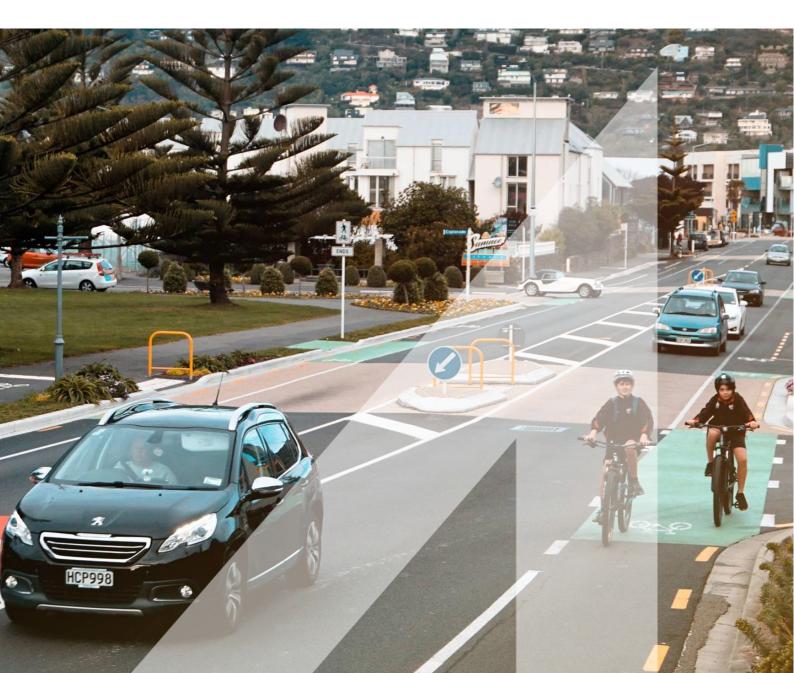
District Plan Review – Trip Threshold in TRAN Table 11

Far North District Council

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Appendix including Table 1, Table 2 nad Figure 6

1. Introduction

Abley have been engaged by Far North District Council (FNDC) to review the proposed trip generation in the Far North Draft District Plan (FNDDP), as detailed on TRAN-Table 11 – Trip Generation within Part 2 – District-Wide Matters, <u>Transport Chapter</u>. The Far North District Council are in the process of updating their planning provisions and released a Draft District Plan in March 2021, and this technical note is designed to support FNDC in making any required changes based on industry standards and research.

All activities that generate trips have some effect on the transport system. Larger developments, or those in sensitive locations on the transport network are generally more likely to cause significant transport effects. Trip generation thresholds (also known as high trip generating activity thresholds) enable proposed developments that exceed these thresholds to be assessed in terms of their transport effects in more detail given the likely effect on the transport system Developments that exceed these thresholds are likely to trigger restricted discretionary status with matters of discretion requiring an Integrated Transport Assessment¹.

As outlined in the offer of service, dated 22 November 2021, this technical note covers the following:

- A. A comparison of threshold rates with those used in other District Plans: Auckland Unitary Plan, Proposed Selwyn District Plan and Christchurch District Plan. Assess whether a basic or full ITA is required for different threshold levels as can be seen in some District Plans.
- B. Revision and comparison of the available trip rates with those in PPM, TDB and RR453 to check for consistency and general alignment across land-use types.
- C. Advice on whether GFA or other measurement units is more applicable.
- D. Consideration if vehicle trips per day or vehicle trips per peak hour is more appropriate, and whether *Any activity not listed below* threshold of 200 vehicle trips per day is suitable and comparable to the activity types listed.
- E. Prepare a guidance note for practitioners to use in assessing trip thresholds.

1.1 Overview and Methodology

This technical note has assessed the relevant sections of the FNDDP Transport Chapter, selected other District Plans (as listed in 1.A)., the Planning Policy Manual and Research Report 453 in providing robust and thorough assessment to the Trip Threshold values in <u>TRAN-Table-11</u>.

The scope of this technical report focuses on trip threshold methodology and therefore, the most relevant reference material has been selected for comparison, rather than undertaking a comprehensive review. Appended to this technical note are references, and all tables with calculations to allow FNDC to peer review and apply trip rates and formulas as needed.

As a disclaimer, we note that traffic surveys nor any site visits to the Far North District were made in preparing this technical note.

¹ Integrated transport assessments (ITAs) consider the proposed impact of a development on the transport network and the effectiveness of any mitigation measures that are proposed to address adverse impacts.

