TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Domestic Transport Costs and Charges Study

Working Paper C4
Road Vehicle Ownership and Use Charges

Prepared for Te Manatū Waka Ministry of Transport (NZ)
By Richard Paling Consulting in association with Ian Wallis Associates Ltd
June 2023

Contents

Appendices

Tables

Figures

Disclaimer

This Working Paper is one of a series that has been prepared as part of the New Zealand Domestic Transport Costs and Charges (DTCC) Study. A consultant team led by Ian Wallis Associates Ltd was contracted by Te Manatū Waka Ministry of Transport to carry out this Study.

The views expressed in the Working Papers are the outcomes of the consultant's independent research and should not be regarded as being the opinion or responsibility of Te Manatū Waka. The material contained in the Working Papers should not be construed in any way as policy adopted by Te Manatū Waka or any other agency of the NZ Government. The Working Papers may, however, be used by NZ Government agencies as a reference in the subsequent development of policy.

While the Working Papers are believed to be correct at the time of their preparation, Te Manatū Waka and agents involved in their preparation and publication do not accept any liability for use of the material contained in the Working Papers. People using such material, whether directly or indirectly, should apply and rely on their own skill and judgment. They should not rely on the contents of the Working Papers in isolation from other sources of advice and information. If necessary, they should seek appropriate legal or other expert advice.

Copyright

Acknowledgements

The authors would like to thank the following parties for their contributions to this working paper:

- Waka Kotahi
- ACC
- NZ Police
- Peer Reviewers at the Institute for Transport Studies at the University of Leeds
- Te Manatū Waka.

Research, Economics and Evaluation

The Research, Economics and Evaluation team operates within the System Performance and Governance Group of Te Manatū Waka Ministry of Transport. The team supports the Ministry's policy teams by providing the evidence base at each stage of the policy development.

The team is responsible for:

- Providing sector direction on the establishment and use of the Transport Evidence Base (see below) – including the collection, use, and sharing of data, research and analytics across the transport sector and fostering the development of sector research capabilities and ideas.
- Leading and undertaking economic analyses, appraisals and assessment including providing economic input on business cases and funding requests.
- Performing the evaluation function for Te Manatū Waka, including designing monitoring and evaluation frameworks and approaches, developing performance metrics and indicators, and designing, conducting and procuring evaluations.

The Transport Evidence Base

The Transport Evidence Base Strategy creates an environment to ensure data, information, research and evaluation play a key role in shaping the policy landscape. Good, evidence-based decisions also enhance the delivery of services provided by both the public and private sectors to support the delivery of transport outcomes and improve wellbeing and liveability in New Zealand.

The Domestic Transport Costs and Charges study aims to fill some of the research gaps identified in the 2016 Transport Domain Plan (Recommendation R6.2), which forms part of the Transport Evidence Base.

Citation

Ministry of Transport (2023). Domestic Transport Costs and Charges (DTCC) Study - Road Vehicle Ownership and Use Charges, Working Paper C4, prepared by Richard Paling Consulting In association with Ian Wallis Associates Ltd, Wellington: Te Manatū Waka Ministry of Transport, New Zealand.

Published in June 2023 by Te Manatū Waka Ministry of Transport, PO Box 3175, Wellington 6140, New Zealand.

For more information

For more information about this project and associated report, please contact: info@transport.govt.nz.

Glossary of terms and abbreviations

ACC	Accident Compensation Corporation
Cars	Private cars. For this analysis also includes motorcycles
ETS	Emissions Trading Scheme
HCV1	Rigid heavy commercial vehicle with up to 4 axles
HCV2A	Articulated vehicle with a normal GVW of up to 44 tonnes
HCV2B	50 MAX articulated vehicle with a normal GVW of up to 50 tonnes
Heavy vehicle	All vehicles with a maximum gross laden weight of more than 3.5 tonnes. Also includes MCVs
LCV1	Light commercial vehicle GVW less than 3.5 tonnes powered by petrol
LCV2	Light commercial vehicle GVW less than 3.5 tonnes powered by diesel
MCV	Medium commercial vehicle. Two axle heavy trucks without a trailer over 3.5 tonnes gross laden weight. For this paper also includes buses.
PAYGO	Pay as you go - the approach of funding all expenditure on the road network including capital expenditure being funded on an annual basis
RUC	Road user charges
RFT	Regional fuel tax levied on petrol and diesel sales in the Auckland region

Executive Summary

This working paper set out the details of the main charges associated with road vehicle ownership and use made to Government agencies in New Zealand in 2018/19. It forms part of a suite of working papers covering the costs of vehicle ownership and use and the revenues and expenditure associated with the management and development of the road network: it draws from and supports the findings of these other papers.

The revenues derived from road users form a major part of the funding of the State Highway road network and together with revenues from a range of local authority sources also support the local road networks managed by the various TLAs. The total revenues and expenditures on the road network by central and local government are mainly as set out in Working Paper C3, but may reflect minor differences from that paper reflecting differences in the approaches used.

The paper also allocates the charges made to different vehicle types and also to different road types, in the latter case splitting between urban and rural roads and State Highways and local roads.

The charges considered in this working paper which accrue to Government agencies in some form comprise:

- Vehicle licensing and registration
- Duties on fuel
- Road user charges
- ACC charges
- Vehicle certification
- Driver licensing
- Police fines.

The revenues derived from road users which accrue to the Crown, Waka Kotahi NZ Transport Agency and other Government agencies in 2018/19 are set out in Table ES.1.

Table ES.1 Total payments to Government agencies associated with vehicle ownership and use 2018/19 ($m)

Payment type	Payments to all agencies in 2018/19 ($m)
Vehicle licensing and registration	461
Fuel duties	2,773
Road user charges and tolls	1,705
Vehicle certification and driver licensing	108
Police fines	191
Total	5,238

Note: payments to ACC are included in the totals for vehicle licensing and fuel duties

These payments are dominated by duties on fuel, which account for over half the total raised from users, and road user charges which account for almost a third.

It should be noted that these payments cover only part of the costs of vehicle ownership and use and would exclude many of the items which contribute to the full costs of motoring and road transport. These would include items such as the costs of fuel excluding taxes, repairs and maintenance, insurance and the capital costs of vehicle ownership. These are considered in more detail in WP C5.

The allocation of these revenues between the NLTF/Waka Kotahi and other agencies is set out in Table ES.2.

Table ES.2 Destinations of revenues associated with road vehicle ownership and use 2018/19 ($m)

Agency receiving revenues	Total revenues ($m)	Per cent of total
NLTF/Waka Kotahi	4,001	76%
Crown (fines)	191	4%
Other agencies	1,046	20%
Total	5,238	100%

Of the revenues paid by road users, about 75% goes to support the road network directly via the NLTF/ Waka Kotahi, 4% goes to the Crown in respect of payment of fines and 20 percent goes to a range of other agencies.

The split of revenues by light and heavy vehicles is set out in Table ES.3.

Table ES.3 Source of revenues by broad vehicle type 2018/19 ($m)

Vehicle type	Total revenues	Per cent of total
Light vehicles	4,064	78%
Heavy vehicles	1,174	22%
Total	5,238	100%

Light vehicles contribute just over three-quarters of the total revenues raised from road users with heavy vehicles contributing about a quarter. The relatively high share from heavy vehicles in relation to their share of total vehicles (4%) and their share of the distance travelled (7%) reflects the costs allocated to them through the PAYGO system for their use of the road network.

The revenues generated reflect both variable elements which vary with the use of the road network and fixed elements which reflect annual charges per vehicle (see Table ES.4).

Table ES.4 Variable and fixed revenues 2018/19 ($m)

Revenue type	Total revenues	Per cent of total
Variable	4,669	89%
Fixed	569	11%
Total	5,238	100%

Variable revenues represent almost 90% of the totals paid by road users with this share typically increasing with increased vehicle size and weight. Combining these elements gives the position in Table ES.5.

Table ES 5 Variable and fixed revenues 2018/19 by vehicles type($m)

Revenue type	Light vehicles	Heavy vehicles	Total
Variable	3542	1127	4,669
Fixed	522	47	569
Total	4,064	1174	5,238

The average fixed and variable charge (revenue) rates paid by vehicle type are set out in Table ES.6.

Table ES.6 Annual average vehicle operating costs by vehicle type and fixed/variable components 2018/19 ($)

Vehicle type	Variable charge per km	Fixed charge per year	Total charge per year
Light vehicles	0.08	128	1,000
Heavy vehicles	0.33	312	7,900
Total	0.10	134	1,200

In summary, the key findings include:

- The total charges paid by road users to Government agencies in 2018/19 amounted to about $5.2 bn.
- About 90% of this total represent variable charges directly related to the use of the road network,
- While light vehicles contribute just over 75% of the total revenues, the average charge per heavy vehicle is about eight times that for a light vehicle. This reflects in part the higher mileage travelled by heavy vehicles and in part the higher proportion of the estimated costs of the road network to these vehicles, which the revenues are intended to meet.

Chpater 1 Introduction

1.1 Study Scope and Overview

The Domestic Transport Costs and Charges (DTCC) study aims to identify all the costs imposed by the domestic transport system on the wider New Zealand economy, including costs (financial and non-financial) and charges borne by the transport user.

