

MEMO

TO: Sherilyn Hinton
FROM: Neil Trotter and Don Wignall
DATE: 10 August 2016

SUBJECT: Proposed District Plan – Chapter 6 (Working Environment) Traffic & Transport Issues
Explanatory Note v3r

1. INTRODUCTION

Purpose

- 1.1 This note has been prepared as a background Proposed District Plan (PDP) document for Council to support the consideration of submission issues raised in terms of Chapter 6 (Working Environment) provisions.
- 1.2 The purpose of the note is to review and provide specific advice and recommendations (from a traffic/transport perspective) on key Chapter 6 traffic, transport and access related issues raised by submitters.
- 1.3 The submission issues reviewed relate to submissions made by numerous PDP submitters and include for example Kāpiti Airport, Coastlands, Ngahina Developments Ltd, St Heliers, NZTA, and other individual land and business owners, particularly in the Paraparaumu town centre area and surrounds.

Background

- 1.4 This memo has been prepared on the basis of analysis undertaken by Council and in keeping with earlier evidence and position statements conveyed to submitters.
- 1.5 The advice/recommendations in this memo respond to submitter suggestions where these are consistent with supporting analysis, the PDP's strategic approach to traffic/transport issues in objectives and policies, and are otherwise well founded.
- 1.6 In a number of cases however it is recommended that the relief sought by submissions be declined, and where this has occurred, the rationale for so doing is explained.

2. PDP AIRPORT DEVELOPMENT THRESHOLDS

Background

- 2.1 KCAHL's submission seeks deletion of the Airport-specific development thresholds (including the requirement for a transport assessment at each threshold level) from the Airport Zone Mixed Use Precinct rules, namely: those within controlled activity Rule 6G.2.2; restricted discretionary activity Rule 6G.3.2. The submission also seeks deletion of the prohibited activity rules in 6G.6 related to Airport development.
- 2.2 Previously, in 2006/7 a comprehensive assessment was undertaken for the Airport Plan Change 73. This involved comprehensive traffic modelling on the basis of assumptions agreed with the Airport at the time. This showed that full (282,450 sq. m in the Mixed Use Precinct and 339, 338 sq. m. of total development) would potentially cause severe network problems. As a result, safeguards were included in the DP to require specific infrastructure provision at 43,050 sq. m and 62,500 sq. m development thresholds, and to require a transport assessment to be undertaken at the 102, 900 sq. m threshold.
- 2.3 In preparing for the current PDP, Council has reviewed the need for the retention of development thresholds and the findings of this review and associated analysis, are that the thresholds should be retained for transport assessment purposes only- rather than being tied to specific physical infrastructure.
- 2.4 Council has informed KCAHL of the review of thresholds and has undertaken several discussions and exchanged correspondence with the submitter and their traffic expert in an (unsuccessful thus far) effort to reach agreement prior to the PDP Hearing.

Rationale behind the Council's position

- 2.5 The reason that Council has proposed changing the conditions attached to the thresholds is the change in future network configuration from the Western Link Road (WLR) to the Mackays to Peka Peka Expressway (the Expressway) and the effect this may have on the timing and location of the need for infrastructure investment. It has not proved possible to define the timing and nature of infrastructure required in the time and resources available. There also remain a number of future uncertainties, including those in respect of the changing nature of the Airports development plans and access related proposals to consider also.
- 2.6 Despite these uncertainties it has been clearly demonstrated in analysis undertaken to forecast the effects of future levels of Airport development on the transport network that operational conditions will be compromised substantially unless timely assessments and infrastructure improvements are undertaken (see Annex 1).
- 2.7 Here it is important to note that the thresholds were agreed between Council and the Airport for the PC73 purposes as logical phases of development, with Stage 1 being currently built and consented development, Stage, 2 (43,050 sq. m), 3A (to 62,500 sq. m), 3B (to 102,900 sq. m), and the remaining Stages 3C,4 and 5 representing the maximum overall development (to 282,450 sq. m for the Mixed Use Precinct and to 339, 338 sq. m. overall). Each development stage needs to be supported by appropriate infrastructure in order to maintain acceptable operational conditions. The first step in identifying and implementing this infrastructure is to undertake a suitable transport assessment.
- 2.8 The analysis undertaken in preparation for the PDP has confirmed the suitability of the thresholds and the operational problems resulting from escalating levels of development without additional infrastructure provision. This has confirmed the need for timely transport assessments to be undertaken.
- 2.9 It is difficult to understand what the practical objection could be to such an approach. Firstly, the alternative would appear to be every resource consent will potentially require

an in depth transport assessment, which admittedly is an alternative but an extremely wasteful and costly one, in terms of developer costs and Council resources. It is also potentially very unfair on an individual developer who happens to trigger the need for a major investment. In contrast, undertaking comprehensive assessments for logical phases of development at the specified thresholds, is a much more efficient and satisfactory approach. Individual developments within these phases would then only require relatively simple assessments assuming they were within the overall GFA thresholds and consistent with permitted activities.