TRAN-Table 11 - Trip generation

Activity	Threshold		
Any activity not listed below	200 vehicle trips per day		
Healthcare activity and hospitals	450m ² GFA		
Commercial activity	2,000m ² GBA		
Drive-thru and service stations	0		
Trade supplier	2,000m ² GBA		
Large-format retail	2,000m ² GFA		
Vehicle and marine sales and hire	2,000m ² GBA		
Vehicle and marine repair and maintenance	650m ² GFA		
Supermarket	500m ² GFA		
Restaurants/bars/cafes	650m ² GBA		
Office	2,000m ² GFA		
Commercial service	2,000m ²		
Industrial activity	2,000m ² GBA		
Kohanga reo/childcare centre	450m ² GBA		
Primary and secondary schools	150 students		
Tertiary education facility	2,000m ²		
Emergency services facility	1,000m ² GFA		
Residential activity	8 residential units enabled by any land use or subdivision		
Visitor accommodation	50 beds		
Sport and recreation activity and major sport facility	A design occupancy of 200 persons on the site at any one time		

Figure 1: TRAN-Table-11 from FNDDP

1.2 Existing Research on Trip Generation

We have referred to two documents as part of our assessment, these are:

- Waka Kotahi Planning Policy Manual: Appendix 5B Accessway standards and guidelines, dated 1 August 2007 (PPM) (NZ Transport Agency, 2007)
 - This includes a Trip generation rates table which supports Chapter 5: Applying the Integrated Planning Policy to development proposal, using Waka Kotahi Research Report 209 to support its findings
- Waka Kotahi Research Report 453: Trips and parking related to land use, dated November 2011 (RR453) (Douglass & Abley, 2011)
 - This is a detailed and robust report on transport behaviour across land-use types and regions. It takes into account changing trends in transport behaviour and seasonal patterns over time.

While we acknowledge that both resources provide standard trip rates for New Zealand land uses, we recommend FNDC to review these resources and consider if the findings apply to FNDC. Waka Kotahi Research Reports can be found here: <u>Reports | Waka Kotahi NZ Transport Agency (nzta.govt.nz)</u>

1.3 Context in the Far North District

The FNDDP TRAN-Table-11 has many land-use activities specific to the types of resource consent applications lodged in the region, and several applicable to seasonal summer tourism. The Far North District experiences several unique transport issues, including high seasonal traffic in summer months, lack of public transport and lack of active modes infrastructure. While most New Zealand trip generation datasets are from populous regions, which have some level of public transport, and several with cycle infrastructure, the town centres in the Far North do not have this. Public transport services are limited to inter-city bus services which do not support local travel.

While the Far North Transport Strategy seeks to reduce car dependency, the overall excess in parking supply coupled with the lack of other modes, means parking demand is high in urban centres, which are often separated by rural land use. In this context, trip rates and trip generation thresholds are important in considering the impact an activity would have on the transport network.

It is important to consider national legislative frameworks when looking at trip generation, trip rates and parking. In the past two years, there have been recent legislative developments with the Resource Management Act (RMA) Reform (Environment, 2022) and National Policy Statement – Urban Design (NPS-UD) (Development, 2021). Within these processes, there is a strong mandate to local authorities of urban areas to remove parking minimums. Local authorities will be better positioned to support proposed developments that incorporate sustainable transport modes, prioritise well-being and demonstrate optimal use of open space in their resource consents. While the FNDDP has parking minimums, under TRAN-Table-1, it is important to consider how the FNDDP will be required to evolve to meet the new legislative requirements.

2. High Trip Generating Activities and Trip Generation Thresholds

2.1 Calculating Trip Thresholds

District Plans across New Zealand have rules and matters of discretion for activities that can be considered High Trip Generating Activities. These activities, depending on their scale will have an impact on the transport network, adding traffic to existing roads. Typically, trip generation thresholds are applied regardless of where the trip has started or ended, or the type of vehicle. The trend in 2nd generation District Plans is for a "High Trip Generating "(HTG) Activity to be triggered above a total number of trips per day converted to a unit of measurement such as floor area or number of dwellings based on standard or average trip rates for each activity. This then results in a table of high trip generating activity thresholds for different activities that are likely to have broadly similar numbers of vehicles accessing the transport network.

Trip generation thresholds are calculated by determining the number of daily trips and/or peak hour trips above which an integrated transport assessment (or specific matters of discretion) are warranted given the likely effects on the transport system. A trip is a one-way movement, therefore going to a site and leaving the site would be two trips. We note that in TRAN Table-11, the limit specified under *Any activity not listed below* is 200 vehicle trips per day, therefore that is assumed to be the trip threshold per day. A parallel consideration could be a vehicle per peak hour threshold.

Table 2 in the Appendix to this document, and section 3.3 of this technical note, shows how we can calculate vehicle trips per peak hour and vehicle trips per day. FNDC may want to expand on the *Any activity not listed below* category to consider vehicles per peak hour, vehicles per day, or the number of heavy vehicles per day, as has been done in the Selwyn and Christchurch District Plans.