The Study is an important input to achieving a quality transport system for New Zealand that improves wellbeing and liveability. Its outputs will improve our understanding of the economic, environmental and social costs imposed by different transport modes - including road, rail, coastal shipping and domestic passenger aviation - and the extent to which those costs are currently offset by charges paid by transport users.

The DTCC is intended to support the Te Manatū Waka's wider policy framework, especially the Transport Outcomes Framework (TOF). The TOF seeks to make clear what government wants to achieve through the transport system under five outcome areas:

- Inclusive access,
- Economic prosperity,
- Healthy and safe people,
- Environmental sustainability, and
- Resilience and security.

Underpinning the outcomes in these areas is the guiding principle of mode neutrality. In general, outputs of the DTCC study will contribute to the TOF by providing consistent methods for (a) estimating and reporting economic costs and financial charges; and (b) understanding how these costs and charges vary across dimensions that are relevant to policy, such as location, mode, and trip type.

Robust information on transport costs and charges is critical to establishing a sound transport policy framework. The Study itself does not address future transport policy options; but the study outputs will help inform important policy development in areas such as charging and revenue management, internalising externalities, and travel demand management.

The Study was undertaken for the Ministry of Transport by a consultant consortium headed by Ian Wallis Associates. The Study was divided into a number of topic areas, some of which relate to different transport modes (including road, rail, urban public transport, and coastal shipping), and others to transport-related impacts or externalities (including accidents, congestion, public health, emissions, noise, biodiversity and biosecurity).

Working papers (25) have been prepared covering each of the topic areas. Their titles, topic areas and specialist authors are listed in Appendix 2.

1.2 Costing Practices

The focus of DTCC is on NZ transport operations, economic costs, financial costs and charges for the year ending 30 June 2019 (FY 2018/19). Consistent with this focus, all economic and financial cost figures are given in NZ$2018/19 (average for the 12-month period) unless otherwise specified.

All financial costs include any associated taxes and charges (but exclude GST); while economic costs exclude all taxes and charges.

The DTCC economic and financial analyses comprise essentially single-year assessments of transport sector costs and charges for FY 2018/19. Capital charges have been included in these assessments, with annualised costs based on typical market depreciation rates plus an annualised charge (derived as 4% pa, in real terms, of the optimised replacement costs of the assets involved).

1.3 Scope of this paper

This working paper sets out details of the main charges paid by New Zealand road users to Government agencies associated with their vehicle ownership and use during 2018/19, with a focus on the allocation of these charges by different vehicle and road types. This paper forms part of a suite of working papers which are intended to provide a comprehensive basis for the assessment of the economic costs and charges associated with domestic transport in New Zealand.

The principal charges covered in this paper are:

- Vehicle licensing and registration
- Payment of duties on fuel
- Road user charges
- ACC charges
- Vehicle certification
- Driver licensing
- Police fines.

With the exception of the last item (police fines), all these payments are subject to GST -- although all the figures given in this report exclude the GST component. .

The allocation of revenues from the different classes of vehicles and different road types provides a basis against which the costs incurred by the providers of transport infrastructure and services can be assessed. It also provides the basis for splitting the user charges between those that are variable with some measure of vehicle use (such as distance travelled or fuel consumed) and other costs which can be regarded as fixed annual charges by vehicle type (e.g. annual licence fees).

The total amounts for the different items have been based largely on the estimates set out in WP C3 - Expenditure and Funding Overview. While discussing the background to these charges, the analysis in this Working Paper focuses on allocating the total charges set out in WP C3 between different vehicle and road types. These allocated charges have then been carried forward into the Main Report in order to compare the revenues derived from different vehicle types against their associated costs in using the road network.

Chpater 2 New vehicle registration and vehicle licensing

2.1 New vehicle registration

Before a vehicle can be legally used on the road in New Zealand, it must be certified and registered. Entry certification (see Section 6) is required before a vehicle can be registered. Vehicle registration requires paying a fee to add a vehicle's details to the Motor Vehicle Register. (Sometimes vehicle registration is confused with annual vehicle licensing, for which the abbreviation "rego" is often used).

New or used imported vehicles entering the New Zealand fleet are required to pay a registration fee. This fee covers the incorporation of the vehicle data onto the Motor Vehicle Register and the provision of new licence plates.

The fees for new registration typically also cover the provision of an operating licence covering 6 or 12 months and an administration fee. For goods vehicles and motorcycles, the fee also includes an ACC levy.

As part of the registration process, the vehicle is:

- inspected for safety
- certified
- added to the Motor Vehicle Register
- licensed (if applicable).

The total numbers of new or imported vehicles first registered in 2018/19 are set out in Table 2.1.

Table 2.1 Total new and used imported vehicle registrations in New Zealand 2018/19

Light vehicles			Heavy		Other	
Light commercial vehicle	Light passenger vehicle	Motorcycle/ moped	Bus	Truck	Miscellaneous	Grand Total
57,783	251,432	15,018	766	8,336	5,946	339,281

Source: Ministry of Transport Quarterly Fleet Statistics

The average payments per vehicle for the main groups (as recorded by Waka Kotahi) are set out in Table 2.2.

Table 2.2 Average registration fee for vehicles entering the New Zealand vehicle fleet 2018/19 ($)

Vehicle type	Average registration fee excl. GST ($)
Passenger car/van	203
Light commercial vehicle	311
Medium commercial vehicle	459
Heavy vehicle	571
Heavy vehicle trailer	153

Source: Statistics from Waka Kotahi

2.2 Vehicle licensing

Vehicle licensing is the payment of a fee for the use of the road network in New Zealand. (As indicated above, this is also referred to as "rego".) A fee is paid for the licence for which a vehicle licence label is provided to display on the vehicle. The fee varies according to the type of vehicle and the length of time for which a licence is issued. This normally varies from between 3 and 12 months.

The vehicle licensing fee also includes a payment to ACC. This is discussed below.

Most vehicles must be licensed continuously. That means there should not be any days when the vehicle is not licensed unless it is officially taken off the road. Motor vehicles that are **not** required to be licensed continuously include light trailers (up to 3,500kg), tractors and forklifts, etc. If a gap does exist, the new licence will normally be backdated to the date when the previous licence expired.

The approach to the licensing of cars has changed recently, with the replacement of the ACC charge reflecting the Vehicle Risk Rating (VRR) by standard charges for all cars, although with some differentiation between petrol and diesel vehicles. For this purpose, electric vehicles are classed as petrol vehicles, with revenues collected through the annual licensing fee. ACC charges a levy on sales of petrol to help recover its costs but does not charge a similar levy on diesel vehicles because diesel is widely used for activities other than land transport. As a result, some of the ACC costs are recovered from a higher levy on diesel vehicles.

The total numbers of vehicles in the vehicle fleet in 2018/19 (as at end December 2018, which is taken as representative of the financial year) are set out in Table 2.3.

Table 2.3 Vehicle fleet by category 2018/19

Vehicle type	Number of vehicles registered
Passenger car/van	3,298,543
Light commercial vehicle	621,172
Medium commercial vehicle	78,236
Heavy vehicle	70,599
Heavy vehicle trailers	37,265
Total vehicles exc trailers	4,068,550

Source: Ministry of Transport Annual Fleet Statistics

The average licence payments by vehicle type are set out in Table 2.4. These include the ACC levy which forms part of the overall payment by the motorist.

Table 2.4 Average licence fee for vehicles in the New Zealand vehicle fleet 2018/19

Vehicle type	Average licence fee paid exc GST ($)
Passenger car/van	56
Light commercial vehicle	109
Medium commercial vehicle	171
Heavy vehicle	224
Heavy vehicle trailer	75

Source: Data from Waka Kotahi

2.3 Total registration and licensing fees

As set out in WP C3 (Table 2.3), the total registration and licensing fees for 2018/19 that are available to the NLTF or to ACC are estimated at $458m. These can be regarded as fixed (per vehicle) costs.

Chpater 3 Fuel duties

Duties and levies are payable on all forms of fuel used for road transport. These can be regarded as variable costs.

For **petrol**, these comprise the following categories:

- Fuel excise duty (FED)
- Regional fuel tax (in the Auckland area)
- ACC levy
- Local Authority Petroleum Tax (LAPT). This is paid to local authorities but is not ring-fenced for transport expenditure
- Petroleum or Engine Fuel Monitoring (PEFM) Levy. This is aimed to meet the costs of maintaining a stockpile of oil products to meet international obligations and monitoring fuel quality. This is paid to Te Manatū Waka.
- Emissions Trading Scheme Levy.

For **diesel**, fuel excise duty is not charged, but the costs of road use are recovered through road user charges (as discussed below). In addition, there is no ACC levy on diesel fuel since diesel is used for a number of non-transport purposes. The costs for the vehicles using diesel are recovered in part from a levy on the annual licensing charges and in part from an employment levy in respect of vehicle drivers.

The costs for **electric** cars are covered in part by the annual registration charge. Currently electric cars do not pay a variable charge to reflect road use, either through a fuel tax or road user charges. This position is under review and it is likely that some form of road user charging for electric vehicles will be introduced at a future date.

The fuel duty rates payable in 2018/19 (on a c/litre basis) are set out in Table 3.1.