Why threshold related transport assessments are needed in the case of the Airport

- 2.10 The Council's position regarding the need for transport assessments to be undertaken is set out elsewhere (Appendix 3 - Review of Transport Matters Raised in submissions on Chapter 11'). However, in short, the need for transport assessments is to ensure acceptable conditions are maintained on the transport network in operational efficiency and safety terms. This need has not been disputed by KCAHL (as far as I am aware).
- 2.11 The only question remains as to the timing and nature of transport assessments in the case of the Airport development. For large mixed developments it is good practice to undertake comprehensive assessments for various phases of development. This is to ensure appropriate analysis and traffic modelling can be undertaken to assess overall effects and to ensure that proposed access arrangements are adequate. The Airport is no different to other large mixed development proposals that have adopted this approach in Kāpiti, for example, the Coastlands Square Proposal (Plan Change 72A) and Waikanae North Development Zone (Plan Change 69)
- 2.12 The thresholds themselves were established for the original (2006/7) Airport master plan, and these have been used for all subsequent traffic analysis and infrastructure assessment purposes. The thresholds represent the general mix of activities expected. Each threshold can be said to have a certain scale of traffic generation. These generations have been used for assessment and modelling purposes as agreed with the Airport and Council for many years, including being used for the M2PP NZTA expressway modelling and for the current testing undertaken by Council in preparation for the PDP Hearings.
- 2.13 KCAHL have not proposed any alternative thresholds for assessment and modelling purposes. Nor does KCAHL also does appear to have undertaken any independent assessment and modelling in support of their submission position.

Relationship with Airport Private Plan Change request

- 2.14 Although the Proposed Airport Private Plan Change (PC84) is not part of the PDP Hearing (and will therefore be addressed in more detail in a separate and specific Hearing at some stage following the PDP Hearing) – in the KCAHL submission on the PDP – relief is sought to obtain more flexibility in terms of the development of the Airport Zone Mixed Use Precinct through the removal of prohibitions on specific types of development and primarily retail activities. This is also the basis of the changes sought under the Private Plan Change.
- 2.15 Analysis by Council (see Annex 2) has shown that development of larger supermarket and department store uses on the Airport land, would potentially cause major operational issues and a severe deterioration in LOS at the lower development thresholds.
- 2.16 If additional retail development occurred as a result the private plan change, this would intensify (increase and concentrate) traffic generation. This would mean that higher levels of traffic would be generated by the Airport GFA thresholds within the PDP. This would mean higher amounts of traffic for a given development GFA. If the additional retail occurred in the short term, this could mean an increase in Stage 2 traffic generation

(42,050 sq. m GFA) from 670¹ vehicles per hour (VPH) to 1,027 VPH, an increase of 53% and for Stage 3C (62,500 sq. m GFA) an increase from 1,130 VPH to 1,489 VPH an increase of 32%. The effect of these increases together with concentration of this traffic, would mean associated increases in adverse effects, in terms of deterioration in operational performance.

- 2.17 The Airport GFA thresholds in the PDP are related to an assumed mix of development and the associated traffic generation arising from these. If therefore this element of the KCAHL submission is allowed, the existing development thresholds at which Transport Assessments are required would, need to be reduced considerably, to reflect the increased traffic intensities (described above in 2.16).
- 2.18 The KCAHL PDP submission is not supported by analysis or data based evidence, in particular, no case is made in technical traffic terms as to why the proposed plan change either could or should be allowed.

Liaison with Airport

- 2.19 Council have supplied KCAHL information in correspondence and have met to discuss the implications of the proposed threshold requirements and to better understand the Airport's development aspirations. However, following the issue of technical material to the Airport and its expert, we have not received any useful response.

Summary

- 2.20 A summary of the main points in this review are included below:

- Council remains firmly of the view that threshold based transport assessments should remain as requirements in the PDP to undertake assessments prior to exceeding thresholds which represent the commencement of key stages of development. This is an approach agreed by Council and the Airport. The suitability of the thresholds to represent key stages of development has been confirmed through (earlier) plan change processes and incorporated in the operational DP.
- It is recognised that the replacement of the Western Link Road project by the expressway (now under construction) is likely to have an effect on the precise timing of new infrastructure projects. For this reason, the requirement for specific infrastructure to be completed prior to Airport development occurring above defined thresholds, is recommended to be removed from the PDP (draft amendments were included in the PDP Submitter Engagement Version, released on 15 June 2015).
- However, the purpose of the M2PP expressway is to assist strategic 'through traffic' movements and the expressway will not relieve the local road network in the vicinity of the Airport. In this respect, the expressway does not represent a "game-changer", and does not obviate the need for development related infrastructure investment.
- On the basis of forecast post-expressway conditions, Council is of the view that as Airport development increases and without additional infrastructure investment, levels of service on the local road network will decline substantially, and that safety, access and environmental problems will also occur.
- It is important that any infrastructure required in the future is identified and planned well in advance of network problems occurring, such as a noticeable decline in road network LOS performance. This requires transport assessments to be undertaken in a timely manner and for appropriate actions to be taken following the identification of future infrastructure requirements.

¹ Passenger Car Units in the pm peak

- As a result of the deletion of prohibited activity rules, if larger supermarket and department store uses occurred on Airport land, this would intensify traffic pressures, generate associated adverse effects and trigger the need to adjust other Airport development thresholds in the PDP.

3. STRUCTURE PLAN

PDP District Centre Zone Structure Plan (Appendix 6.7 of PDP)

- 3.1 A revised structure plan has been produced as part of the Chapter 6 officer recommendations which responds to many of the concerns raised in submissions. As we understand it, the general intent and principles of the structure plan in terms of the development vision for the District Centre Zone remain unchanged. However, the recommended revisions are primarily to make the structure plan areas and development vision clearer, and to rationalise and simplify the roading network and linkages, etc. The land uses anticipated/provided for within the different Structure Plan Precinct areas (i.e. A, B & C) remain largely the same as in the notified version of the structure plan.