Calculations, as Appendix Table A.1.2:

Vehicle trips per day threshold ÷ vehicle trips per day x unit = Trip Generation Threshold

200 ÷ 129 x 100 = 155m² GFA

Working example:

We know a supermarket generates 129 daily vehicle trips per 100m² and assuming a vehicle threshold per site is 200 vehicle trips per day, therefore a supermarket greater than 155m² would meet the threshold of 200 vehicle trips per day and trigger the rules in TRAN-R9 and needs to be assessed according to the matters of discretion.

*vpd derived from RR453 (Douglass & Abley, 2011)

Figure 2 Calculation for trip generation threshold using vehicle trips per day

2.2 Land Uses with Limited Trip Generation Data

- Vehicle and marine sales and hire
- Vehicle and marine repair and maintenance
- Emergency services facility
- Sport and recreation activity and major sport facility

Given these activities are relatively uncommon and their trip generation characteristics are likely to vary depending on the components of the activity and their location, we recommend the 'catch all' *Any activity not listed below* applies to these activities. This aligns with the approach of other district plans. For clarification, it is recommended that any mixed-use activities are also captured under the *Any activity not listed below*.

2.3 Rules and Matters of Discretion

The <u>FNDDP TRAN-R9</u> states that activities that meet or exceed the thresholds in TRAN-S7 Trip Generation (the standard which is referencing TRAN-Table 11), will be assessed against the following matters of discretion;

- whether the use or development compromises the safety and efficiency of the transport network, including future transport connections;
- the extent to which vehicle access, parking and manoeuvring areas associated with the activity are provided;
- the nature of the activity and compatibility with the function and purpose of the underlying zone;
- the extent to which the design and layout of the site maximise opportunities for alternative transport modes.

We agree the four matters of discretion are suitable and will provide a good assessment of the transport effects of the development, however the rule does not require a Traffic Impact Assessment (TIA) or an Integrated Transport Assessment (ITA), nor does it request for the work to be completed by a suitably qualified transport professional. As the draft provisions currently stand, the matters of discretion could be addressed by an applicant's planner or engineer, who could be regarded as a "suitably qualified and experienced practitioner", as mentioned in TRAN-P7.

In contrast, ITAs are generally prepared by a suitably qualified and experienced transport practitioner. Consideration should be given to modifying the provision to require an ITA if the trip generation thresholds are exceeded as this would give Council more consistent and robust assessments of larger developments that are likely to have significant transport effects.

2.4 Comparison with Operative FNDP

In comparing the Operative Far North District Plan and the FNDDP, we note the Operative Plan is more rigorous in determining the activity status for different levels of trip generation thresholds, called Traffic Intensity threshold values (in table 15.1.6A). For instance, in Residential Zones, trip generation of 21-40 vpd is Restricted Discretionary, whereas more than 40 vpd is Discretionary. In the FNDDP, activities meeting and exceeding the threshold are Restricted Discretionary activities which is comparable to other District Plans reviewed. Given the matters of discretion, as per TRAN-R9, cover a wide range of transport matters, we agree that Restricted Discretionary is an appropriate activity status.

2.5 Integrated Transport Assessments

Integrated Transport Assessments (ITAs) are effective in assessing and addressing adverse transport effects from proposed activities, as they consider the land use coupled with the wider local transport network which it would impact. They should consider the integration of land use and transport and consider a range of travel modes in addition to private vehicle travel. An ITA would usually accompany a resource consent or be used as supporting documentation for plan changes. NZTA's Research Report 422² provides guidance for preparing an ITA and many district councils require an ITA for activities meeting or exceeding trip thresholds. The scope of the ITA has varying factors relating to the size, location, zoning, and other transport matters, such as access design, visibility, road classification.

Some District Plans have defined two thresholds for basic and full ITAs, based on the anticipated effects of the vehicle movements generated from the size of the activity. Examples from different District Plans can be seen in **Error! Reference source not found.** An ITA differs from a TIA, or transport assessment as an ITA considers the wider impacts of the development across the network and for all modes. A TIA or a transport assessment will often be limited to the frontage road and focus on vehicle movements and safety matters. Generally, an ITA gives Council a more robust way of assessing a resource consent application particularly in terms of addressing wider network transport assessment matters. Therefore, we recommend FNDC consider requesting an ITA when trip thresholds are exceeded.

2.6 Trip Threshold Rates for ITA within other District Plans

We collated threshold data from Auckland Unitary Plan, the Proposed Selwyn District Plans and the Christchurch District Plan and noted a range of specifications in trip threshold values, in Table A.1.1 in the Appendix.

