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# Council Land Value Differential Roading Rate Statement of Proposal

We know that heavy vehicles cause more wear, so Council is exploring ways to ensure those contributing more to road damage also contribute more to repair costs. The goal is to find a fair solution to collect the amount needed to cover the local roading repairs.

Currently, ratepayers pay a general rate per land value (80% of total roading cost) and a fixed charge (20% of total roading cost) varying by three sectors – urban, commercial/industrial, and rural.

A significant portion of roading rates is based on land values which doesn't specifically consider heavy vehicle road use. We need to be able to tie the costs to the tonnage moved on local roads and link it back to specific properties.

We can do this by adding a new rating portion – a differential rate that considers tonnage - breaking it down across ten rating categories to ensure it's fair. The ten categories are dairy, forestry, farming (non-dairy), industrial, commercial, residential, lifestyle, other, mining and utilities with a land value of zero.

Think about it like divvying up the total roading costs, and each property gets a slice based on how much heavy traffic it attracts. This new approach ensures everyone chips in for the wear and tear heavy vehicles cause on our roads.

We've obtained an independent report from Infometrics and an external expert to determine the estimated total tonnage on our roads, the wear and tear effect, the costs of that wear and tear and an equitable roading rates model. With all that work done, the proposed differential rate requirement is around \$1.1 million (excl GST).

Changes have been made to the Draft Long Term Plan Year 1 2024/2025 roading charges from the initial model created for the three proposed rating charges and has been estimated based on the information available at the time. Further changes will be made to the final budgets as Council resolves the final Long Term Plan 2024/2034.

Attached is the report from the external consultant, Anthony Byett, Economist. Council had commissioned Anthony to explore and propose a suitable solution (differential rate that considers tonnage) for Council.





# Introduction

This note shows how a targeted sector rate could be developed to account for costs incurred by TDC that arise from heavy vehicle use. The proposed rating model has been applied by Southland District over the last six years. The model aims to link the extra costs incurred by TDC with the tonnage shifted across local roads, and in turn attribute this tonnage to local properties. It is important to realise that the model is not a user pay system but rather a method to attribute roading costs more fairly to properties that benefit from and/or contribute to heavy vehicle use. Also, the model does not by itself lead to higher or lower rates in total, nor higher or lower services.

The model first requires an estimate of core tonnage shifted on local roads. This has been provided independently by Infometrics. Adjustments to this core tonnage are required to estimate total tonnage, the wear and tear effect on the roads and the costs of the wear and tear. These adjustments have been initially based on national research. Combining the tonnage and adjustments gives an approximate \$1.1m (ex GST) Land Value Differential Rate (referred to in this proposal as Heavy Vehicle rate) requirement for TDC and implies a different Heavy vehicle rate per land value for each sector, ranging from \$0.017 (ex GST) per \$1000 land value for residential properties to \$1.032 for industrial properties. Within this range there are also \$0.356 for dairy and \$1.090 for forestry. The net effect is that dairy, forestry, industrial and mining properties would face a higher annual rate while the rate of residential, lifestyle and farming (non-dairy) properties would be lower than otherwise.