Strategic transport planning context

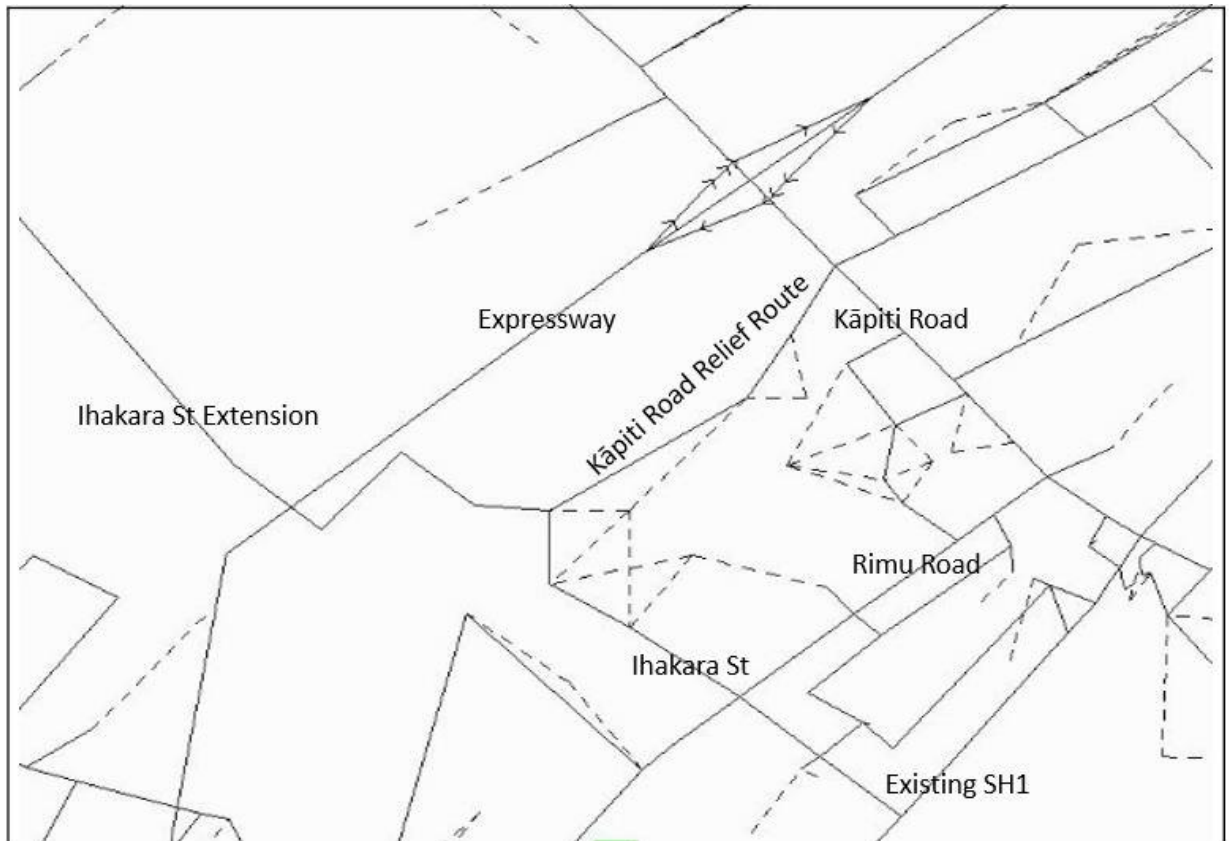
- 3.2 Submissions on the structure plan have questioned the overall level of fit/consistency of the structure plan with Council's strategic transport planning, including alignment with the proposed Kāpiti Road Relief Route and wider network planning, programming and funding considerations.
- 3.3 The Council has undertaken a range of transport analysis associated with town centre and wider network planning. In particular, extensive work was undertaken to inform the preparation of the Structure Plan for inclusion into the notified PDP, including the following components:
- Trip generation analysis based on potential development.
 - Interrogation of the Kāpiti (SATURN) Traffic Model on the basis of current and future road networks.
 - Review of junction analyses undertaken for the expressway proposal and a range of other network initiatives.
- 3.4. This work included consideration of the wider town centre development (i.e. area and bounded by Rimu Rd, Kāpiti Rd, the Expressway designation and the Ihakara Street extension). A development schedule and associated traffic modelling was undertaken using the original Kāpiti Traffic Model. This work considered the inter-relationship between new traffic patterns and the Paraparaumu Town Centre and also the involved estimating the development potential of St Heliers' land holdings for traffic modelling purposes. For the draft structure plan, this was based on an assumed development mix and included potential development on St Heliers' land. This analysis, using the updated Kāpiti Traffic Model preceded and informed the draft structure plan and Proposed District Plan. The Council also considered wider development potential (including future Airport development) and the potential impact of the Expressway.

- 3.5 The Structure Plan road network has been tested and found to be satisfactory in traffic capacity terms and also in terms of other requirements such as meeting funding criteria

Structure Plan Connectivity

- 3.6 Previous transport connections within the Structure Plan (as notified), including new Town Centre road linkages and the Ihakara extension, were only represented in broad conceptual terms.
- 3.7 In contrast, the transport network indicated in the recommended revised version of the Structure Pan is less conceptual and more closely reflects and resembles the latest traffic modelling for the area, as shown below:

Kāpiti Traffic Model: Current and Future Road Network



3.8 The new links will perform a substantial traffic function, and are forecast to achieve the following:

- Relief of Kāpiti Road (between Arawhata Road and Rimu Road) from approximately 26,000 VPD to 16,000 VPD.
- Traffic modelling has demonstrated that the proposed road network will assist future development and enhance existing activities by reducing through traffic pressure on existing roads in the Town Centre.
- Better connectivity will be achieved between adjacent precincts within the Town Centre, for example assisting the integration of Coastlands (A1) and the Wharemauku Precinct (A2) by relieving Rimu Road (between Ihakara street and Kāpiti Road).
- Provision of access to major retail and employment development sites, community activities and residential areas. Without such a spine road network, development would not be able to proceed.
- Better choice in respect to access, service and parking access, exit and entry routes to and from destinations in the town centre.
- The east-west connecting route (Ihakara Street Extension) will improve personal travel and freight movement (including High Productivity Motor Vehicles to avoid the need for increased swept path clearances at existing intersections)
- Improvements in connectivity for walking, cycling (alternative to the heavily trafficked Kāpiti Road corridor) and public transport trips.
- Ability to realise future opportunities for future connections to be added ("Desired road connections") to Wharemauku Precinct and other locations in the Town Centre.