The Auckland Unitary Plan

The Auckland Unitary Plan, Table <u>E27.6.1.1</u> has nine categories and a "catch-all" with activities not provided for in the zone, requiring a land use consent for more than 100 vehicles an hour. The Auckland Unitary Plan does not differentiate between a basic and a full ITA and requires the activity to be assessed based on E27.6.1 (as below) but states that activities with thresholds exceeding the trip generation thresholds would be restricted discretionary activities and the consent application would need to focus on the adverse effects of the increased traffic on the transport network.

E27.8.2 Assessment Criteria

http://www.nzta.govt.nz/assets/resources/research/reports/422/docs/422.pdf

² Abley, S, P Durdin, M Douglass (2010) Integrated transport assessment guidelines. NZ Transport Agency research report 422. 110pp.



any activity or subdivision which exceeds the trip generation thresholds under Standard E27.6.1:

(a) the effects on the function and the safe and efficient operation of the transport network including pedestrian movement, particularly at peak traffic times;

(b) the implementation of mitigation measures proposed to address adverse effects which may include measures such as travel planning, providing alternatives to private vehicle trips including accessibility to public transport, staging development, or contributing to improvements to the local transport network; or

(c) the trip characteristics of the proposed activity on the site.

The Proposed Selwyn District Plan

The Proposed Selwyn District Plan, under <u>TRAN-R8</u>, TRAN TABLE2 has specified some activities as "high trip generating activities" and the threshold at which they would require a basic or a full ITA in the same table for ease of reading. The matters of discretion are also easy to find, differentiating the requirements of a basic and a full ITA. Under TRAN-MAT8, Matters of Discretion, there is adequate and legible information as to what needs to be provided should a proposed activity be meeting these thresholds, see below.

TRAN-MAT8 High Trip Generating Activities

- Whether the provision of access and on-site manoeuvring areas associated with the activity, including vehicle loading and servicing deliveries, affects the safety, efficiency, accessibility (including for people whose mobility is restricted) of the site, and the land transport network (including considering the network classification of the frontage road).
- 2. Whether the design and layout of the proposed activity maximises opportunities for travel other than private cars, including by providing safe and convenient access for travel using more active modes.
- 3. Having particular regard to the level of additional traffic generated by the activity and whether measures are proposed to adequately mitigate the actual or potential effects from the anticipated trip generation (for all transport modes) from the proposed activity, including consideration of cumulative effects with other activities in the vicinity, proposed infrastructure and construction work associated with the activity.
- 4. Whether there are any effects from the anticipated trip generation and how they are to be mitigated where activities will generate more than 250hvm/d.
- 5. Whether the ITA has been prepared by a suitably qualified and experienced transport specialist and has been approved by SDC

The Christchurch District Plan

The Christchurch District Plan has also categorised some activities as "high trip generating activities" but presented it differently from the Proposed Selwyn District Plan. The Christchurch District Plan has a flow chart in <u>Table 7.4.4.19</u>, to determine whether an ITA is required. Other determinants affecting the need for an ITA include – location of access, whether the zone allows for the activity amongst others. Exceeding the trip generation thresholds requires resource consent for the Restricted Discretionary Activity with a resource consent with a basic or full ITA covering access and manoeuvring design and layout, heavy vehicles, network effects, accessibility of the location, and strategic framework. The <u>Christchurch District Plan</u> can be referred to for further details on the process.

Summary

Assessing and researching other District Plans has been insightful in seeing what measures other territorial authorities have adopted. The Far North District may have more similarities to Selwyn District, compared to Auckland and

Christchurch, and therefore policy planners working on the Far North District Plan trip generation threshold review may want to draw similarities from the Proposed Selwyn District Plan's model. Whether the FNDDP should reflect the trip generation thresholds model of having two thresholds, one for a basic ITA and one for a full ITA, is something FNDC needs to consider (see Figure 4). Local context and understanding what types of resource consent applications are submitted in the region are important in ensuring that trip generation thresholds reflect the desired outcomes of the district.

3. Recommendations

3.1 Gross Floor Area and Other Units

The Far North District Plan largely uses Gross Floor Area (GFA), Gross Building Area (GBA) and some other units such as number of persons, area, units and beds in the trip generation thresholds. This straightforward breakdown of trip generation thresholds is generally consistent with what is applied in the other three District Plans reviewed. Therefore, it can be easily used to calculate the number of vehicle trips that would occur at the threshold for when an ITA would be required.

3.2 Education activities

For education facilities, it may be useful to use the number of students/children unless that information cannot be ascertained at the time of consent. For Early Childhood Education (Kohanga reo/childcare centres) children are normally dropped off and picked up by parents/caregivers, therefore 2 trips for each child can be expected in most cases, aside from those children that may live a short walking distance from the site. For primary and secondary schools, depending on the location of the school and the availability of public transport and school buses, transport patterns will differ. Nonetheless, given that new education facilities can have a significant impact on the transport network, they are likely to trigger the need for a resource consent for matters other than trip generation.