# Context

- TDC controls and part funds expenditure on local roads, with the local roading revenue requirement in 2024/25 estimated at \$5.9m (excluding GST)<sup>1</sup>. This level of rates requirement has been used for comparisons within this report. It is probable that the total local roading rate requirement will be higher in future years.
- NZ Transport Agency Waka Kotahi (NZTA) provides the remaining funding for spending on local roads, by applying a Funding Assistance Rate (FAR)<sup>2</sup> of 73% on TDC projects approved by NZTA. NZTA controls and funds all State Highway expenditure in the district.
- NZTA, in turn, sources its funding primarily from the fuel excise duty (FED) and road user charges (RUC) applied. In theory, people pay for the major component of wear and tear of the roads as they travel. In practice, the funds collected by NZTA do not cover all costs and in many districts the funds collected are not returned to the district in full. Either way, local ratepayers have to fund a component of wear and tear costs on local roads plus other local non-use transport-related expenses. TDC has no ability to change the road charges applied by NZTA nor the proportion of funds collected by NZTA that are paid to TDC. Thus, a fair method is necessary for the collection of the local road expenditure revenue requirement.
- Heavy vehicles create more wear and tear than light vehicles per trip, with the wear and tear increasing sharply as the average load on an axle increases. The relative effect is measured by the Equivalent Standard Axle (ESA) of a vehicle configuration.<sup>3</sup>
- The actual total cost to TDC resulting from heavy vehicle use is unknown and hence requires estimation. Costs will include road repairs, accelerated re-metaling, re-seals, re-pavements and replacement of bridges. Estimates have been made elsewhere that can aid TDC in setting the revenue requirement due to heavy vehicles.
- Other Councils have applied road rates, either per land value or capital value, that vary by sector, with forestry in particular facing a higher rate.
- In recent years, TDC has applied the same General rate per land value across all sectors for the road revenue requirement plus a targeted Fixed charge that varies by three sectors (urban, commercial/industrial and rural). The adoption of a differential Fixed charge was undertaken following a 2010 Rating Review, at which time it was also agreed to retain Land Value as the basis for the General rate. Adding a Heavy vehicle component allows the General rate to be lower than otherwise.

1 See Tararua District Council 2024/2034 Draft Long Term Plan for more detail.

2 NZTA has raised the FAR initially set for Tararua <https://www.nzta.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/202124-nltp/202124-nltp-funding-assistance-rates/funding-assistance-rates-for-the-2021-24-national-land-transport-programme/normal-funding-assistance-rates/>

3 See <https://docs.nzfoa.org.nz/live/nz-forest-road-engineering-manual/6-pavement-design-subgrade-preparation-pavement-construction/6.1-traffic-loading/>



# The Proposed Model

It is proposed that TDC: (a) retain targeted Fixed rates; (b) retain a General rate applied to land value but at a lower rate; and (c) introduce a targeted road rate based on heavy vehicle use, applied as a different rate for 8 sectors<sup>4</sup>.

The objective of the proposal is to more fairly attribute the costs created by heavy vehicle users to the properties that are associated with vehicle use.

Note, the system is not a user pay system but rather a realignment of rates towards properties that are creating and/or benefiting from heavy vehicle use.

As in all rating systems, there is a large element of sharing costs and political judgement. It is unlikely that all people will agree on the initial model outputs and associated assumptions but the model can be relatively easily refined to match local needs and, in time, refined as improved information is gathered.

## Impact on sectors and individual ratepayers

The initial iteration of the models shows the effects shown in Tables 1 to 3. Further explanation of the method follows the tables.

**Table 1. Roothing rate revenue estimate by rating component (excluding GST)**

Rate component	Annual rates	% of total	Calculation undertaken
Total roading revenue requirement:	\$5,877,000	100%	Current roading revenue requirement retained
A. HEAVY component	\$1,104,000	19%	Heavy rate estimated from adjusted tonnage x \$1.1/tonne
B. FIXED component	\$932,000	16%	Current Fixed revenue requirement retained
C. GENERAL component	\$3,841,000	65%	Residual amount to meet roading revenue requirement

4 There are 9 sectors shown in Table 2 but Mining and Industrial have been combined to derived a comment rate across these two sectors



**Table 2. Roothing rate revenue by rating component and sector (excluding GST)**

Sector road funding for year	Land value of rated properties* (\$m)	% of total	A. HEAVY road rate at \$1.10 per tonne (\$000)	Heavy %	Implied Heavy rate per \$1000 property value
Dairy	\$1,149	19.4%	\$410	37.1%	\$0.356
Forestry	\$161	2.7%	\$176	15.9%	\$1.090
Farming (non-dairy)	\$3,086	52.1%	\$398	36.0%	\$0.129
Industrial	\$52	0.9%	\$54	4.9%	\$1.032
Commercial	\$58	1.0%	\$17	1.5%	\$0.283
Residential	\$943	15.9%	\$17	1.5%	\$0.017
Lifestyle	\$408	6.9%	\$17	1.5%	\$0.040
Other	\$62	1.1%	\$17	1.5%	\$0.265
Mining	\$1	0.0%	\$1	0.1%	\$1.032
Utilities with LV=0	\$0	0.0%	\$0	0.0%	\$0.000
<b>TOTAL</b>	<b>\$5,921</b>	<b>100.0%</b>	<b>\$1,104</b>	<b>100%</b>	