3.9 The transport network indicated in the Structure Plan is subject to more detailed assessment, design, cost estimation, procedural approvals, consultation and funding discussions.

Boulevards

- 3.10 It is agreed that the removal of reference to the term “boulevards” and their construction (contained in Rule 6A.1.12) is justified as this term is inconsistent with the “one network” terminology Council is now required to adopt for NZTA funding purposes. The requirements for new roading infrastructure set out in Chapter 11 (e.g. controlled activity Rule 11C.2.1 for the construction of roads in all zones) are appropriate and sufficiently adequate for new road and associated infrastructure construction within the District Centre Zone Structure Plan area. The Chapter 11 controlled activity rule (Rule 11C.2.1) has a standard specific to centres zones (which applies to the District Centre Zone) for footpath provision and cycle paths. It also lists a number of matters over which Council reserves its control and can set conditions on consents, including for example, the route of the road, its design and location, and the degree of consistency with the transport network hierarchy. In addition, Section 42A report for Chapter 11 recommends several additional matters of control be added to the rule including the degree of consistency with multiple guidelines/standards including Council’s Subdivision and Development Principles and Requirements and its Best Practice and Subdivision Guide, and NZ standard NZS4404.2010 Land Development and Subdivision Infrastructure. This appears to satisfy any issues for Council in developing suitable road designs in this area.

Notional roads

- 3.11 The adoption of a more realistic transport network in the Structure Plan has required the deletion of two notional roads from the plan maps and their replacement with the notional link for the Kāpiti Road Relief Route. This is a practical sensible approach and the precise alignment and nature of these links will be determined in the future.

4. DISTRICT CENTRE ZONE

Paraparaumu District Centre development, including Wharemauku Precinct / PC72A area

- 4.1 This topic is closely linked to the Structure Plan discussed above in Section 3, where a number of the same issues are explored.
- 4.2 In parallel to the development and revision of the Structure Plan, detailed assessments of the Wharemauku Precinct (Plan Change 72A) were undertaken. An appeal by St Heliers into the merits of various aspects of the PC72A provisions was heard by the Environment Court in October 2013.
- 4.3 The key traffic arguments made by Council at that hearing all remain true, including:
- PC72A provides additional opportunities for employment and retail without detracting from the provision of high visibility passing trade activities to be located elsewhere.
 - The development of the future Ihakara Street extension and the future transport network for the wider town centre are entirely feasible and adequately facilitate all conceivable future development.
 - Safeguards are in place with respect to traffic generation thresholds within PC72A to ensure that appropriate access arrangements are in place prior to substantive development in the PC72A area occurring.
 - PC72A is an internally consistent proposal and does not constrain future development or design outcomes on St Heliers' land.
 - The implementation of PC72A will assist the integration of St Heliers' land with the wider town centre area.
 - PC72A allows the Council to ensure appropriate transport linkages are provided to integrate the plan change area with the wider town centre.
- 4.4 The Court clearly found in favour of the Council and made the following statements: ...

[83] *"... the undisputed traffic evidence was that even after operation of the Expressway commenced, SHI would continue to carry the majority of traffic and that the largest proportion of that traffic would be local traffic. This is in a situation where the retail economic experts agreed that the Kāpiti District itself is the area primarily driving demand and growth for the services provided at the Town Centre. In other words, access by local traffic is the most important traffic factor for the Town Centre."*

[84] *.... It was in fact the unanimous evidence of the traffic witnesses that the Expressway would primarily function as a bypass for traffic wishing to go through rather than to Paraparaumu.*

[87] *"We have no doubt that attracting through traffic is a factor to be considered but it seems to us that the much more significant reading factor in assessing the suitability of a site for commercial/retail (including LFR) expansion at Paraparaumu is its proximity to the primary local traffic route (SHI) which will carry a greater volume of traffic than the Expressway. It is anticipated that the highest proportion of that traffic will be local in origin. ..."*

[89] *"In reality the concept advanced by St Heliers is that there would be two separate commercial/retail areas, one on St Heliers' land adjacent to the Expressway, the other being the existing Town Centre. We consider that the two areas are too far apart to be seen or to function as one."*

[90] *"It is apparent to us that even with good connectivity between the two areas the extent of separation between them will give rise to the situation identified by Mr Miller of creating a new rival retail centre away from the existing Town Centre. By*

contrast, the proposed Wharemauku Precinct is situated in very close proximity to the existing commercial/retail core immediately across Rimu Road.”

[91] “Having regard to all of the above factors we find that although the Expressway is clearly a significant change of circumstances at Paraparaumu, it is far from the game changer in terms of PC72A which St Heliers contends it to be. We consider that St Heliers' case is founded on minimising the importance of SH1 and the part which it will play as the primary local route after the Expressway commences operation. We accept the evidence that the Town Centre primarily services local needs and we concur with the submission made in closing by Mr Conway on behalf of the Council that the change from the Western Link Road to the Expressway has in fact improved the appropriateness of PC72A because of this local factor.”