3.3 The "Catch-all" category – Any activity not listed below

The trip threshold for *Any activity not listed below* is 200 vehicle trips per day. The Operative FNDP used vehicle trips per day across all activities, differentiated by zone (15.1.6A.1) however this is to be replaced by the proposed TRAN-Table 11 in the FNDDP. By replacing vehicle trips measured over time with estimated vehicle trips based on the size of activity, it is easier to ascertain the number of trips an activity is likely to have based on its size. The GFA of the subject activity can be used to identify if the threshold is triggered and this is more legible for the resource consent applicant and the processing planner. In the absence of the activity being listed, the *Any activity not listed below* gives a good "catch-all" safety net for Council's planners to request a transport assessment if it is likely that vehicle trips are likely to be more than 200 per day.

3.4 Vehicles Per Day and Vehicles Per Hour

When considering the trips generated by an activity, it is important to think of it as a peak hour issue or an 'across the day' issues. For instance, schools are a peak hour issue, whereas a hospital is an 'across the day' issue. In acknowledging when the majority of the trips will occur, FNDC can determine whether the activity is suitable for the site and localised transport network given other activities that may have a high number of trips at the same time. For our calculations (in Table 2) we took 20% of the daily trip threshold of 200 vehicle trips to determine 40 vehicle trips per peak hour as a suitable alternative threshold.

3.5 Trip Threshold Calculations Table

Table 2 shows calculations for trip rates based on the calculations shown in Figure 2 (Section 2.1) of this report. We note there are vast differences in the proposed trip generation thresholds in FNDDP TRAN-Table-11, particularly for retail and commercial land-use activities. Only healthcare activities and hospitals were the same threshold as that proposed in TRAN-



Table-11, and most were less than half. Based on the calculations we have made; this means most activities would have more than 400 daily vehicle trips (one-way) before they would trigger TRAN-R9.

The thresholds proposed in the 'Scenario' columns of Table 2 in the Appendix are based on the 'catch-all' *Any activity not listed below* rate of 200 vehicles per day. We have used a peak hour rate of 40 vehicle trips per peak hour as 20% of the expected daily vehicle trips. We recommend FNDC to consider whether the thresholds identified by Abley are a better indication of when 200 or more trips are likely to occur per day for proposed activities. A higher threshold, more than 200 vpd may be appropriate, or considering whether the activity is allowed in the zone may be appropriate for incorporating in TRAN-R9.

As shown in section 2.1, this is calculated below, which shows how the threshold can change according to the type of calculation used.

Calculations, as Appendix Table A.1.2: Vehicle trips per day threshold ÷ vehicle trips per day x unit = Trip Generation Threshold Vehicle trips per hour threshold ÷ vehicle trips per day x unit = Trip Generation Threshold Working example – An "Office" activity: Scenario 1 – based on daily trips: 200 ÷ 26.1 x 100 = 766m² GFA Scenario 2 – based on peak hour trips: 40 ÷ 2.5 x 100 = 1600m² GFA

Figure 3: Calculations for trip generation using daily vehicle trips and peak hour vehicle trips

3.6 Basic vs Full ITA

Abley has worked with other District Councils in assessing their trip generation thresholds and guidance for ITA requirements. In doing so, we have recommended a process similar to that shown below in Figure 4 below. Should the FNDC consider the proposed parameters the requirements for a basic and a full ITA will need to be considered, along with taking into account other transport infringements and zoning requirements. This can follow as phase two of this technical note if required. If a follow-up is needed, we recommend an online workshop with planners, engineers and transport professionals at FNDC and Abley to discuss potential options for trip generation thresholds.