\* weighted totals for properties facing 100%, 50% and 0% rates

**Table 3. Annual rate change (\$ per year) (incl GST) per sector by land value (top 10% by land value within sector is shaded)**

Sector	\$50,000	\$160,000	\$220,000	\$490,000	\$690,000
Dairy	\$10	\$31	\$43	\$96	\$156
Forestry	\$52	\$166	\$229	\$509	\$831
Farming (non-dairy)	-\$3	-\$11	-\$15	-\$32	-\$53
Industrial	\$49	\$156	\$214	\$477	\$778
Commercial	\$6	\$18	\$24	\$54	\$89
Residential	-\$10	-\$31	-\$43	-\$95	-\$155
Lifestyle	-\$8	-\$27	-\$37	-\$82	-\$134
Other	\$5	\$14	\$20	\$44	\$72
Mining	\$49	\$156	\$214	\$477	\$778
Utilities with LV=0	\$0	\$0	\$0	\$0	\$0

Points to note include:

- Total funds generated and the Fixed roading rates remain as present (Table 1 and Table 2).
- Applying a Heavy rate allows \$1.1m (ex GST) to be raised from sectors with more use of heavy vehicles, and allows the General roading rate to be reduced to \$0.6487 per \$1000 land value (ex GST) (Table 2). The General rate would be \$0.8352 per \$1000 land value without the Heavy rate (ex GST), not tabled.



Equivalent rate per km (crude estimate using 100km return trip)	B. FIXED road rate (varies by sector) (\$000)	C. GENERAL road rate at \$0.6487 per \$1000 Property Value (\$000)	Total roading rate revenue (\$000) (A+B+C)	% of total	Effect of HEAVY (\$000/sector)
\$0.31	\$80	\$746	\$1,235	21.0%	\$195
\$0.31	\$21	\$105	\$301	5.1%	\$146
\$0.31	\$246	\$2,002	\$2,645	45.0%	-\$177
\$0.43	\$15	\$34	\$104	1.8%	\$44
\$0.31	\$22	\$38	\$76	1.3%	\$6
\$0.31	\$273	\$612	\$902	15.3%	-\$159
\$0.31	\$250	\$265	\$531	9.0%	-\$60
\$0.31	\$23	\$40	\$80	1.4%	\$5
\$0.02	\$0	\$1	\$2	0.0%	\$1
	\$1	\$0	\$1	0.0%	\$0
	<b>\$932</b>	<b>\$3,841</b>	<b>\$5,877</b>	<b>100.0%</b>	<b>\$0</b>

\$1,000,000	\$4,000,000	\$9,000,000	\$25,000,000
\$195	\$781	\$1,757	\$4,882
\$1,039	\$4,155	\$9,349	\$25,970
-\$66	-\$265	-\$595	-\$1,653
\$973	\$3,890	\$8,754	\$24,315
\$111	\$443	\$997	\$2,770
-\$194	-\$777	-\$1,749	-\$4,859
-\$168	-\$672	-\$1,512	-\$4,199
\$91	\$362	\$815	\$2,264
\$973	\$3,890	\$8,754	\$24,315
\$0	\$0	\$0	\$0

- The net effect on annual rates varies by sector and land value eg, a \$4m dairy farm would face a rate increase of \$781 (incl GST) while a \$490,000 residence would see a decline of \$95 (incl GST) (Table 3).
- The largest increases would be for forestry and industrial/mining properties above \$0.5m and for dairy properties above \$5m (Table 3).