Changes since PC72A Appeal

4.5 It will be nearly three years since the original PC72A hearing and evidence preparation, i.e. over the period October 2013 to July 2016. More certainty is now available concerning the form of key developments, namely:

- The final design of the M2PP Expressway, including the Kāpiti Road and Arawhata Road intersection.
- An application for the PC72A area is currently being processed for the Coastlands Square resource consent application.
- Further developments have opened at Kāpiti Landing in the Airport Mixed Use Precinct serviced by new accesses onto Kāpiti Road. A revised masterplan has been prepared by the Airport but this has no official status and has not been publicly issued.
- Town Centre improvement proposals and associated SH1 revocation proposals have been further developed and refined.
- The new Kāpiti Road Relief Route (Ihakara Street to Arawhata Road) has been actively progressed, regional prioritisation has occurred and the project was ranked as the number one project by the regional transport committee in Wellington region. <http://www.gw.govt.nz/assets/Transport/Regional-transport/RLTP-2015/RLTP-consultation-brochure.pdf>
- The project funding application has been approved in outline and is now progressing to detailed business case stage. The project is identified in the Council Long Term Plan at a cost of \$8.7m in the infrastructure plan. The precise timing of the new Relief Route is however dependent on a range of: logistical, funding, designation, consent, design and land acquisition processes.
- More modelling has been undertaken by KCDC in the form of SATURN/SIDRA modelling (see Annex).

What is expected to happen in the future.

4.6 As part of the Council-led Town Centres and Connectors Transformation project, the treatment of Rimu Road is likely to be in the form of amenity and pedestrian improvements that are more suited to a Town Centre environment and Rimu Road frontage development proposals is being actively progressed in discussions with Coastlands. The Rimu Road treatments in relation to the road network will have the effect of improving traffic management and complementing town centre activities.

4.7 A number of aspects are expected to be confirmed in the near future, namely:

- Full results and findings from the new VISSIM modelling currently underway.
- Coastlands Square: Applicant response to Council proposed conditions is awaited.

- Detailed traffic impact of recent/current developments, in-terms of additional traffic generation.
- Actual effects of the M2PP expressway opening (anticipated Expressway opening, partial completion late 2016 with full completion expected April 2017)
- Detailed impact of SH1 revocation (expected to occur sometime in late 2016) and associated Paraparaumu Town Centre network improvements.
- The exact timing of major infrastructure proposals, such as the Kāpiti Road Relief Route (Ihakara Street to Arawhata Road) and the Ihakara Street Extension (Ihakara Street to Hurley Road).

District Centre Zone development thresholds

- 4.8 In the absence of any specific traffic analysis or amenity considerations the general thresholds proposed in the PDP for transport assessments are 200 vehicles per day (VPD) or above in centre, retail and work zones, except for access onto major (strategic or major community connector) roads) and 100 VPD or above in all other zones and for accesses onto major (strategic or major community connector) roads.
- 4.9 The specific permitted activity vehicle movement threshold for development of Precinct A2 (i.e. the bulk of the PC72A area) was agreed as part of PC72A as 200 vehicles per hour (VPH). This was determined after modelling analysis of potential impacts on the relevant section of Rimu Road. This therefore supports an amendment to be made to the notified limit of 100 VPH in Rule 6A.1.7 to be increased to 200 VPH in order to provide consistency with the settled provisions of PC72A.
- 4.10 However, in the absence of any detailed analysis the proposed 50 VPH limitation for development as a permitted activity in Precinct C (Rule 6A.1.9) is appropriate and is consistent with analysis undertaken for other developments potentially impacting onto the central section of Kāpiti Road (for example the same limitation was used for the proposed Bunnings (Milne Drive) development). To increase the current 50 VPH threshold in the PDP to 100 VPH as is sought by Submitter 459 (St Heliers) in the absence of any confirmation of the type of development envisaged and any supporting analysis would be arbitrary and is not advisable.

5. OTHER SUBMISSIONS

Re-zoning requests – potential effects of land use changes on road network (capacity, safety etc.)

- 5.1 This section provides comment on other rezoning requests made by individuals or groups of landowners/business owners in several areas, including:

General Principles

- 5.2 In responding to submissions, a perspective is offered below in the form of outlining the general principles associated with the traffic impacts of activity location, for example, in changing a zone to provide for more retail uses in areas currently zoned industrial (or other purposes) as follows:
- 5.3 The traffic impact of different land uses, in terms of the scale of vehicle numbers/movement, varies considerably. This is an important reason for placing controls on vehicle movements (esp. retail). Retail activities are particularly high traffic generators when compared to most other activities. To illustrate this, typical traffic generation flows for different activities are shown below

Activity	Peak hour trips per 1,000 sq. m
Freestanding Shop	425
Retail (supermarket)	179
Retail (Large format)	60
Motel**	56
Office	25
Warehousing	10
Residential (medium density) *	8

**Assuming an average of 4 motel rooms per 100 sq. m and

*an average dwelling size of 150 sq. m Source Table 7.4 NZTA research report 453 (see memo in Appendix 3 of Chapter 11 Section 42A officers report).

- 5.4 Retail activities typically represent higher traffic generation, with associated turning movements, crossing activity (between frontages) and parking pressures. Whilst it can be possible to manage these pressures in some locations, planning for a widespread scattering of retail activity at many points on a network is not an affordable use of resources and would substantially reduce the safety and efficiency of the transport network. It is particularly important to resist additional traffic pressures arising from more intensive uses, such as retail, at traffic pressure points on the network. This is particularly true where increased demands would affect, for example expressway interchanges and adjacent intersections, and at other critical junctions and key pressure points. This is why retail zoning is concentrated predominantly in defined retail areas close to existing centres and where appropriate infrastructure provision can be most effectively be made.
- 5.5 Commercial (business and office) activities typically generate lower traffic demands than retail. However, introducing commercial office activities into industrial/warehousing areas has the potential to introduce additional parking and traffic pressures. This is dependent on the nature and scale of the commercial proposals and the access conditions in the area concerned. Small scale activities with dedicated service roads are not likely to cause traffic operational or safety problems. In contrast, new large scale commercial activities with dedicated frontage access directly onto important routes are unlikely to be acceptable.

