria 1.3.3 O1a)	<p>Clarification required from Applicant – the proposed Rule 25.14.4.1 k(ii) only applies to “new vehicle crossings”. There are currently 18 vehicles accesses (including farm gates) to SH39 which could remain under this rule.</p> <p>It is unclear if NZTA supports these existing accesses remaining</p> <p><i>Clarification provided through Policy 3.6A.2.4d) and Rule 23.7.8e)iii). The rule states: “No vehicle crossing(s) may have direct access to or from State Highway 39”.</i></p>
14.1	Jennifer McKenzie & Ewen Drysdale	Transport	Neutral	Exelby Road can't cope with volumes of traffic without major roadworks	<p>Accept - Agree that traffic volumes on Exelby Road are likely to increase and improvements may be necessary to address safety and efficiency effects. Further information required to confirm traffic volumes.</p> <p>Consider that amendments to the proposed provisions are necessary for assessment and monitoring of effects on Exelby and Burbush Roads.</p>

Submission Point	Name	Subject	Type	Submission Summary	Response
34.4	Richard Ruske	Transport	Oppose	Seeks the collector road shown in the Rotokauri Structure Plan to be provided as it provides key linkages to network infrastructure.	<p>Reject - the submission relates to a collector road located outside PC7 area (red dashed line below) and is not affected by the proposal.</p> 
36.1	Bo Ram Yu	General	Support	Supports Private Plan Change and requests a local road be developed to provide access other than from SH39	<p>Accept in part – it is unclear if Rule 25.14.4.1 k(ii) will allow existing vehicles accesses to SH39 to be retained.</p> <p><i>Clarification provided through Policy 3.6A.2.4d) and Rule 23.7.8e)iii). The rule states: “No vehicle crossing(s) may have direct access to or from State Highway 39”.</i></p> <p>Development of local road layout can be considered at the time of subdivision.</p>
78	Lorraine van Asbeck	Transport		Difficult to access properties at 336 and 338 Te Kowhai Road (opposite the Collector Road 1 intersection)	<p>Accept – roundabout will increase complexity of access. Would be useful for Green Seed to provide additional design detail.</p>

Submission Point	Name	Subject	Type	Submission Summary	Response
80.4	Waikato Regional Council	Transport	Support	Acknowledges there is limited public transport. Supports the Integrated Traffic Assessment (Table 13-1) and the reconsideration of a bus service after 1000 dwellings.	<p>Note: There is no specific provision requiring future reconsideration of bus services.</p> <p><i>Structure Plan needs to identify the PT routes and key infrastructure.</i></p> <p><i>Rule 3.6A.4.5 specifies the public transport infrastructure to be provided by the developer(s) on the identified public transport routes</i></p> <p><i>Rule 25.14.4.3n)ii)A) which requires that a Broad ITA includes consultation with WRC and HCC on the provision of public transport services and infrastructure.</i></p>
80.5	Waikato Regional Council	Transport	Support with amendments	<p>Seeks clarification how walking & cycling are being handled throughout the development particularly at intersections & connections.</p> <p>Seeks consideration if the level of walking & cycling provision is sufficient to cater for increased mode shift to active modes.</p>	<p>Accept in part</p> <p>Walking and cycling provided for on typical cross-sections. Details of walking and cycling at intersections can be considered at the time of subdivision.</p> <p>Support – Objective 3.6A.2.4 does not explicitly support the mode shift need to achieve the Access Hamilton targets.</p>