## Steps in the model

The rates revenue allocation model follows five steps:

1. Determine core tonnage shifted on local roads by sector.
2. Adjust sector tonnage for unreported tonnage, excess road wear and different distances travelled by a 'other use/wear factor'.
3. Apply a 'cost' per tonne to calculate the Heavy vehicle rate requirement per sector (NB, the cost per tonne is the same for all sectors).
4. Apportion by land value the Heavy vehicle rates revenue requirement within each sector (ie, a targeted value per land value will be applied that will be the same within a sector but may vary between sectors).
5. Adjust the General rate component – and Fixed component if desired – to align with the total roading rate requirement.

Detail follows for each step.

### 1. Core tonnage

TDC commissioned Infometrics to obtain or estimate tonnage for the following items by sector. Tonnage is estimated on an annual basis and applied as a 3-year average. Note, it is judged to be too expensive and not necessary to measure the tonnage of all items shifted on local roads but rather step (2) is applied to account for the many other items shifted and for the wear and tear effect of the truck configuration.

**Table 4. Tonnage (t) measured or estimate for the district**

Sector	Core tonnage measured	3-year average (t)	Other tonnage measured	3-year average (t)
Dairy	Milk produced in district	372,288	Dairy feed and grain, Weights of animals shifted for winter feeding and for annual moving day	13,926
Forestry	Logs cut in district, excluding small lots (1)	93,947		0
Farming (non-dairy)	Animals slaughtered from district, small lot logs cut (1), wool produced	139,169 (3)	Non-dairy feed and grain, deer slaughtered	3,605
Industrial			Manufactured goods freight within district (2)	429,686
Commercial			Retail freight (3) within district plus weight of overnight guest arrivals to district (4)	77,836





Sector	Core tonnage measured	3-year average (t)	Other tonnage measured	3-year average (t)
Residential				
Lifestyle				
Other				
Mining			Mineral production (5) within district plus gravel extraction consented	191,364

Notes: (1) 25% of logs harvested are assumed from small lots and are included in the Farming (non-dairy) sector; (2) the manufactured goods estimated is a top-down estimate of total freight generated by the district, much of which would travel on state highways; (3) corrected from 15-Jan draft report.

2. The tonnage adjustment takes two forms and are shown in the following table.

a) Upscaling is applied as appropriate to account for other tonnage shifted on/off properties, the relative road wear caused by the trucking configurations and the relative distances on local roads travelled within each sector. The upscaling is informed by the ‘other tonnage measured’ (shown above) and by a TERNZ report to the Road Controlling Authority Special Interest Group on Low Volume Roads (SIG-LVR)<sup>5</sup>.

As an example, it is estimated that the dairy sector has a relatively higher effect due to other tonnage shifted but travels a relatively shorter distance on local roads, producing a net scalar of 1.0. The forestry sector uses higher ESA truck, resulting in a 1.7 upscaling<sup>6</sup>, while the farming (non-dairy) sector produces both extra tonnage and uses higher ESA truck configurations, leading to core tonnage being scaled up by 2.6. These adjustments are approximate only. It is noted that any increase in the tonnage attributed to a sector results in a

lower General rate for all ratepayers. To give some perspective, an extra 100,000 tonnes (due to core output and/or higher scalar, and being around 10% higher than the model at present) within the Heavy rate component would reduce the General rate by \$21 pa per \$1m LV (incl GST), at the \$1.1/tonne recommended below.

b) A minimum tonnage is applied to sectors where heavy vehicle use is known to occur but is difficult to measure, or is difficult to attribute to local roads, or the tonnage has been already accounted for at the other end of the journey (eg, lime shifted from quarry to farm), or the tonnage allocation would unfairly influence the competitiveness of local businesses. A higher minimum tonnage is set for the combined Industrial/Mining sectors, based on 50% of lime and fertiliser production. It is expected that further research will in time improve the reported tonnage for this sector.