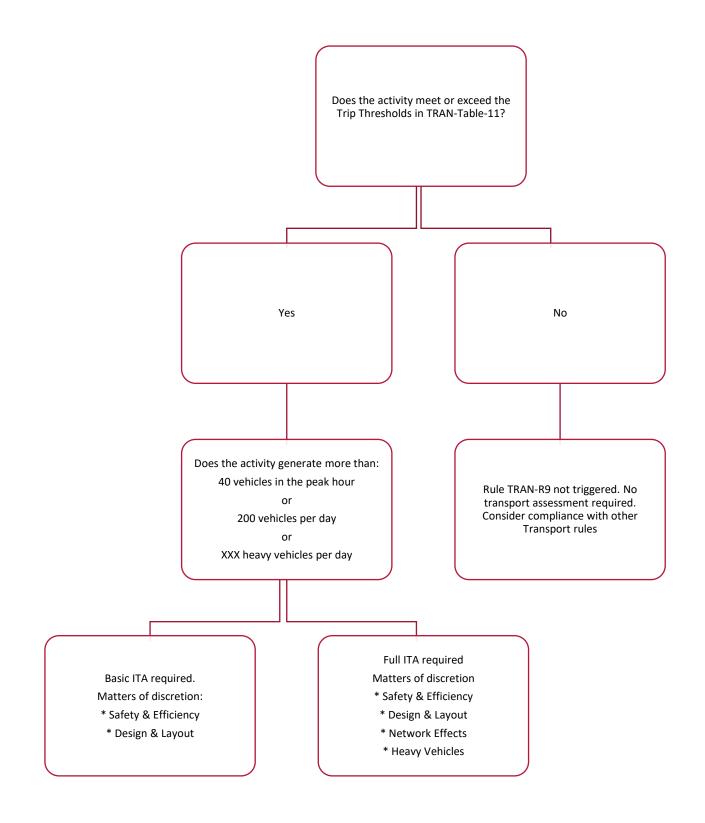


Figure 4 Suggested ITA process

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4. Conclusions and Next Steps

4.1 Next Steps for Far North District Council

- Consider if basic or full ITAs are required, for different threshold levels, referring to Figure 4 and Table 2 for guidance
- Assess the activities list to see if others should be added or removed from the TRAN-Table-11, considering those stated in 2.2 of this report, with limited data.
- Consider if there is a need to state that all transport assessments should be completed by a suitably qualified and experienced practitioner (as per TRAN-P7, needs to mention "transport professional" to ensure the practitioner is skilled in transport matters)
- Assess if 200 vehicle trips is an appropriate guidance threshold and if it should be applied to all of the activities on TRAN-Table-11 as demonstrated in Table 2.
- Consider whether additional details are required for the '*Any Activities Not Listed Below*' to reflect peak hour trips, and/or heavy vehicle use as well as/instead of vehicles per day
- Abley is available for an online workshop to help formulate an updated TRAN-Table-11 if needed



Appendix A.