Table 3.1 Average fuel duty and levy rates 2018/19 (c/litre)

Levy/Duty	c/litre
Automotive Petrol:	
Fuel Excise Duty	62.15
Petroleum or Engine Fuels Monitoring Levy	0.30
Local Authority Petroleum Tax	0.66
ACC levy	6.00
Auckland Regional Fuel Tax (1)	3.47
ETS Levy	5.18
Total	77.76
Automotive Diesel:	
Petroleum or Engine Fuels Monitoring Levy	0.30
Local Authority Petroleum Tax	0.33
Auckland Regional Fuel Tax(1)	3.47
ETS Levy	5.98
Total	10.08

Notes (1) The regional fuel tax is 10c/litre for fuel purchased in Auckland. The figure in this table is the estimated average across the country as a whole.

Sources: MBIE website - Energy prices and weekly table

The volumes of fuel consumed in 2018/19 for land transport are estimated by MBIE at about 6 billion litres. The split between petrol and diesel is set out in Table 3.2.

Table 3.2 Total fuel consumption for land transport 2018/19 (million litres)

Fuel type	Total sales
Petrol	3,167
Automotive diesel	2,810
Total	5,977

Source: MBIE

In order to derive estimates of the allocation of the fuel duty levies by vehicle type, the breakdown of the total fuel consumption based on the average consumption by vehicle type and the distance travelled is set out in Table 3.3. These figures have been adjusted slightly to align them with the totals set out in Table 3.2. In estimating these figures, it has been assumed that all cars only consume petrol. In practice a small number of cars are diesel-powered, but the numbers of these are small and would not affect the estimated consumption figures to any significant extent.

Table 3.3 Estimates of fuel consumption by vehicle type

Vehicle type	Distance (bn kms)	Consumption (l/100kms)	Fuel type	Total consumption (bn litres)	Total consumption adjusted to MBIE totals
Cars	36.10	8.37	Petrol	3.02	2.92
LCV1	2.13	11.7	Petrol	0.25	0.24
LCV2	7.00	19.0	Diesel	1.33	1.31
MCV	1.46	28.8	Diesel	0.42	0.42
HCV1	0.60	51.7	Diesel	0.31	0.31
HCV2A	0.70	55.7	Diesel	0.39	0.39
HCV2B	0.63	63.5	Diesel	0.40	0.39
Total	48.69			6.12	5.98

Sources:
Distance - MoT and consultants estimates
Consumption - Consultants estimates as set out in WPC5

Chpater 4 Road User Charges

4.1 Coverage of road user charges

Road user charges are levied as part of the recovery of the costs of providing and maintaining the road network in New Zealand. While light vehicles make payments for this purpose from the duties levied on petroleum, for diesel-powered vehicles a different regime exists which aims to link the charges levied more closely to the costs that heavy vehicles impose on the road network.. Road user charges are applicable to all vehicles over 3.5 tonnes manufacturer's gross laden weight and all vehicles of 3.5 tonnes or less powered by a fuel not taxed at source. In the majority of cases these are diesel-powered vehicles.

Vehicles that must pay road user charges are required to display current road user charges licences while operating on public roads. The revenue collected from road user charges is ring-fenced and dedicated to the National Land Transport Fund. Road user charges are collected by Waka Kotahi and enforced by the New Zealand Police.

4.2 Distance recording

4.2.1 Introduction

All vehicles that are required to pay road user charges must be fitted with a distance recorder. The distance recorder must provide a reliable record of the distance travelled. Every vehicle over 3.5 tonnes that requires a road user charges distance licence must also be fitted with an approved hubodometer, or an approved electronic distance recorder.

4.2.2 Hubodometers

Hubodometers must be calibrated to read in kilometres for the appropriate-sized tyre and have a unique manufacturer's serial number inside the casing of the meter.

A hubodometer must be fitted at all times (to a non-lifting axle) on the left-hand side of the vehicle unless special approval is granted by Waka Kotahi.

The Road User Charges Act 2012 prohibits the fitting of a hubodometer to a vehicle if the hubodometer was previously fitted to another vehicle and that vehicle is still registered under Part 17 of the Land Transport Act 1998. Special cases for exemption may be considered by Waka Kotahi.

When a hubodometer is lost or damaged and/or found to be faulty, it will need to be replaced and fitted to the vehicle. An RUC licence that relates to the replacement hubodometer will need to be purchased and a change of hubodometer form (RUCHO) will need to be completed. Forms are available from RUC agents or from the RUC contact centre.

If there is any unused distance left on the licence purchased for the lost or unusable hubodometer, the amount may be refunded once the RUCHO form is received at Waka Kotahi and audited.

4.2.3 Approved electronic distance recorder

Electronic road user charges (eRUC) have operated since 2010 as an alternative collection method offering improved efficiency. Electronic system providers (ESPs) operate eRUC under contract as agents of Waka Kotahi.

The required outcomes for any eRUC system are to:

- accurately measure and record RUC data, including distance, time and location
- display specified RUC information in each vehicle
- correctly attribute RUC data to a specific vehicle and operator
- collect appropriate revenue from the vehicle operator and payment to the Transport Agency.

The use of a GPS-based form of distance recording facilitates the identification of movements not on the public road network for which no road user charges are payable.

The firms currently approved to provide electronic road user charging (ESPs) are:

- Eroad Ltd
- Coretex Ltd
- Picobyte Solutions Ltd
- Navman Wireless NZ.

4.2.4 Road user charge rates

The rates for road user charges by detailed vehicle type in 2018/19 are set out in Appendix 2. The average charges for the main broad vehicle categories are set out in Table 4.1.

Table 4.1 Average RUC rates by vehicle category ($/km)

Vehicle category	Average RUC rate ($ / km)
Passenger car/van	0.07
Light commercial vehicle	0.07
Medium commercial vehicle	0.10
Heavy vehicle	0.38
Heavy vehicle trailer	0.17

Source: Data supplied by Waka Kotahi

Road user charges by their nature are regarded as variable costs.

Chpater 5 Accident Compensation Corporation Charges

5.1 Sources of funding

The ACC Motor Vehicle Account is funded through:

- Levies on motor vehicle ownership
- Levies added to the excise duty on petrol
- Motorcycle safety levy on moped and motorcycle owners

5.2 Levies on vehicle ownership

In 2018/19 the ACC charges on cars through the annual licensing system were based on the Vehicle Risk Rating (VRR) of the vehicle as set out below. Subsequently to this the differential charging ceased and all cars now have a common levy. This differentiates between petrol and diesel-powered cars since costs for petrol-engined vehicles are also recovered from a levy on fuel.

The ACC levies in 2018/19 (and 2021/22) for vehicle licensing for selected vehicle types are set out in Table 5.1.

Table 5.1 ACC levies on vehicle licensing, 2018/19 and 2021/22 ($ per year exc GST)

Band	2018/19 Levy (VRR)	2021/22 levy (no VRR)	2018/19 Levy (VRR)	2021/22 levy (no VRR)
		Cars:		
	Petrol vehicles (1)		Diesel vehicles	
Band 1 (3)	$70.12	$40.05	$129.69	$91.00
Band 2 (3)	$46.55	$40.05	$106.11	$91.00
Band 3 (3)	$32.37	$40.05	$91.93	$91.00
Band 4 (3)	$15.65	$40.05	$75.22	$91.00
Motorcycles:				
600 cc or less		$259.05		
Over 600 cc		$345.37		
Medium and heavy goods vehicles:				
LCVs		$36.54		
MCVs and HCVs (2)		$170.79		

*Notes (*1) Electric vehicles are treated the same as petrol vehicles

(2) Lower rates are available for vehicles registered in the Fleet Saver Scheme

(3) The bands reflect the risk ratings for different vehicle types

Source: ACC

5.3 Levies on petrol

The levy on petrol was described in Section 3. In 2018/19 this averaged $0.06 per litre, raising a total revenue of $190m. Duty is levied on petrol only, as diesel is used for a number of purposes other than land transport. ACC collects fees from diesel powered vehicles through a levy on the licensing (rego) charge. It also charges levies on employment.

5.4 Motorcycle safety levy

The motorcycle safety levy is charged on motorcycles at the rate of $21.7 per year per motorcycle.

5.5 Revenues and coverage

The total revenues generated by ACC levies in 2018/19 amounted to $424.6m. This total was broken down as shown in Table 5.2.

Table 5.2 Levy revenues to ACC 2018/19 ($m)

Levy/fee	Revenue to ACC ($m)
Licence fees	232.5
Petrol levy	189.7
Motorcycle safety levy	2.4
Total	424.6

Source: Communication with ACC

These charges cover the costs associated with motor vehicle accidents, including:

- Claims paid in the premium year
- Outstanding claims from previous years
- Injury prevention costs
- Payments for ambulance and air ambulance services.

Further details on the costs of motor vehicle accidents funded through the ACC Motor Vehicle Account are given in DTCC WP D1: Costs of Road Transport Accidents. .

In practice ACC levies can be considered to be split between variable costs from the petrol levy and fixed costs covering all other charges.

Chpater 6 Vehicle Certification and Safety

Various types of vehicle safety checks and compliance assessments are required before a vehicle can be driven on New Zealand roads. For vehicles entering the fleet for the first time, they need to obtain an Entry Certification. The types of assessments vary mainly according to the weight of vehicle. For vehicles that have been modified or re-entering the fleet, they are also required to be certified.