5 The TERNZ 2017 report is available at [https://rcaforum.org.nz/sites/public\\_files/images/The%20impact%20of%20land%20use%20on%20pavement%20wear.pdf](https://rcaforum.org.nz/sites/public_files/images/The%20impact%20of%20land%20use%20on%20pavement%20wear.pdf) along with other reports of a NZ Special Interest Group that worked on Low Volume Roads (SIG-LVR) at <https://rcaforum.org.nz/working-groups/low-volume-roads/>

6 All upscale factors are relative to dairy.



**Table 5. Adjustments applied to core tonnage to calculate tonnage per sector.**

<b>Sector</b>	<b>‘Other use/wear factor’ scalar applied to core tonnage</b>	<b>Minimum tonnage (kt)</b>	<b>Rationale</b>
Dairy	1.0	15	Scaled up for other trucking and relatively high ESA, and down for relatively low local road trip lengths
Forestry	1.7	15	Scaled up for high ESA
Farming (non-dairy)	2.6	15	Scaled up for other trucking and relatively high ESA
Industrial/Mining		50	Minimum set at 50% of estimated lime and fertiliser production
Commercial		15	Minimum applied as difficult to attribute, plus most movement occurs on state highways
Residential		15	Minimum applied as difficult to attribute
Lifestyle		15	Minimum applied as difficult to attribute
Other		15	Minimum applied as difficult to attribute

3. A value of \$1.10 (ex GST) has been applied to the tonnage attributed to each sector, as applied by Southland District for a similar model.

This value produced a Heavy vehicle rates requirement in Southland that was consistent with a Heavy vehicle requirement derived from earlier and more extensive modelling, and was validated by comparison with costs being incurred due to heavy vehicle use in Southland. It is recommended that TDC validate the Heavy vehicle rates revenue with costs known or believed to be associated with heavy vehicle use in Tararua but, in the meantime, apply the same rate per tonne as used in Southland.

4. Apportioning the derived Heavy vehicle rates requirement by the value of land within each sector gives the Heavy vehicle rates shown in Table 2. For example, the rate applied within the Dairy sector would be \$0.356 (ex GST) per \$1000 of land value.

5. The current Fixed roading rate per property have been adjusted as per current (Apr-24) proposals.

6. The only change to the General rate is the reduction to offset the extra rates gathered via the Heavy vehicle component. Every property is rated at the same General rate.



# Comparison with other Councils

The roading rate adjustment (or not in the case of CHB) for selected Councils are shown below, for a chosen property value of \$1m at the start of 2023<sup>7</sup>.

An explanation of the adjustments made by each Council are as follows. As is evident, there is no fixed method being applied to Roding rate requirements and even where similar methods are used (Southland and Tararua (potentially), Gisborne and Wairoa), there remain differences that appear to reflect a combination of fundamental local road cost differences and different local community preferences.

- Tararua: the current and proposed roading rate are shown, along with the implied ratio of the combined rate for each sector relative to the rate within the Residential sector eg, a \$1m forest pays a roading rate that is 2.7 times the rate paid by a \$1m residential property.
- Central Hawke's Bay: there is no adjustment made by sector, thus all \$1m properties pay the same land transport rate.
- Wairoa: a residential property is given a factor of 1 and the General rate for other sectors is scaled relative to residential, with the General rate being applied to transport and non-transport requirements eg, a \$1m forest pays 7.5 times the General rate paid by a \$1m residential property. The rationale for the Wairoa differential was not simply about attribution of roading costs – as being proposed for Tararua – but a more general assessment of community benefit. A court challenge (initial hearing and appeal) from forest owners failed to show that the Wairoa forestry differential was unfair<sup>8</sup>.
- Gisborne: as above, a factor is applied to each sector but this is limited to rates required for 'subsidised local roads', which is the major roading cost of the district eg, a \$1m forest pays 12.5 times the subsidised local roads rate paid by a \$1m residential property.
- Southland: as proposed for Tararua, a rate per tonne is applied to sector tonnage, which is then converted to a targeted Roding rate per sector eg, a \$1m forest pays a roading rate that is 7.0 times the rate paid by a \$1m residential property (this ratio is higher than derived in Tararua due to Southland having a higher forested land area and log harvest in Southland and a relatively lower forest land value).