Kāpiti Road: Implications of large scale retail rezoning requests

- 5.6 Traffic volumes on Kāpiti Rd post-expressway opening are forecast to remain high with only relatively marginal changes in traffic volumes (compared with the do-minimum scenarios). For example, Kāpiti Road traffic (west of Arawhata Road) is forecast to increase by 2%. Kāpiti Road between the Airport to Arawhata will therefore not experience traffic relief from the expressway and Kāpiti Road junctions will remain under pressure and will operate either at or close to capacity during peak periods in the future.
- 5.7 This is why additional large scale retail development loading onto this area is not advisable, even if additional infrastructure is contemplated as there is no realistic prospect of upgrading the interchange or providing new connections on/off the expressway over the course of the DP (next 10 years).
- 5.8 There will be some relief to the section of Kāpiti Road from the expressway, especially on the section in the Town Centre between SH1 and Rimu, where traffic is forecast to reduce by 17%. However, until the Kāpiti Road Relief Route and Ihakara Extension projects are completed, a number of critical junctions along Kāpiti Road, will continue remain under pressure and operate either at or close to capacity in the peak periods.

Kāpiti Road: Small scale retail / business rezoning requests

- 5.9 Submission requests have been made to increase the retail (and commercial) development provisions for properties fronting on to Kāpiti Road, particularly for the current Industrial Zoned properties fronting on to Kāpiti Rd from the Expressway Interchange north and continuing past the Kāpiti Landing entrance (and including Milne Drive / Kodex Place);
- 5.10 If the premises are relatively small scale and access is controlled via service roads and occasional access points of an appropriate standard (as is mainly the case at present) then this change (to retail/commercial) could be considered as a discretionary activity, on a case by case basis. This is to safeguard against the effects of potentially large scale and high intensity uses materialising in an uncoordinated way. In conjunction with this, parking, stopping/loading on Kāpiti Road itself (with the exception of bus services) and any new access points directly to/from premises onto Kāpiti Road should all be prohibited. Access requirements within the Council's sub-division rules may also potentially require revision to support this change.

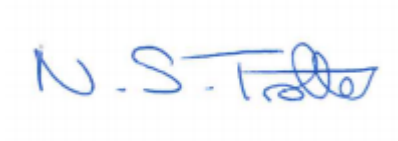
Ihakara Street industrial area: retail rezoning requests

- 5.11 Submission requests have been made to increase the retail (and commercial) development provisions for properties in the Ihakara Street area (and small part Rimu Rd) which is currently zoned industrial;
- 5.12 Premises in this area often have direct access onto Ihakara Street /Rimu Road. To allow more intensive retail activity in this area would lead to more intensive traffic activities, including higher levels of turning movements, crossing activity and parking pressures. This is unlikely to be compatible with the Kāpiti Road Relief Route proposal connecting Arawhata Road with Ihakara Street and the associated increase in traffic volumes and of the number of heavy vehicles on Ihakara Street. Current activity in this area, especially in relation to access to premises, on-street parking, loading and turning will need to be addressed as the Kāpiti Road Relief Route proposal is developed. Some rationalisation of current access, parking and loading activities will be needed to facilitate safe and efficient movement of vehicular traffic, pedestrians and cyclists in the future. This will be assessed, designed and consulted on, prior to any decision being taken / implemented by Council.

- 5.13 Rimu Road is already under pressure and will not be substantially relieved by the Expressway, and (south of Kāpiti Road) is only forecast to experience a 4% reduction in traffic levels.
- 5.14 In view of these considerations, the current zoning of these (Ihakara Street and small part Rimu Rd) areas should be retained as industrial.

Amohia Street / Existing SH1 & 29-31 Rimutaka Street

- 5.15 Submission requests have been received to rezone the eastern side of Amohia Street/SH1 (between Kāpiti Rd and the SH1 rail overbridge) from residential and industrial to Outer Business Centre Zone (which provides for more commercial development opportunities as permitted activities). There is also a submission seeking to rezone the triangle of land at 29-31 Rimutaka Street from Residential to Outer Business Centre Zone; - This site is severely constrained in terms of shape and position on the road network being located on the outside of a fairly sharp bend in the road immediately adjacent to the NIMT and road overbridge. The site is also located opposite an existing intersection at Amohia Street/SH1 with restricted road space to accommodate additional turning movements.
- 5.16 In terms of access to this site there are limitations on what can be achieved safely as sightlines are severely restricted due to the constraints mentioned above. Any intensification in traffic to and from this site would raise serious safety issues in relation to the intensification in use of a sub-standard access. A commercial activity would generate more traffic especially during the peak periods for office and retail uses than the current zoning
- 5.17 Traffic levels on the Amohia Street section of SH1 will substantially reduce from the current level of over 22,000 vehicles per day following expressway introduction to a little over 10,000 vehicles per day. The area would therefore experience an improvement in amenity value and is likely (in terms of traffic capacity to facilitate turning movements) to be capable of accommodating some increased frontage activity, should more intensive residential and visitor accommodation type uses be introduced.
- 5.18 Some caution is needed here however as the existing SH1 will remain a busy road and some frontages will be problematic in access terms, due to alignment, visibility and the proximity of junctions and other accesses. There are likely therefore to be some opportunities for increased activity in association with increased residential and visitor accommodation type uses but this should be considered on a case by case basis, in order to manage potential safety, capacity and traffic management issues connected with changes in the scale and pattern of traffic demands. In other words, some change could be supported but Council needs to retain discretion.
- 5.19 The effect of Outer Business Centre Zoning could potentially increase the site traffic generation, especially if small retail included dairy's and take-away restaurants (e.g. fish and chips etc.). These types of activities would be busier in traffic terms than residential/motels. However, service activities such as vehicle repair, tyre or car sales may be acceptable in this location as traffic generation from these activities is generally on the lower side for commercial activities.