Most privately owned light vehicles for personal use require a Warrant of Fitness (WoF) to ensure that they meet required safety standards before being driven on the public road network. This includes cars, utes, trailers, motorbikes, caravans and small trucks with a gross laden weight of up to 3,500 kg. The frequency of inspections varies according to the age of the vehicle and these are set out in Table 6.1.

Table 6.1 Length of WoF for light motor vehicles

When was the vehicle first registered anywhere in the world?	How long the WoF is issued for
New vehicle that's never been registered	WoF is issued for three years
Less than two years ago	WoF is issued to the vehicles third 'birthday' (third anniversary of when it was first registered)
More than two years ago, but less than three years ago	WoF is issued for 12 months
On or after 1 January 2000	WoF is issued for 12 months
Before 1 January 2000	WoF is issued for 6 months

For heavier vehicles and vehicles for public use, a Certificate of Fitness (CoF) is required to ensure that vehicles meet required safety standards before they can be driven on the road network. Vehicles requiring this certification are:

- heavy vehicles – trucks, larger trailers, motor homes
- all passenger service vehicles – taxis, shuttles and buses
- rental vehicles.

A certificate of fitness check is required every 6 months regardless of the age of the vehicle.

Other types of certification include:

- Entry certification for new and used vehicles
- Low volume light vehicle certification
- Repair certification (after major structural repair)
- Heavy vehicle specialist certification.

For each of the certificates a fee is paid to Waka Kotahi. This covers the costs of administering the certification system and the cost of reviewing Inspecting Organisations (IOs) and Vehicle Inspectors (VIs).

The total revenues paid to Waka Kotahi for 2018/19 for vehicle certification and related actions are set out in Table 6.2.

Table 6.2 Revenues from vehicle certification and safety inspections 2018/19 ($m)

Type of fee	Revenue ($m)
Certification review fees	11.9
Transport licensing fees	11.2
Standards development fee and certification levies	6.9
Over dimensional and overweight permits	1.3
Border inspection fees	0.8
Personalised plates	3.8
Total	33.3

Source: Waka Kotahi Annual Report 2018/19 p 94

Related fees or levies can be considered as fixed (per vehicle) charges.

Chpater 7 Driver Licensing and Testing

Everyone driving on the public road network in New Zealand must hold a current driver licence. There are various classes of these according to the type of vehicle driven, as set out below.

- Class 1 - car
- Class 2 - medium rigid heavy goods vehicle
- Class 3 - medium combination heavy goods vehicle
- Class 4 - heavy rigid heavy goods vehicle
- Class 5 - heavy combination heavy goods vehicle
- Class 6 – motorcycle.

Obtaining a full driver licence typically involves a number of stages. For the Class 1 (car) and Class 6 licence (motorcycles) there is a three-stage process with drivers starting with a learner driver licence before progressing through a restricted driver licence to a full driver licence. A learner driver licence can be obtained at age 16 but for a full driver licence, the driver must be at least either 17 and a half years, if an approved defensive driving course has been completed, or 18 years if not.

Driver licences require to be renewed every 10 years up to the age of 75, at which time renewal is valid for 5 years. After the age of 80, renewal is required every 2 years.

Driver licences are issued by the AA or VTNZ acting as agents of Waka Kotahi but the Agency charges a fee for each licence or test. The total revenues received by the Waka Kotahi in respect of driver licensing and testing after deduction of fees are set out in Table 7.1.

Table 7.1 Total revenues received by Waka Kotahi from driver licensing and testing fees ($m)

Item	Revenue ($m)
Driver licensing fees	35.8
Driver testing fees	24.3
Total	60.1

Source: Waka Kotahi Annual Report 2018/19 P94

Related fees can be considered as fixed (per vehicle) charges.

Chpater 8 Police fines and infringements

There are a range of police fines and infringement notices that are levied on motorists mainly with respect to their driving behaviour and the condition of their vehicle, including the payment of all appropriate charges. The police have provided information on the value of the notices issued, but note that the actual amounts may differ slightly from this, if for some reason payment is subsequently waived.

The total fine issued by vehicle type is set out in Table 8.1. Due to the lack of information, they are split into light and heavy vehicles based on their relative shares of VKT for 2018/19 (as set out in Appendix 3).

Table 8.1 Potential revenues from fines and infringements 2018/19 ($m)

Infringement type	Value of infringement notices issued ($m)
Traffic offences:	
Red light	4.02
Restraints	5.87
Alcohol and Drugs	3.00
Mobile Phone	2.30
Mobile speed cameras	24.62
Static Speed Cameras	60.58
Officer Issued speed	32.35
Police speeding	0.38
Other infringements:	
Certificate of loading	0.21
Cycling, pedestrian and other road users	0.15
Dangerous driving	3.03
Drivers licence	17.14
Failure to comply	1.63
Failure to stop/give way	3.04
Logbook	0.39
Motorcycle helmet	0.02
Other goods/service vehicle related	0.99
Parking	0.22
Road user charges	2.89
Vehicle bylaw	0.11
Vehicle conditions	0.75
Vehicle over-dimension/mass	2.32
Vehicle licensing and registration	7.81
Noise	0.85
WoF/CoF	16.68
Worktime offences	0.00
Miscellaneous	0.12
Total	191.46

Source: Communication from New Zealand Police.

Chpater 9 Allocation of total user charges by vehicle and road type

9.1 Key allocation factors by vehicle type

As there is no database that record the fees and charges for each vehicle, the study used the following main factors to estimate the total user charges by vehicle type:

- Vehicle ownership
- Vehicle mileage
- Total fuel consumption.

The details of these factors are set out in Table 9.1.

The particular factors applied to the various revenue types are specified in Table 9.2 following.

Table 9.1 Key allocation factors

Vehicle type	Fuel type	No of vehicles (1)		Mileage (bn kms) (2)		Fuel consumption (bn litres) (3)	
Cars	Petrol	3,475,214	81.9%	36.1	74.1%	2.92	48.8%
LCV1	Petrol	153,341	3.6%	2.1	4.4%	0.24	4.0%
LCV2	Diesel	467,831	11.0%	7.0	14.4%	1.31	21.9%
MCV	Diesel	89,616	2.1%	1.5	3.0%	0.42	7.0%
HCV1	Diesel	36,131	0.9%	0.6	1.2%	0.31	5.2%
HCV2A	Diesel	10,914	0.3%	0.7	1.4%	0.39	6.5%
HCV2B	Diesel	12,174	0.3%	0.6	13%	0.39	6.5%
Total (4)		4,245,221	100.0%	48.6	100.0%	5.98	100.0%

Sources: (1) Ministry of Transport NZ Vehicle Fleet Statistics 2018 Table 1.1 and consultants estimates

(2) Ministry of Transport NZ Vehicle Fleet Statistics 2018 Table 1.3 and consultants estimates. Due to methodological differences, estimates of total distance travelled by vehicle type are different from that used in the Main Report (Table ES.1).

(3) Mileage figures and average consumption rates by vehicle type as set out in WP C5: Vehicle Operating Costs.

(4) Totals may differ from the sum of the elements because of rounding

9.2 Allocation of user charges by charge and vehicle types

The total user payments to the National Land Transport Fund (NLTF), Waka Kotahi/NZ Transport Agency and other agencies are set out in Table 9.2. These figures are based on the payments received or made available to the various agencies and where appropriate are consistent with the figures set out in Working Paper C3. Light vehicles include cars and light commercial vehicles powered by both diesel and petrol engines.

Table 9.2 Total user charges by charge type and broad vehicle category 2018/19 ($m)

Payment category	Vehicle type			Allocation method	Fixed/ Variable
	Light	Heavy	Total		
Vehicle licensing and registration	210.8	15.1	225.9	Based on information from Waka Kotahi on total revenues less payments to ACC set out below.	Fixed
Fuel excise duty (FED)	1,962.0	0.0	1,962.0	Light vehicles only	Variable
Road user charges	684.6	982.0	1666.5	Analysis of data on RUC by vehicle type from Waka Kotahi	Variable
Tolls	27.7	10.9	38.5	Based on information from the Waka Kotahi Annual Report on the flows and revenues by different vehicle types. The tolling revenues include both payments to cover the operating and interest and capital repayment costs of the Agency	Variable
Other	104.1	3.8	107.9	Based on information from the Waka Kotahi Annual Report on miscellaneous revenues and allocations by the number of vehicles	Fixed
Total Waka Kotahi/NLTP	2,989.1	1,011.7	4,000.8		
ACC - Licensing	207.4	27.5	234.9	Based on an allocation of the total costs by fuel type and consumption	Fixed
ACC - Fuel levy	189.7	0.0	189.7	Only levied on petrol.	Variable
ETS	311.3	88.2	399.5	Based on an allocation of the total costs by fuel type and consumption	Variable
Regional Fuel Tax	111.7	31.8	143.5	Based on an allocation of the total costs by fuel type and consumption	Variable
PEFM	21.7	4.4	26.1	Based on an allocation of the total costs by fuel type and consumption	Variable
LAPT	34.1	4.9	39.0	Based on an allocation of the total costs by fuel type and consumption	Variable
Maritime search & rescue	13.0	0.0	13.0	Based on FED light vehicles only	Variable
Fines	186.1	5.3	191.4	Where possible based on identification of fines by vehicle type and then allocation of balance by mileage (See Appendix 4)	Variable
Total Other	1,075.0	162.1	1,237.1		
Total All Types	4,064.1	1,173.8	5,237.9		

These costs were then further allocated by vehicle type and the results are set out in Table 9.3. These allocations are based on the split between heavy and light vehicles as set out above and then these elements are further disaggregated by the approach set out at the foot of the table (i.e. the total for heavy vehicles is typically allocated by the appropriate proportions for the individual medium and heavy vehicle categories and the light vehicle category is split between the totals for cars and LCVs).