<sup>7</sup> A rerun of these numbers using current (Apr-2024) valuations would produce lower rates per \$1m for TDC and likely across all districts

<sup>8</sup> <https://www.nzherald.co.nz/nz/wairoa-council-fights-off-industrys-court-challenge-to-higher-rates-for-forest-companies/EKKHC3XVJBBMBCYJVDDNM2N5SU/> and <https://www.stuff.co.nz/business/300959025/council-wins-second-court-battle-against-forestry-group-wanting-lower-rates>



**Table 6. Comparison of roading rate calculations by sector (includes GST)**

Differential applied to 2024/25 road rates by selected Councils for land value (or capital value <sup>^</sup> )= \$1,000,000	Tararua current	Tararua proposed (3)	Ratio to Residential (3)
Activites included:		Roads	
Dairy	\$1,436	\$1,650	1.6
Forestry	\$1,436	\$2,695	2.7
Farming (non-dairy)	\$1,435	\$1,344	1.3
Industrial	\$1,275	\$2,704	2.7
Commercial	\$1,260	\$1,442	1.4
Residential	\$1,247	\$1,000	1.0
Lifestyle	\$1,434	\$1,222	1.2
Other	\$1,352	\$1,480	1.5
Mining	\$1,377	\$2,806	2.8
<b>Average</b>	<b>\$1,318</b>	<b>\$1,318</b>	
Other info: Length of local roads (km)	1,913		
Area of production forest (ha 2022)	20,284		
Council-funded road maintenance (\$000 2022/23)	\$5,148		

\* excludes a UAGC component for transport

# Sensitivity Test of Forestry-to-Residential ratio

The following sensitivity tests of the proposed TDC model was undertaken for \$1m properties, to illustrate the effect of different model assumptions. The testing has not been updated to include 2024 property valuations, hence the rates per \$1m property vary to those reported in earlier sections of this report.

An adjustment to achieve a 7.5 Forestry-to-Residential roading rate ratio for \$1m properties was made in four steps, showing the effect of assessing the roading rate on capital values and then adjusting the ‘Other use/wear factor’ (see second column in Table 5 above) to achieve a Forestry-to-Residential ratio of

7.5. Note, this is a different process to that applied in Wairoa and Gisborne but it is of interest to see the implied ‘Other use/wear factor’ that would lead to a similar ratio to that derived in Wairoa.

The exercise showed that adopting a similar approach to Wairoa, albeit derived differently, would increase the roading rate by 68% for a \$1m forest using pre-2024 valuations (ie, Scenario C \$4539 versus Scenario A below \$2695 below).

The results tabled overleaf show:



Central HB*	Ratio to Residential	Wairoa^	Ratio to Residential	Gisborne^	Ratio to Residential	Southland^	Ratio to Residential
Land Transport		All (Transport ~40%)		Subsidised local roads		Roading	
\$1,513	1.0	\$1,883	0.8	\$572	1.5	\$1,100	1.7
\$1,513	1.0	\$17,650	7.5	\$4,766	12.5	\$4,545	7.0
\$1,513	1.0	\$1,883	0.8	\$572	1.5	\$716	1.1
\$1,513	1.0			\$763	2.0	\$1,317	2.0
\$1,513	1.0	\$5,883	2.5	\$763	2.0	\$1,374	2.1
\$1,513	1.0	\$2,353	1.0	\$381	1.0	\$646	1.0
\$1,513	1.0	\$1,883	0.8	\$572	1.5	\$646	1.0
\$1,513	1.0					\$258	0.4
\$1,513	1.0					\$20,756	32.2
<b>\$1,513</b>							
1,257		870		1,920		4,959	
16,755		61,212		158,546		81,423	
\$5,213		\$2,985		\$11,653		\$12,880	