Neil Trotter
Roding Network Planning Team Leader
Kāpiti Coast District Council



Don Wignall
Transport Consultant –
Transport Futures Ltd.

ANNEXURE

ANNEX 1

Airport Development Threshold Review: Analysis Results v3 July 2016

Network Operational Performance

A1.1 A review of potential development assessment thresholds has been undertaken, using the KTM SATURN pm peak model and SIDRA network analysis, for the following scenarios:

Airport Development	
GFA threshold ,000 sq. m	Description
23	Existing and consented development
43	PDP Assessment threshold 1
62	PDP Assessment threshold 2
103	PDP Assessment threshold 3
203	Airport suggested assessment threshold
340	Full development

A1.2 The basis of the network LOS analysis is the speed efficiency ratio (average modelled speed over all link to desired speed) on the following scale:

Network / Route Level of Service	Speed Efficiency
A	$0.90 < R_e \leq 1.00$
B	$0.80 < R_e \leq 0.90$
C	$0.70 < R_e \leq 0.80$
D	$0.50 < R_e \leq 0.70$
E	$0.30 < R_e \leq 0.50$
F	$0 \leq R_e \leq 0.30$

A1.3 The analysis undertaken for 2017² and for 2021³ is shown below:

2017			
GFA	LOS	Speed (km/hr)	Change
23k	D	30.2	
43k	D	27.0	-11%
62k	E	18.0	-40%
2021			
GFA	LOS	Speed (km/hr)	Change
*103k	F	15.5	-49%

A1.4 This shows that in 2017, with existing and consented development of 23k the network would operate at an overall LOS D. Alternatively, if the development threshold of 43k was reached, network speed would be reduced but would remain still within the LOS D range. Following the opening of the expressway, moving to the higher threshold of 62,500 sq. m GFA, without further infrastructure investment, would reduce the average network speed even more substantially.

A1.5 Increasing the development level to 102,900 sq. m GFA in 2021 (on the basis of the latest July 2016 modelling) would further reduce network speeds to LOS F, without infrastructure investment.

A1.6 In the longer term, forecast network conditions in 2031⁴ are indicated below:

2031			
GFA	LOS	Speed (km/hr)	Change
23k	D	25.3	
43k	E	23.5	-7%
62k	E	21.1	-17%
103k⁵	E	19.3	-24%
203k	F	12.4	-51%
340k	F	9.0	-64%
*340k⁶	F	8.6	-66%

A1.7 This shows that 43,050 sq. m GFA development at the Airport could be expected to result in a network LOS E in 2031. Contrasting this with the LOS D in 2017 for the same threshold - emphasises the relevance of the timing of the development and the impact that this can have on network conditions.

² Original analysis in August 2015 using SIDRA 6.1

³ Most recent analysis in July 2016 using SIDRA 7

⁴ Original analysis in August 2015 using SIDRA 6.1 unless indicated otherwise.

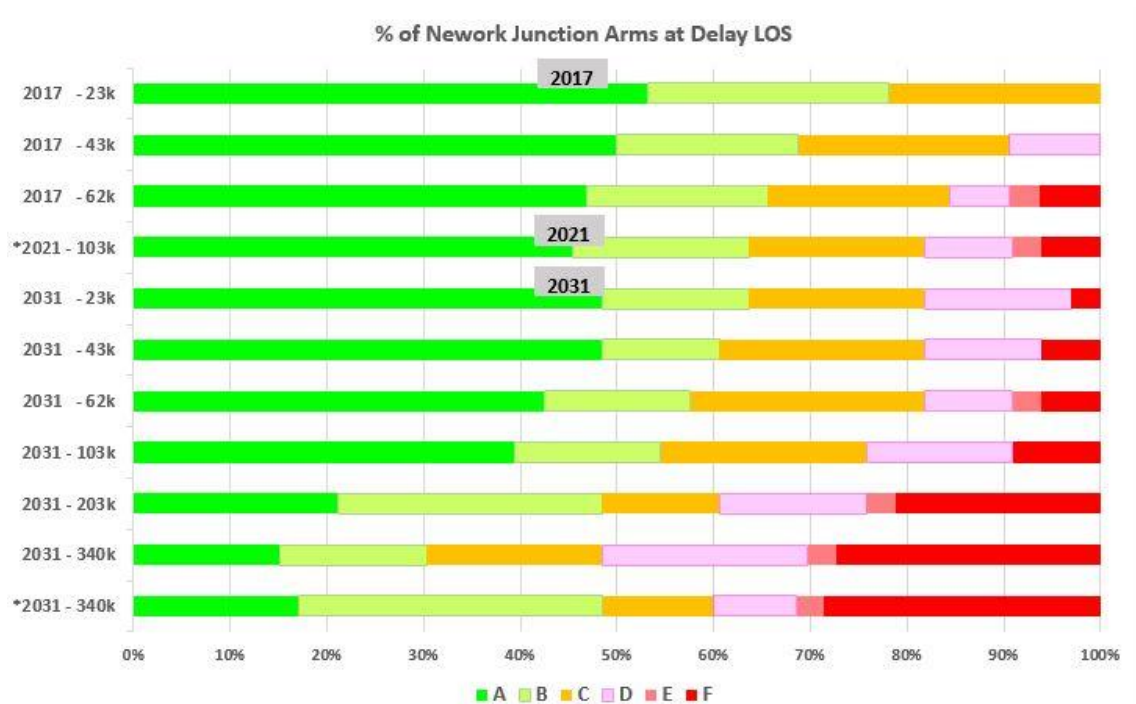
⁵ The lower speed and LOS for 103k in 2021 is explained partly by the fact that the latest KTM modelling test does not include a Kāpiti Road Relief Route and assumes uncommitted changes in Airport access arrangements including Hurley Road traffic signals.