Table 9.3 Total user payments by payment category and vehicle type 2018/19 ($m)

	Revenues to NLTP/Waka Kotahi						Revenues to other agencies									
Vehicle type	Veh licensing & registration	Fuel Excise Duty	RUC	Tolls	Other	Total Waka Kotahi/ NLTP	ACC - Licensing	ACC - Fuel levy	ETS	RFT	PEFM	LAPT	Maritime search & rescue	Fines	Total other agencies	Total
Cars	160.2	1,813.3	229.9	22.1	88.3	2,313.8	175.9	175.3	216.6	77.5	16.8	27.6	12.0	171.8	873.6	3,187.4
LCV1	12.5	148.6	0.0	1.3	3.9	166.3	7.8	14.4	17.8	6.4	1.0	2.3	1.0	3.3	53.8	220.2
LCV2	38.1		454.7	4.3	11.9	509.0	23.7	0.0	77.0	27.8	3.9	4.2		11.0	147.6	656.5
MCV	8.5		89.4	4.7	2.3	104.8	16.6	0.0	24.4	8.8	1.2	1.3		2.3	54.7	159.5
HCV1	4.0		203.2	1.9	0.9	210.1	6.7	0.0	18.2	6.6	0.9	1.0		0.9	34.2	244.4
HCV2A	1.2		346.7	2.2	0.3	350.5	2.0	0.0	22.7	8.2	1.1	1.3		1.1	36.4	386.9
HCV2B	1.4		342.6	2.0	0.3	346.3	2.3	0.0	22.9	8.3	1.1	1.3		1.0	36.8	383.1
Total	225.9	1962.0	1666.5	38.5	107.9	4000.8	234.9	189.7	399.5	143.5	26.1	39.0	13.0	191.4	1,237.1	5,237.9
Fixed	X				X		X									
Variable		X	X	X				X	X	X	X	X	X	X		
Allocation basis	Veh licensing	Fuel cons	RUC	Mileage	Vehs		No of vehs	Fuel cons	Total fuel cons	Total fuel cons	Total fuel cons	Total fuel cons	Total fuel cons	Mileage		

The split of the total costs by fixed and variable elements for each vehicle type is set out in Table 9.4.

Table 9.4 Total user payments by fixed/variable and vehicle type 2018/19 ($m)

Vehicle type	Fixed costs ($m)	Total variable costs ($m)	Variable costs per km ($)
Cars	424.4	2,763.0	0.08
LCV1	24.2	196.0	0.09
LCV2	73.7	582.8	0.08
MCV	27.3	132.2$	0.09
HCV1	11.6	232.7	0.39
HCV2A	3.5	383.4	0.55
HCV2B	3.9	379.1	0.60
Total	568.7	4,669.2	0.10

Variable charges which are assumed to be equivalent to marginal costs are estimated to amount to about 89% of the totals paid by vehicle owners to Government agencies, with fixed charges accounting for just 11 per cent. The variable charges per km range from about $0.08 for cars and diesel LCVs up to about $0.60 for the heaviest HCVs. These are set out in Figure 9.1.

The total costs per vehicle by vehicle category (travelling the average distance for that category) range from about $900 pa (equivalent to $0.09/km) for cars up to about $30,000-$35,000 pa (equivalent to $0.55-0.60/km) for the heaviest HCVs.

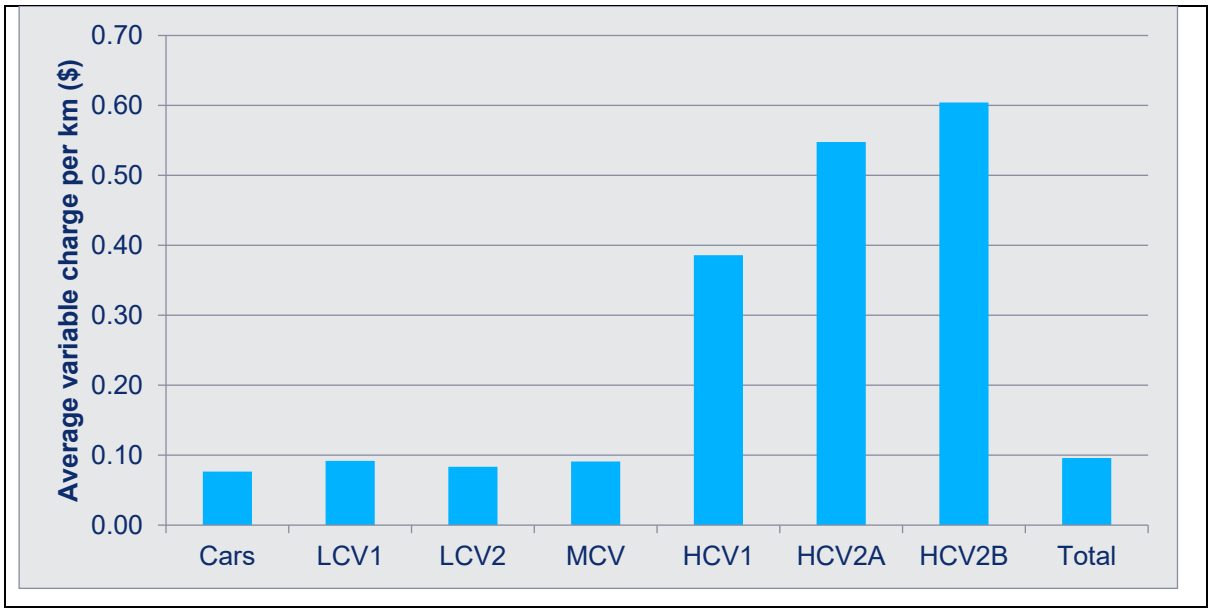

Figure 9.1 Variable charges by vehicle type 2018/19 ($ per km)

9.3 Estimated user charges by road type

The final steps are to allocate the total charge revenues by road type to understand how much users contributes to transport expenditure. The split of vehicle km by road type on which this analysis is primarily based is set out in Table 9.5.

The details of the approach used to estimate this split are set out in Appendix 4 of this paper.

Table 9.5 Total vehicle kilometres by light/heavy vehicles, urban/rural areas and road types 2018/19 (Bn kms)

	State highways				Local Roads				SH + local		SH + local		All vehicles		Total
	Urban		Rural		Urban		Rural		Urban + rural		All vehicles		Urban + rural		
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Urban	Rural	SH	Local roads	
Mileage by vehicle type (bn kms)	8.506	0.604	12.972	1.780	12.705	0.387	11.237	0.666	45.420	3.437	22.203	26.655	23.862	24.995	48.857
Share of VKT by road type by light/heavy	19%	18%	29%	52%	28%	11%	25%	19%	100%	100%					

Notes (1) Because of the method of calculation the total distance is slightly different to that in Table 9.1

Based on the share of vehicle kms by road type, Table 9.6 then disaggregate revenues (i.e. user charges) by three dimensions, ie state highways vs local roads, urban vs rural areas, and light vs heavy vehicle types. Generally, the charges are allocated on the basis of the distance operated within each of the defined categories (as in Table 9.4). There are two exceptions to this:

- ***Toll roads***. All revenues relate to the use of State Highways: a separate allocation has been developed based on the urban/rural and traffic characteristics of these roads
- ***Auckland Regional Fuel Tax***. The allocation has been based on the characteristics of the traffic within the Auckland region.