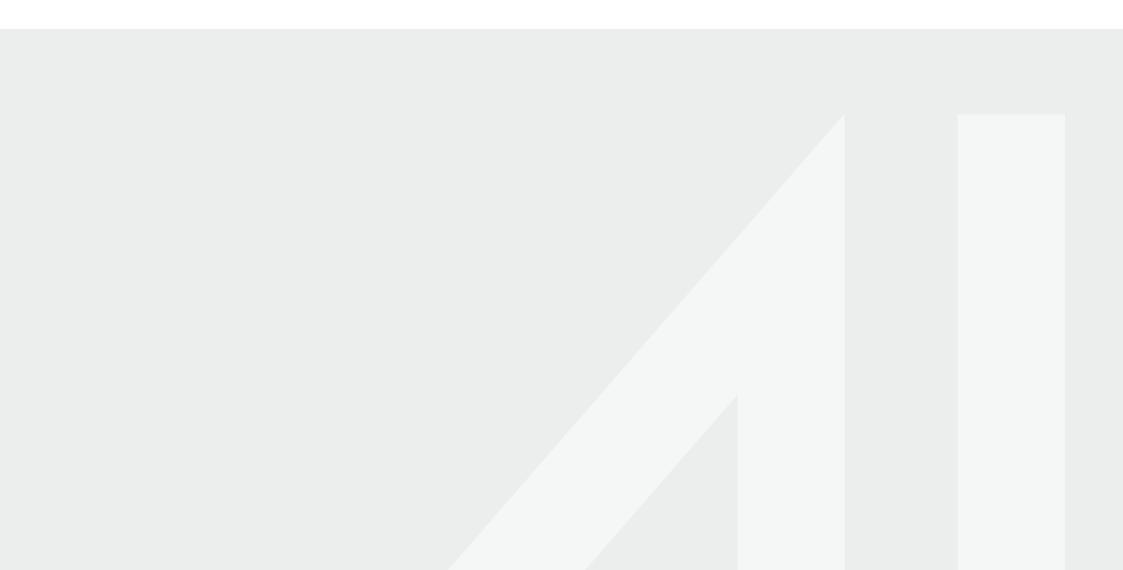


Table 1 Comparison of threshold rates with District Plans

Far North Draft District Plan Auckland Unitary Plan		Proposed Selwyn District Plan		Christchurch District Plan		
TRAN-Table11 – Trip Generation		New development thresholds (Table E27.6.1.1)	High Trip Generating Activities TABLE2)	and ITA requirements (TRAN-R8,	High Trip Generators (Chapter 7.4.4.19)	
Activity	Threshold	Threshold	Basic ITA	Full ITA	Basic ITA (Table	Full ITA (Table 7.4.4.19.1)
Any activity not listed below	200 vehicle trips per day	100 vehicles per hour (any hour)	Mixed use or other activities: 50 vehicles per peak hour or 250 heavy vehicles trips per day, whichever is the greater of the above	Mixed use or other activities: 120 vehicles per peak hour or 1,000 heavy vehicles trips per day, whichever is the greater of the above	Mixed use or other activities: 50 vehicle trips per peak hour (vph) or 250 heavy vehicle trips per day (vpd) whichever is met first PH: 15:00-19:00 on weekday	120 vehicle trips per peak hour (vph) or 1000 vehicle trips per day (vpd) whichever is met first PH: 15:00-19:00 on weekday
Healthcare activity and hospitals	450m ² GFA	No data	300m² GFA	1,200m² GFA	500m ² GFA	1,000m² GFA
Commercial activity	2,000m² GBA	Retail activities (non-drive through) 1667m ²	Retail – Shops and supermarket: 250m ² GLFA	Retail – Shops and supermarket: 900m ² GLFA	Retail Activities – excluding factory shops, retail park zones, trade suppliers and F&B outlets: 500m ² GLFA	Retail Activities – excluding factory shops, retail park zones, trade suppliers and F&B outlets: 1,000m ² GLFA
Drive-thru and service stations	0	Retail – Drive through: 333m ² GFA	Service stations: 2 filling points	Service stations: 6 filling points	No data	No data
Trade supplier	2,000m² GBA	No data	No data	No data	No data	No data
Large-format retail	2,000m ² GFA	No data	550m ² GLFA	2,200m ² GLFA	Factory shops and Retail Park Zones: 1,000m ² GLFA	Factory shops and Retail Park Zones: 2,000m ² GLFA
Vehicle and marine sales and hire	2,000m² GBA	No data	No data	No data	No data	No data
Vehicle and marine repair and maintenance	650m² GFA	No data	No data	No data	No data	No data
Supermarket	500m² GFA	No data	Retail – Shops and supermarket: 250m ² GLFA	Retail – Shops and supermarket: 900m ² GLFA	No data	No data
Restaurants/bars/cafes	650m² GBA	No data	No data	No data	No data	No data
Office	2,000m² GFA	5,000m² GFA	2,000m² GFA	4,800m² GFA	1,750m² GFA	4,000m² GFA
Commercial service	2,000m² GFA	No data	No data	No data	No data	No data
Industrial activity	2,000m² GBA	Warehousing and storage: 20,000m ² GFA Other industrial activities: 10,000m ²	Warehousing & distribution; 6,500m ² GFA Other industrial activities: 5,000m ² GFA	Warehousing & distribution: 25,000m ² GFA Other industrial activities: 12,000m ² GFA	Warehousing & distribution: 10,000m ² GFA Other industrial activities: 5,000m ² GFA	Warehousing & distribution: 20,000m ² GFA Other industrial activities: 10,000m ² GFA
Kohanga reo/childcare centre	450m ² GBA	No data	40 children	90 children	50 children	150 children
Primary and secondary schools	150 students	Primary: 167 students, Secondary: 333 students	70 students	170 students	150 students	450 students
Tertiary education facility	2,000m ²	500 students	250 FTE students	750 FTE students	250 FTE students	750 FTE students
Emergency services facility	1,000m² GFA	No data	No data	No data	No data	No data
Residential activity	8 residential units enabled by any land use or subdivision	Dwellings: 100 dwellings Integrated residential development: 500 units	50 residential sites/units	120 residential sites/units	60 residential units	120 residential units
Visitor accommodation	50 beds	100 units	No data	No data	No data	No data
Sport and recreation activity and major sport facility	A design occupancy of 200 persons on the site at any one time	No data	No data	No data	Yaldhurst Recreations and Sports Facilities: 650vph / 650 parking spaces	Yaldhurst Recreations and Sports Facilities: 650vph / 650 parking spaces



Table 2 Calculated Trip Thresholds based on 200vpd and 40vph (peak)