⁶ This is based on SIDRA 7 and the latest KTM modelling test assumptions in July 2016.

A1.8 Without further measures / infrastructure investment, higher levels of development would reduce network speed still further. On the basis of anticipated network traffic conditions, it can therefore be concluded that the Airport development should continue to be assessed (in transport terms) at the 43k, 62k and 102k thresholds, as recommended in the Proposed District Plan.

Intersection Performance

A1.9 The results from the revised SATURN modelling demonstrate a consistent pattern of network issues increasing in direct relationship with the scale of Airport development. This is not to say that these issues are unsolvable, but rather that assessments at or around these thresholds are needed. The results from the recent work are asterisked * for 2021 and 2031 and have been added/inserted in the earlier graph of LOS effects as issued to the Airport previously - as shown below:



Level of Service	Control delay per vehicle in seconds (d)		
	Signals	"SIDRA Roundabout LOS" method (1)	Sign Control
A	$d \leq 10$	$d \leq 10$	$d \leq 10$
B	$10 < d \leq 20$	$10 < d \leq 20$	$10 < d \leq 15$
C	$20 < d \leq 35$	$20 < d \leq 35$	$15 < d \leq 25$
D	$35 < d \leq 55$	$35 < d \leq 50$	$25 < d \leq 35$
E	$55 < d \leq 80$	$50 < d \leq 70$	$35 < d \leq 50$
F	$80 < d$	$70 < d$	$50 < d$

A1.10 The above analysis confirms the need for assessments at the defined 43k, 62k and 103k thresholds to ensure adequate measures are in place and infrastructure investment occurs in a timely manner, to ensure acceptable operational conditions can be maintained.

ANNEX 2

Effect of higher traffic generating activities as a result of the KCAHL Proposed Private Plan Change:

Analysis Results v3 July 2016

Network Operational Performance

A2.1 A review of the traffic effects of the introduction of higher traffic generating activities as a result of the KCAHL Proposed Private Plan Change⁷, using the KTM SATURN pm peak model and SIDRA (6.1) network analysis, for the following scenarios:

Airport Development	
Threshold sq. m GFA ,000	Description
23	Existing and consented development
43	PDP Assessment threshold 1
62	PDP Assessment threshold 2

A2.2 The analysis shows that in 2017, following the opening of the expressway, up to 43,050 sq. m GFA of Airport development could be accommodated on the local network at LOS D. Beyond 43,050 sq. m., new infrastructure investment would be needed to maintain acceptable operational network conditions.

2017 Operational District Plan			
GFA	LOS	Network Speed (km/hr)	Change
23k	D	30.2	
43k	D	27.0	-11%
62k	E	18.0	-40%

A2.3 The introduction of higher traffic generating activities, such as a 6,000 sq. m GFA department store⁸, would have the effect of increasing the amount of traffic generated within each of the development thresholds (43,050 and 62,500 sq. m GFA) specified in the operational District Plan, as shown as follows:

⁷ Undertaken in November 2015.

⁸ Based on: possible (as indicated by KCAHL) development mix arising from the proposed plan change, previously agreed trip generation rates and distribution based on SATURN O/D matrices for Airport model zones.

2017 Proposed Private Plan Change			
GFA	LOS	Network Speed (km/hr)	Change
23k	D	30.2	
43k	E	20.1	-33%
62k	F	12.7	-58%

- A2.4 On the basis of the above analysis, the introduction of higher generation activities would have the effect of reducing operational levels of service substantially. This would also mean that (as yet unspecified) infrastructure investment would be required, well before the 43,050 sq. m. development threshold was reached.
- A2.5 The implications for the Operational District Plan and Proposed District Plan, if a larger supermarket and department store were to be introduced, would be the need to lower all (5) currently specified GFA development thresholds for the Airport, including new limitations on the Mixed Use Precinct and full Airport development.
- A2.6 Supporting documents, issued on behalf of KCAHL, do not provide any assurance that the proposed private plan change would either: result in acceptable operational conditions, or that appropriate and timely infrastructure will be provided. The Airport do not appear to have attempted any technical analysis in support of their application.
- A2.7 This note was originally prepared in November 2015 but has been reviewed to take account of the findings in the latest KTM modelling test assumptions (July 2016). The earlier analysis (reported above) remains valid as:
- i) the latest test assumptions have been tested against the results obtained from the earlier KTM model outputs and have been found to be broadly consistent⁹.
 - ii) The potential effects of the private plan change were not included in the latest KTM modelling test assumptions, hence the need to rely on earlier assessment work
 - iii) The results are unambiguous, and clearly demonstrate the deterioration in LOS if higher intensity activities and associated increases in traffic generation were to eventuate.
 - iv) There is no need, at this stage, to assess other or higher thresholds, as the problems associated with the thresholds already tested, indicate problematic conditions. This means the proposed plan change is likely to result in a substantial deterioration in operational conditions on the local network.

⁹ This is not surprising given the majority of the SATURN outputs remained similar to before, and until there is a major revalidation this can be expected to remain the case.