- A. TDC forestry properties with land value of \$1m paying roading rates of \$2,695 (incl GST) under the proposed mode (using pre-2024 valuations).
- B. TDC forestry properties with capital value of \$1m paying roading rates of \$2,259 if the model assessed rates on Capital values rather than Land Values, as is the case in Wairoa and Southland. The higher ratio occurs because there are relatively more higher-valued (but <\$1m) residential properties, illustrating that the ratio differs due to the property value base chosen.
- C. TDC forestry properties with capital value of \$1m paying roading rates of \$4,539 if the ratio of Forestry-to-Residential roading rates was forced to be 7.5 and properties were rated on capital value. The “Other use/wear factor” would need to be 4.5 to achieve this outcome.
- D. TDC forestry properties with land value of \$1m paying roading rates of \$6,630 if the ratio of Forestry-to-Residential roading rates was forced to be 7.5 and properties were rated on land value. The “Other use/wear factor” would need to be 6.2 to achieve this outcome, as opposed to the 1.7 in the initial model.



**Table 7. Roading rates were different Forestry-to-Residential ratios for \$1m properties, scenarios A-D**

Sector	Total road rates	% of total	Road rates for property= \$1m	Ratio to Residential
<b>Scenario A. Initial Model settings</b>				
Dairy	\$1,257	21.4%	\$1,650	1.6
Forestry	\$306	5.2%	\$2,695	2.7
Farming (non-dairy)	\$2,614	44.5%	\$1,344	1.3
Industrial	\$101	1.7%	\$2,704	2.7
Commercial	\$74	1.3%	\$1,442	1.4
<b>Residential</b>	<b>\$861</b>	<b>14.6%</b>	<b>\$1,000</b>	<b>1.0</b>
Lifestyle	\$577	9.8%	\$1,222	1.2
Other	\$84	1.4%	\$1,480	1.5
Mining	\$2	0.0%	\$2,806	2.8
Utilities with LV=0	\$1	0.0%	\$94	0.1
<b>TOTAL</b>	<b>\$5,876</b>	<b>100.0%</b>		
Assumptions for run:				
Value base	Land			
Forestry "Other" Factor	1.7			
Comment	Forestry/Residential=2.7, as per Table 6			

Sector	Total road rates	% of total	Road rates for property= \$1m	Ratio to Residential
<b>C. Capital + Target Forestry=7.5 (as per Wairoa)</b>				
Dairy	\$1,051	17.9%	\$1,176	1.9
Forestry	\$552	9.4%	\$4,539	7.5
Farming (non-dairy)	\$2,015	34.3%	\$939	1.6
Industrial	\$152	2.6%	\$978	1.6
Commercial	\$106	1.8%	\$740	1.2
<b>Residential</b>	<b>\$1,135</b>	<b>19.3%</b>	<b>\$605</b>	<b>1.0</b>
Lifestyle	\$675	11.5%	\$807	1.3
Other	\$120	2.0%	\$816	1.3
Mining	\$1	0.0%	\$1,080	1.8
Utilities with LV=0	\$68	1.2%	\$94	0.2
<b>TOTAL</b>	<b>\$5,876</b>	<b>100.0%</b>		
Assumptions for run:				
Value base	Capital			
Forestry "Other" Factor	4.5			
Comment	Equivalent to Wairoa requires Factor>4 if Capital-based			



Total road rates	% of total	Road rates for property= \$1m	Ratio to Residential
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B. Capital Values/Same Other Factor

\$1,098	18.7%	\$1,221	1.9
\$273	4.6%	\$2,259	3.5
\$2,129	36.2%	\$984	1.5
\$159	2.7%	\$1,024	1.6
\$111	1.9%	\$785	1.2
<b>\$1,201</b>	<b>20.4%</b>	<b>\$650</b>	<b>1.0</b>
\$704	12.0%	\$852	1.3
\$126	2.1%	\$861	1.3
\$1	0.0%	\$1,126	1.7
\$73	1.3%	\$94	0.1
<b>\$5,876</b>	<b>100.0%</b>		

Capital

1.7

*If used Capital then Forestry/Residential=3.5*

Total road rates	% of total	Road rates for property= \$1m	Ratio to Residential
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D. Land + Target Forestry=7.5