Table 9.6 Total payments from users by light/heavy vehicles and road type 2018/19 ($m)

Payment/ Levy	Light	Heavy	Total	State highways				Local Roads				SH + local		SH + local		All vehicles		
				Urban		Rural		Urban		Rural		Urban + rural		All vehicles		Urban + rural		
				Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy	Urban	Rural	SH	Local roads	Total
Veh licensing & registration	210.8	15.1	225.9	39.5	2.7	60.2	7.8	59.0	1.7	52.2	2.9	210.8	15.1	110.2	129.6	110.2	115.7	225.9
Fuel duty	1,962.0		1962.0	367.4	0.0	560.4	0.0	548.8	0.0	485.4	0.0	1962.0	0.0	927.8	1,109.2	927.8	1,034.2	1,962.0
RUC	684.6	982.0	1666.5	128.2	172.7	195.5	508.4	191.5	110.7	169.4	190.2	684.6	982.0	1004.8	1068.1	1004.8	661.7	1666.5
Tolls	27.7	10.9	38.5	20.7	6.5	6.9	4.3	0.0	0.0	0.0	0.0	27.7	10.9	38.5	17.8	38.5	0.0	38.5
Other	104.1	3.8	107.9	19.5	0.7	29.7	2.0	29.1	0.4	25.8	0.7	104.1	3.8	51.9	61.5	51.9	56.0	107.9
Total Waka Kotahi /NLTP	2,989.1	1,011.7	4,000.8	559.8	177.9	853.7	523.8	836.1	114.0	739.5	196.0	2,989.1	1011.7	2,115.2	2391.6	2115.2	1,885.6	4,000.8
ACC - Licence levy	207.4	27.5	234.9	38.8	4.8	59.2	14.3	58.0	3.1	51.3	5.3	207.4	27.5	117.2	136.3	117.2	117.7	234.9
ACC - Fuel levy	189.7	0.0	189.7	35.5	0.0	54.2	0.0	53.1	0.0	46.9	0.0	189.7	0.0	89.7	107.2	89.7	100.0	189.7
ETS	311.3	88.2	399.5	58.3	15.5	88.9	45.6	87.1	9.9	77.0	17.1	311.3	88.2	208.4	237.2	208.4	191.1	399.5
RFT	111.7	31.8	143.5	29.4	12.5	8.0	4.4	58.4	11.1	15.9	3.9	111.7	31.8	54.2	83.2	54.2	89.3	143.5
PEFM	21.7	4.4	26.1	4.1	0.8	6.2	2.3	6.1	0.5	5.4	0.9	21.7	4.4	13.3	15.3	13.3	12.8	26.1
LAPT	34.1	4.9	39.0	6.4	0.9	9.8	2.5	9.6	0.5	8.4	0.9	34.1	4.9	19.5	22.7	19.5	19.5	39.0
Maritime S&R	13.0		13.0	2.4	0.0	3.7	0.0	3.6	0.0	3.2	0.0	13.0	0.0	6.1	7.3	6.1	6.9	13.0
Fines	186.1	5.3	191.4	34.9	0.9	53.2	2.8	52.1	0.6	46.0	1.0	186.1	5.3	91.7	108.9	91.7	99.7	191.4
Total other	1,075.0	162.1	1,237.1	209.8	35.4	283.1	71.8	327.8	25.8	254.2	29.1	1075.0	162.1	600.1	718.2	600.1	637.0	1,237.1
Total	4,064.1	1,173.8	5,237.9	769.5	213.2	1,136.9	595.7	1,164.0	139.8	993.7	225.1	4,064.1	1,173.8	2,715.3	3,109.8	2,715.3	2,522.6	5,237.9

Appendix 1 Listing of DTCC Working Papers

The table below lists the Working Papers prepared as part of the DTCC Study, together with the consultants responsible for their preparation.

Ref	Topic/Working Paper title	Principal Consultants	Affiliation
MODAL TOPICS			
C1.1	Road Infrastructure – Marginal Costs	David Lupton	David Lupton & Associates
C1.2	Road Infrastructure – Total & Average Costs		
C2	Valuation of the Road Network	Richard Paling	Richard Paling Consulting
C3	Road Expenditure & Funding Overview		
C4	Road Vehicle Ownership & Use Charges		
C5	Motor Vehicle Operating Costs		
C6	Long-distance Coaches	David Lupton	David Lupton & Associates
C7	Car Parking	Stuart Donovan	Veitch Lister Consulting
C8	Walking & Cycling		
C9	Taxis & Ride-hailing		
C10	Micro-mobility		
C11.2	Rail Regulation	Murray King	Murray King & Francis Small Consultancy
C11.3	Rail Investment		
C11.4	Rail Funding		
C11.5	Rail Operating Costs		
C11.6	Rail Safety		
C12	Urban Public Transport	Ian Wallis & Adam Lawrence	Ian Wallis Associates
C14	Coastal Shipping	Chris Stone	Rockpoint Corporate Finance
C15	Cook Strait Ferries		
SOCIAL AND ENVIRONMENTAL IMPACT TOPICS			
D1	Costs of Road Transport Accidents	Glen Koorey	ViaStrada
D2	Road Congestion Costs	David Lupton	David Lupton & Associates
D3	Health Impacts of Active Transport	Anja Misdrak & Ed Randal	University of Otago (Wellington)
D4	Air Quality & Greenhouse Gas Emissions	Gerda Kuschel	Emission Impossible
D5	Noise	Michael Smith	Altissimo Consulting
D6	Biodiversity & Biosecurity	Stephen Fuller	Boffa Miskell

Note:
The above listing incorporates a number of variations from the initial listing and scope of the DTCC Working Papers as set out in the DTCC Scoping Report (May 2020).

Appendix 2 Selected RUC rates for 2018/19

Table A2.1: Selected RUC rates for 2018/19

Vehicle Type and Weight	2018/19 rate excl GST $ / km 000
1 (<= 3.5)	59.13
1 (4 - 6)	64.35
1 (7 - 9)	131.30
1 (> 9)	275.65
2 (<= 6)	62.61
2 (7 - 9)	99.13
2 (10 - 12)	134.78
2 (> 12)	246.96
311 (<= 18)	263.48
311 (> 18)	323.48
6 (<= 12)	86.09
6 (13 - 18)	279.13
6 (> 18)	340.00
14 (All)	340.87
19 (All)	304.35
24 (All)	99.13
28 (<= 10)	38.26
28 (> 10)	243.48
29 (<= 10)	32.18
29 (> 10)	108.70
30 (<= 10)	32.18
30 (> 10)	183.48
33 (All)	146.09
37 (<= 10)	34.78
37 (> 10)	249.57
43 (All)	186.96
951 (All)	140.00
402 (> 12)	173.91
403 (All)	153.04
404 (All)	156.52
929 (All)	79.13
939 (All)	53.04
308 (All)	337.39
309 (All)	271.30
408 (All)	314.78
413 (> 18)	246.09
414 (All)	213.91
H61 (All)	520.00
H62 (All)	628.70
H71 (All)	516.52
H72 (All)	516.52
H73 (All)	557.39
H74 (All)	734.78
H81 (All)	356.52
H82 (All)	515.65
H83 (All)	739.13
H84 (All)	369.57
H85 (All)	519.13
H86 (All)	766.96
H87 (All)	356.52
H88 (All)	515.65
H89 (All)	739.13
H75 (All)	392.17
H76 (All)	541.74
H91 (All)	304.35
H92 (All)	368.70
H93 (All)	495.65
H94 (All)	340.87
H95 (All)	412.17
H96 (All)	539.13
H97 (All)	271.30
H98 (All)	354.78
H99 (All)	481.74
H30 (All)	225.22
H31 (All)	333.04
H32 (All)	460.00
H33 (All)	281.74
H34 (All)	389.57
H35 (All)	516.52
H11 (All)	279.13
H12 (All)	412.17
H14 (All)	155.65
H15 (All)	288.70
H36 (All)	336.52
H37 (All)	469.57
H17 (All)	91.30
H18 (All)	183.48
H19 (All)	248.70
H38 (All)	567.83
H77 (All)	557.39
H01 (All)	424.35
H13 (All)	508.70
H40 (All)	509.57

Source Impact Summary: Increases to Road User Charges 2019/20

Appendix 3 Allocation of fine revenues

Table A3.1: Fine revenues by offence and vehicle types 2018/19 ($m)

Offence type	Total fines issued	Total fines by specific vehicle type			General
		Light vehicles	Motorcycles	Heavy vehicles	
Traffic offences:					
Red light	4.02				4.02
Restraints	5.87	5.87			
Alcohol and Drugs	3.00				3.00
Mobile Phone	2.30				2.30
Mobile speed cameras	24.62				24.62
Static Speed Cameras	60.58				60.58
Officer Issued speed	32.35				32.35
Police speeding	0.38	0.38			
Other infringements:					
Certificate of loading	0.21			0.21	
Cycling, pedestrian and other road users	0.15				0.15
Dangerous/careless driving	3.03				3.03
Drivers licence	17.14	17.14			
Failure to comply	1.63				1.63
Failure to stop/give way	3.04				3.04
Logbook	0.39			0.39	
Miscellaneous	0.12				0.12
Motorcycle helmet	0.02		0.02		
Other goods/service vehicle related	0.99			0.99	
Parking	0.22	0.22			
Road user charges	2.89			2.89	
Vehicle bylaw	0.11			0.11	
Vehicle conditions	0.75				0.75
Vehicle over-dimension/mass	2.32			2.32	
Vehicle licensing and registration	7.81				7.81
Noise	0.85				0.85
WoF/CoF	16.68				16.68
Worktime	0.00				
Total all fines	191.46	23.61	0.02	6.90	160.92

Total fine issued by vehicle type (based on share of VKT)	Light vehicles	Heavy vehicles	Total
Mileage by light/heavy vehicles	92%	8%	100%
Total ($m)	171.8	19.6	191.4

Appendix 4 Breakdown of distance travelled by road type

Table A4.1: Total vehicle kms by vehicle type

	Light		Heavy		
	Car+LCV	MC	Truck	Other	Total
Vkt (M)	44,953.9	427.0	3,398.0	78.1	48,857.0
Split	92.0%	0.9%	7.0%	0.2%	
Total kms by broad group	45,420		3,437.03		48,857.0
Total veh-kms for SH	21,478		2,384		23,862
Veh-kms for Local roads	23,942		1,053		24,995

Notes: From MoT website Quarterly fleet statistics Table 2a
Assume Other is split equally between light and heavy vehs
Because of the method of calculation the total here is slightly different to that in Table 9.1 or that in the Main Report.