Conversion of Trip Generation Thresholds for different activities		Vehicles per day based on RR453 (vph/100m²)	Vehicles per peak hour based on RR453 (vph/100m ²)	Scenario 2- Trip Generation Thresholds calculated on 200vpd	Scenario 1 – Trip Generation Thresholds calculated on 40vph (peak hour)	Scenario 1: Rounded Values Trip Generation Thresholds calculated on 200 vpd	Scenario 2: Rounded Values Trip Generation Thresholds calculated on 40 vph (peak)
TRAN-Table11 – Trip Generation							
Activity	Threshold						
Any activity not listed below	200 vehicle trips per day						
Healthcare activity and hospitals	450m ² GFA	90	9	222m ² GFA	444m² GFA	250m² GFA	450m² GFA
Commercial activity	2,000m² GBA	129	17.9	155m ² GBA	223m ² GBA	200m ² GBA	250m² GBA
Drive-thru and service stations	0	122	20.4	164m² GFA	196m² GFA	200m ² GFA	200m ² GFA
Trade supplier	2,000m² GBA	44.8	5.6	446m² GFA	714m² GFA	450m² GFA	750m² GFA
Large-format retail	2,000m ² GFA	44.8	5.6	446m ² GFA	714m ² GFA	450m ² GFA	750m² GFA
Vehicle and marine sales and hire	2,000m ² GBA	No data	No data	No data	No data	No data, apply Any activity not listed below: threshold of 200 vpd	No data, apply suggested Any activity not listed below threshold of 40vph
Vehicle and marine repair and maintenance	650m² GFA	No data	No data	No data	No data	No data, apply <i>Any activity not listed below:</i> threshold of 200 vpd	No data, apply suggested Any activity not listed below threshold of 40vph
Supermarket	500m ² GFA	129	17.9	155 m² GFA	223m ² GFA	200m ² GFA	200m ² GFA
Restaurants/bars/cafes	650m ² GBA	92	15.6	217 m ² GFA	256m ² GFA	200m ² GFA	300m ² GFA
Office	2,000m ² GFA	26.1	2.5	766 m² GFA	1600m ² GFA	800m ² GFA	1600m² GFA
Commercial service	2,000m ² GFA	129	17.9	155 m² GFA	223m ² GFA	200m ² GFA	200m ² GFA
Industrial activity	2,000m ² GBA	5	1	4000 m² GFA	4000m ² GBA	4000m² GFA	4000m² GFA
Kohanga reo/childcare centre	450m² GBA	4.1/child	1.4/child	49 students	29 students	50 children	30 children
Primary and secondary schools	150 students	1.6/student	0.7/student	125 students	57 students	150 students	60 students
Tertiary education facility	2,000m ²	1.4/student*	0.2/student*	143 students	200 students	150 students	200 students
Emergency services facility	1,000m² GFA	No data	No data	No data	No data	No data, apply Any activity not listed below: threshold of 200 vpd	No data, apply suggested Any activity not listed below threshold of 40vph
Residential activity	8 residential units enabled by any land use or subdivision	10.7/dwellings	1.3/dwellings	19 dwellings	31 dwellings	20 dwellings	30 dwellings
Visitor accommodation	50 beds	3.0/occupied unit	1.4/occupied unit	No data	No data	No data, apply Any activity not listed below: threshold of 200 vpd	No data, apply suggested Any activity not listed below threshold of 40vph
Sport and recreation activity and major sport facility	A design occupancy of 200 persons on the site at any one time	No data	No data	No data	No data	No data, apply <i>Any activity not listed below:</i> threshold of 200 vpd	No data, apply suggested <i>Any activity not</i> <i>listed below</i> threshold of 40vph
*Small sample, use with caution							



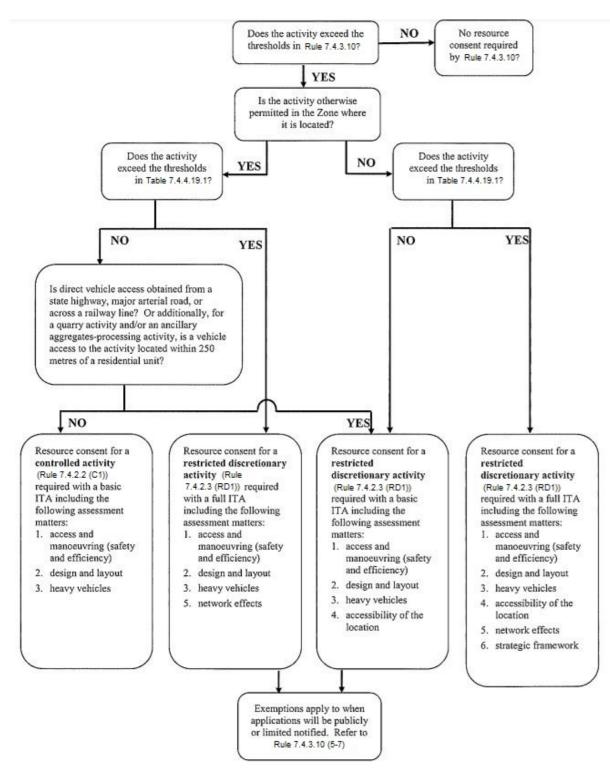


Figure 5: Christchurch District Plan, Chapter 7.4.4.19 High trip generators