\$1,160	19.7%	\$1,534	1.7
\$755	12.9%	\$6,630	7.5
\$2,366	40.3%	\$1,227	1.4
\$97	1.7%	\$2,588	2.9
\$70	1.2%	\$1,325	1.5
<b>\$798</b>	<b>13.6%</b>	<b>\$884</b>	<b>1.0</b>
\$547	9.3%	\$1,105	1.3
\$79	1.3%	\$1,364	1.5
\$2	0.0%	\$2,690	3.0
\$1	0.0%	\$94	0.1
<b>\$5,876</b>	<b>100.0%</b>		

Standard

6.2

*Implies yet higher Other Use factor (>6)*



# Suggested Further Work

There are two areas where more work could be undertaken to improve confidence in the model and/or improve assumptions.

1. The model derives a Heavy vehicle rate requirement for each sector from tonnage shifted. It is assumed this derived rate requirement is similar to the actual incremental costs incurred by TDC for wear and tear by heavy vehicles. A cost accounting exercise could be undertaken to estimate the actual incremental cost of roading spending over recent years. Note, such an exercise is not simple and will likely produce a crude estimate only, given the

challenges to estimating accelerated depreciation. It is expected that the actual incremental cost exceeds the total heavy vehicle rate applied in this model.

2. In time, it is expected that better information will be gradually gathered on the unmeasured assumptions within the model, such as the tonnage shifted on local roads by the Industrial, Commercial and Mining sectors and the relative distances travelled. Ratepayer feedback is likely to influence the priority of this work.





# Issues

As with any rating model, some key issues arise. Known issues are discussed below.

Issue	Comment
The rate component that applies in any one sector depends on the accuracy of tonnage measurement in the sector.	<ul style="list-style-type: none"><li>• It is very costly to derive complete tonnage shifted on local roads. A compromise has been made whereby the core and relatively well-known tonnage is measured. This forms the major component of the rate differential.</li><li>• Adjustments are made for estimated other tonnage and these adjustments can be improved over time as more information is developed.</li><li>• Likewise, minimum tonnages have been applied where tonnage is uncertain which can also be researched and improved over time.</li></ul>
Account of kilometres travelled on local roads is limited	<ul style="list-style-type: none"><li>• The model currently assumes that the trip length on local roads is approximately the same between non-Dairy sectors but 40% shorter for the Dairy sector.</li><li>• Further research in time can allow further adjustment for differential trip distances (on local roads).</li></ul>
Users are already paying for local roads through RUC and FED	<ul style="list-style-type: none"><li>• RUC/FED are calculated by Ministry of Transport (MoT) to cover most current year expenses of NZTA, with heavy vehicles charged more.</li><li>• This still leaves a local cost component to be funded.</li><li>• Also, it is unlikely that all RUC/FED gathered locally are applied to State Highways and local roads in the district (this imbalance has been shown for Southland) ie, money gathered locally by NZTA can be spent outside TDC.</li></ul>
Other road users are not being charged a user component eg, light vehicles	<ul style="list-style-type: none"><li>• All properties are paying a rate for road access and road use.</li><li>• Light vehicle use has a relatively low wear and tear effect.</li><li>• Conversely, heavy vehicles have a high wear and tear effect, thus higher heavy vehicle use leads to higher roading costs for TDC; hence, the Roading rate differential to properties associated with higher heavy vehicle use.</li></ul>
Other road rating models are more rigorous	<ul style="list-style-type: none"><li>• Earlier models were developed for Southland based on the MoT's Cost Allocation Model (CAM) that is used to calculate FED and RUC. However, such models proved difficult and costly to populate and validate and became a 'black box' that were difficult for decision makers to understand.</li><li>• The proposed model focuses on known information (core tonnage), transparent adjustments and the extra costs that TDC are incurring.</li><li>• The proposed model does not work on complete information but inputs to the model can be improved in an incremental fashion that builds on the information already known and will not require extensive remodelling when new information is brought to hand.</li></ul>