Table A4.2: State Highway vehicle kms from Waka Kotahi (mVKT, 2018/19)

	Urban		Rural		Total		Total
	Heavy	Light	Heavy	Light	Heavy	Light	
AUCKLAND	260.11	4000.98	91.04	1091.87	351.14	5092.86	5444.00
BAY OF PLENTY	34.05	296.98	181.79	1263.02	215.84	1560.01	1775.85
CANTERBURY	91.91	1131.43	227.94	1359.98	319.86	2491.41	2811.27
GISBORNE	2.87	43.17	26.56	128.44	29.43	171.61	201.04
HAWKES BAY	9.70	105.55	75.13	547.59	84.83	653.13	737.96
WANGANUI/MANAWATU	13.53	162.24	175.92	1159.62	189.45	1321.86	1511.30
NELSON/MARLBOROUGH	16.31	148.97	99.69	638.81	116.00	787.78	903.78
NORTHLAND	10.84	167.64	94.63	913.34	105.47	1080.98	1186.45
OTAGO	28.38	400.27	128.42	1098.56	156.80	1498.83	1655.63
SOUTHLAND	5.72	94.43	73.38	553.23	79.10	647.66	726.75
TARANAKI	10.45	182.58	60.62	502.87	71.07	685.45	756.53
WAIKATO	53.25	420.34	474.05	2821.97	527.30	3242.31	3769.61
WELLINGTON	61.62	1299.66	26.40	526.85	88.02	1826.51	1914.53
WEST COAST	5.57	51.39	44.08	366.23	49.65	417.62	467.28
Grand Total	**604.30**	**8505.63**	**1779.65**	**12972.39**	**2383.95**	**21478.02**	**23861.97**

Table A4.3: Breakdown of SH traffic flows by proportion

	Urban		Rural		Total		
	Heavy	Light	Heavy	Light	Heavy	Light	Total
AUCKLAND	5%	73%	2%	20%	6%	94%	100%
BAY OF PLENTY	2%	17%	10%	71%	12%	88%	100%
CANTERBURY	3%	40%	8%	48%	11%	89%	100%
GISBORNE	1%	21%	13%	64%	15%	85%	100%
HAWKES BAY	1%	14%	10%	74%	11%	89%	100%
WANGANUI/MANAWATU	1%	11%	12%	77%	13%	87%	100%
NELSON/MARLBOROUGH	2%	16%	11%	71%	13%	87%	100%
NORTHLAND	1%	14%	8%	77%	9%	91%	100%
OTAGO	2%	24%	8%	66%	9%	91%	100%
SOUTHLAND	1%	13%	10%	76%	11%	89%	100%
TARANAKI	1%	24%	8%	66%	9%	91%	100%
WAIKATO	1%	11%	13%	75%	14%	86%	100%
WELLINGTON	3%	68%	1%	28%	5%	95%	100%
WEST COAST	1%	11%	9%	78%	11%	89%	100%
Grand Total	**3%**	**36%**	**7%**	**54%**	**10%**	**90%**	**100%**

Notes: Derived from Table A4.2

Table A4.4 Total Traffic by Region (bn VKT)

	Total	SH	Local Roads
AUCKLAND	15.71	5.44	10.26
BAY OF PLENTY	2.81	1.78	1.04
CANTERBURY	7.06	2.81	4.25
GISBORNE	0.42	0.20	0.21
HAWKES BAY	1.65	0.74	0.91
WANGANUI/MANAWATU	2.45	1.51	0.94
NELSON/MARLBOROUGH	1.70	0.90	0.80
NORTHLAND	1.82	1.19	0.63
OTAGO	2.42	1.66	0.76
SOUTHLAND	1.18	0.73	0.45
TARANAKI	1.16	0.76	0.41
WAIKATO	5.65	3.77	1.89
WELLINGTON	4.23	1.91	2.31
WEST COAST	0.54	0.47	0.07
Grand Total	**48.79**	**23.86**	**24.93**

Note: MoT Transport dashboard RD086 and RD087 for total

Table A4.5 Allocate LR traffic using SH proportions by region (bn VKT)

	Urban		Rural		Total		
	Heavy	Light	Heavy	Light	Heavy	Light	Total
AUCKLAND	0.49	7.54	0.17	2.06	0.66	9.60	10.26
BAY OF PLENTY	0.02	0.17	0.11	0.74	0.13	0.91	1.04
CANTERBURY	0.14	1.71	0.34	2.06	0.48	3.77	4.25
GISBORNE	0.00	0.05	0.03	0.14	0.03	0.18	0.21
HAWKES BAY	0.01	0.13	0.09	0.68	0.11	0.81	0.91
WANGANUI/MANAWATU	0.01	0.10	0.11	0.72	0.12	0.82	0.94
NELSON/MARLBOROUGH	0.01	0.13	0.09	0.56	0.10	0.69	0.80
NORTHLAND	0.01	0.09	0.05	0.49	0.06	0.58	0.63
OTAGO	0.01	0.18	0.06	0.50	0.07	0.69	0.76
SOUTHLAND	0.00	0.06	0.05	0.35	0.05	0.41	0.45
TARANAKI	0.01	0.10	0.03	0.27	0.04	0.37	0.41
WAIKATO	0.03	0.21	0.24	1.41	0.26	1.62	1.89
WELLINGTON	0.07	1.57	0.03	0.64	0.11	2.21	2.31
WEST COAST	0.00	0.01	0.01	0.06	0.01	0.07	0.07
Grand Total	**0.63**	**8.89**	**1.86**	**13.55**	**2.49**	**22.44**	**24.93**

Note: The LR figure produced for this is slightly different to the overall total because of the approach used to allocate traffic to regions

Table A4.6 Compare total from this with aggregate totals from Table A4.1 (bn VKT)

	Heavy vehs	Light Vehs	Total
Veh-kms on LR from Table A4.1	1.05	23.94	25.00
Veh-kms on LR from Table A4.5	2.49	22.44	24.93
Initial adjustment factor	0.423	1.067	

Table A4.7 Adjusted allocation of LR traffic using factors from Error! Reference source not found. **(bn VKT)**

	Urban		Rural		Total		
	Heavy	Light	Heavy	Light	Heavy	Light	Total
AUCKLAND	0.21	8.05	0.07	2.20	0.28	10.24	10.52
BAY OF PLENTY	0.01	0.18	0.04	0.79	0.05	0.97	1.02
CANTERBURY	0.06	1.82	0.15	2.19	0.20	4.02	4.22
GISBORNE	0.00	0.05	0.01	0.15	0.01	0.20	0.21
HAWKES BAY	0.01	0.14	0.04	0.72	0.04	0.86	0.91
WANGANUI/MANAWATU	0.00	0.11	0.05	0.77	0.05	0.87	0.92
NELSON/MARLBOROUGH	0.01	0.14	0.04	0.60	0.04	0.74	0.78
NORTHLAND	0.00	0.10	0.02	0.52	0.02	0.62	0.64
OTAGO	0.01	0.20	0.02	0.54	0.03	0.73	0.76
SOUTHLAND	0.00	0.06	0.02	0.37	0.02	0.43	0.45
TARANAKI	0.00	0.10	0.01	0.29	0.02	0.39	0.41
WAIKATO	0.01	0.22	0.10	1.51	0.11	1.73	1.84
WELLINGTON	0.03	1.68	0.01	0.68	0.04	2.35	2.40
WEST COAST	0.00	0.01	0.00	0.06	0.00	0.07	0.07
Grand Total	**0.35**	**12.86**	**0.59**	**11.37**	**0.94**	**24.23**	**25.17**
Further adjustment factor					1.121576	0.988111	

Table A4.8 Adjusted allocation of LR traffic using factors from Table A4.7 (bn VKT)

	Urban		Rural		Total		
	Heavy	Light	Heavy	Light	Heavy	Light	Total
AUCKLAND	0.23	7.95	0.08	2.17	0.31	10.12	10.43
BAY OF PLENTY	0.01	0.18	0.05	0.78	0.06	0.96	1.02
CANTERBURY	0.07	1.80	0.16	2.17	0.23	3.97	4.20
GISBORNE	0.00	0.05	0.01	0.14	0.01	0.19	0.21
HAWKES BAY	0.01	0.14	0.04	0.72	0.05	0.85	0.90
WANGANUI/MANAWATU	0.00	0.11	0.05	0.76	0.06	0.86	0.92
NELSON/MARLBOROUGH	0.01	0.14	0.04	0.59	0.05	0.73	0.78
NORTHLAND	0.00	0.09	0.02	0.51	0.03	0.61	0.64
OTAGO	0.01	0.19	0.03	0.53	0.03	0.72	0.76
SOUTHLAND	0.00	0.06	0.02	0.37	0.02	0.43	0.45
TARANAKI	0.00	0.10	0.02	0.28	0.02	0.39	0.40
WAIKATO	0.01	0.22	0.11	1.49	0.13	1.71	1.83
WELLINGTON	0.04	1.66	0.02	0.67	0.05	2.33	2.38
WEST COAST	0.00	0.01	0.00	0.06	0.00	0.07	0.07
Grand Total	**0.39**	**12.71**	**0.67**	**11.24**	**1.05**	**23.94**	**25.00**

Table A4.9 Final check of LR totals against original estimates by region (bn VKT)

	MoT estimates from Table A4.4	Estimates from Table A4.8	Ratio D6/ D4
AUCKLAND	10.26	10.43	1.02
BAY OF PLENTY	1.04	1.02	0.98
CANTERBURY	4.25	4.20	0.99
GISBORNE	0.21	0.21	0.97
HAWKES BAY	0.91	0.90	0.99
WANGANUI/MANAWATU	0.94	0.92	0.98
NELSON/MARLBOROUGH	0.80	0.78	0.98
NORTHLAND	0.63	0.64	1.00
OTAGO	0.76	0.76	1.00
SOUTHLAND	0.45	0.45	0.99
TARANAKI	0.41	0.40	1.00
WAIKATO	1.89	1.83	0.97
WELLINGTON	2.31	2.38	1.03
WEST COAST	0.07	0.07	0.99
Grand Total	**24.93**	**25.00**	**1.00**

The results appear satisfactory since the estimates derived from Table D8 (which incorporate the split by different categories) match the aggregate figures from the MoT estimates.

Table A4.10 Overall summary of the estimated total vehicle kilometre travelled (bn VKT)

	Urban			Rural			Total all roads		
	Light	Heavy	Total Urban	Light	Heavy	Total Rural	Light	Heavy	Total all vehs
Local Roads	12.7	0.4	13.1	11.2	0.7	11.9	23.9	1.1	25.0
State Highways	8.5	0.6	9.1	13.0	1.8	14.8	21.5	2.4	23.9
Total	**21.2**	**1.0**	**22.2**	**24.2**	**2.4**	**26.7**	**45.4**	**3.4**	**48.9**

Appendix 5 Allocation of user payments between motorcycles and cars

The material in Table 9.3 and Table 9.4 included motorcycles within the category of cars, with the payments for motorcycles being subsumed in the overall totals for cars. To split these costs between the two categories for subsequent analysis, these costs were investigated further to develop a suitable basis for allocation between the two vehicle types.

The types of user payments considered and the approach to the allocation of these is set out in Table A5.1.

Table A5.1 Allocation of user payments between motorcycles and cars

Payment type	Allocation method	Allocation to motorcycles	Allocation to cars
Veh licensing & registration	Based on the relative annual costs of licensing and registering cars and motorcycles. For cars the average registration fee excluding the ACC element was estimated at about $63 per year and for motorcycles $147 per year. These were multiplied by the numbers of vehicles 0.177m motorcycles and 3.298m cars to get the total by vehicle type. The proportion by each vehicle type was then applied to the top down estimate.	11.1%	88.9%
Fuel Excise Duty	The split of vehicle excise duty was determined by estimating the typical fuel consumption and then applying this to the total distance travelled by vehicle type to get the total consumption by vehicle type. The split between vehicle types was then applied to the total estimate of FED.	0.8%	99.2%
RUC	There is no RUC on motorcyclists		100%
Tolls	Tolls were allocated on the basis of the relative distance travelled by the two vehicle types	1.1%	98.9%
Other	Other payments were allocated on the basis of the split of total number of vehicles by type	5.1%	94.9%
ACC -Licensing	The split of ACC licence payments was based on the split of ACC levy revues from motorcycles and cars.	23%	77%
ACC - Fuel levy ETS RFT PEFM LAPT Maritime search & rescue	Allocated on the same basis as FED described above.	0.8%	99.2%
Fines	Allocated on distance travelled	1.1%	98.9%

These ratios are applied to the initial costs estimated for cars and the results are set out in Table A5.2.

Table A5.2 Total split of user payments between motorcycles and cars 2018/19 ($m)

Duty type	Initial estimate for MCVs & buses combined	Fixed/ Variable	Allocated costs		
			M/Cs	Cars	Total
Veh licensing & registration	160.2	Fixed	17.9	142.3	160.2
Fuel Excise Duty	1,813.3	Variable	14.9	1798.4	1,813.3
RUC	229.9	Variable	0.0	229.9	229.9
Tolls	22.1	Variable	0.2	21.9	22.1
Other	88.3	Fixed	4.5	83.8	88.3
Total Waka Kotahi/ NLTP	**2,313.8**		**37.5**	**2,276.3**	**2,313.8**
ACC -Licensing	175.9	Fixed	40.4	135.5	175.9
ACC - Fuel levy	175.3	Variable	1.4	173.9	175.3
ETS	216.6	Variable	1.8	214.8	216.6
RFT	77.5	Variable	0.6	76.9	77.5
PEFM	16.8	Variable	0.1	16.7	16.8
LAPT	27.6	Variable	0.2	27.4	27.6
Maritime search & rescue	12.0	Variable	0.1	11.9	12.0
Fines	171.8	Variable	1.9	169.9	171.8
Total other agencies	**873.6**		**46.6**	**826.9**	**873.6**
Grand Total	**3,187.4**		**84.1**	**3103.2**	**3,187.4**

The split of the total costs by fixed and variable elements for each vehicle type is set out in Table 9.4 and summarised in Table A5.3.

Table A5.3 Allocation of total user payments by fixed/variable and vehicle type 2018/19 ($m)

Vehicle type	Fixed costs ($m)	Total variable costs ($m)	Variable costs per km ($)
M/Cs	62.7	21.3	0.05
Cars	361.7	2741.6	0.08

Appendix 6 Allocation of user payments between MCVs and buses

A similar process to that set out above in Appendix 5 has been used to allocate total user payments into those paid in respect of MCVs and those for buses. This was used to extend the analysis set out in Table A6.1 and Table A6.2, where the costs for buses were subsumed in the overall totals for MCVs.

For this allocation two main categories were defined, costs dependent on the numbers of vehicles and costs dependent on the distance travelled. The numbers of vehicles and the distance travelled are summarised in Table A6.1.

Table A6.1 Breakdown of vehicle numbers and distance travelled for MCVs and buses

		MCV	Bus
Vehicles	No. (000s)	89.6	11.4
	Per cent	88.7%	11.3%
Kms	No. (bn kms)	1.12	0.34
	Per cent	76.9%	23.1%

These ratios were applied to the initial costs estimated for MCVs and the results are set out in Table A6.2 and Table A6.3.

Table A6.2 Total split of user payments between MCVs and buses 2018/19 ($m)

Duty type	Initial estimate for MCVs & buses combined	Basis of cost allocation	Fixed/ Variable	Allocated costs		
				MCV	Bus	Total
Veh licensing & registration	8.5	No of vehs	Fixed	7.5	1.0	8.5
Fuel Excise Duty	0.0	Mileage	Variable			0.0
RUC	89.4	Mileage	Variable	68.8	20.6	89.4
Tolls	4.7	Mileage	Variable	3.6	1.1	4.7
Other	2.3	No of vehs	Fixed	2.0	0.3	2.3
Total Waka Kotahi/ NLTP	**104.8**			**82.0**	**22.9**	**104.8**
ACC -Licensing	16.6	No of vehs	Fixed	14..7	1.9	16.6
ACC - Fuel levy	0	Mileage	Variable	0	0	0
ETS	24.4	Mileage	Variable	18.8	5.6	24.4
RFT	8.8	Mileage	Variable	6.8	2.0	8.8
PEFM	1.2	Mileage	Variable	0.9	0.3	1.2
LAPT	1.3	Mileage	Variable	1	0.3	1.3
Maritime search & rescue	0.0	Mileage	Variable	0	0	0
Fines	2.3	Mileage	Variable	1.8	0.5	2.3
Total other agencies	**54.7**			**44.0**	**10.6**	**54.7**
Total	**159.5**			**125.9**	**33.6**	**159.5**

Table A6.3 Allocation of total user payments by fixed/variable and vehicle type 2018/19 ($m)

Vehicle type	Fixed costs ($m)	Total variable costs ($m)	Variable costs per km ($)
MCVs	24.3	101.6	1.12
Buses	3.1	30.5	0.34

Appendix 7 The road transport task – estimates of total passenger kilometres (pkt) and freight net tonne-kilometres (ntk)

Table G1 Estimates of the road transport task for persons and freight 2018/19

	M/c	Car	LCV1	LCV2	MCV	HCV1	HCV2A	HCV2B	Bus	Total	Sources
Total veh-kms (bn)	0.4	35.7	2.1	7.0	1.1	0.6	0.7	0.6	0.3	48.7	(1)
Occupancy of vehs - person transport	1.1	1.56	1.1						9.1		(2)
Total PKT (bn)	**0.4**	**55.7**	**2.3**						**3.1**	**61.5**	
Average payload for freight vehicles				0.5	2.8	6.1	13.4	17.3			(3)
Total NTK (bn)				**3.5**	**3.2**	**3.7**	**9.4**	**10.9**		**30.6**	

Sources:

(1) Veh-kms WP C4, T 9.1. Extended in Appendices E and F to separate out MCs and buses.
(2) Occupancies Cars WP D4 Section 3.1.3
M/Cs and LCVs Consultants estimates
Buses WP D1
(3) Freight payloads WPC5 Section 4

Domestic Transport Costs and Charges Study

Working paper C4

Road Vehicle Ownership and Use Charges

transport.govt.nz

ISBN 978-1-99-117849-7

Te Kāwanatanga o Aotearoa
New Zealand Government