TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Domestic Transport Costs and Charges Study

Working Paper C2
Valuation of the Road Network

Prepared for Te Manatū Waka Ministry of Transport (NZ)
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June 2023

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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.

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Acknowledgements

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

- Waka Kotahi
- Local Government New Zealand
- 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 – Valuation of Road Network, Working Paper C2, 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

Term	Definition
DRC	Depreciated Replacement Cost
DTCC	Domestic Transport Costs and Charges (study)
IPSAS	International Public Sector Accounting Standards
ODRC	Optimised Depreciated Replacement Cost
TLA	Territorial local authority
TMW	Te Manatū Waka Ministry of Transport
TOF	Transport Outcomes Framework
Waka Kotahi	Waka Kotahi New Zealand Transport Agency
WP	Working paper

Executive summary

The State Highway and local road networks in New Zealand form a very important transport asset supporting the movement of people and freight across the country. Substantial sums have been invested in the two networks over time and it is important from an efficiency perspective to understand the current values of these assets, taking into account the extent to which they can be considered to have depreciated and the extent to which elements of the assets can be considered to be recoverable: land falls into this latter category. Using these figures and applying the economic rate of return provides an estimate of the annualised economic costs which could be attributed to road users[1]. On economic grounds, these costs should in principle be recovered from road users over time, having regard to funding policies (such as PAYGO) adopted to-date.

Separate exercises have been undertaken by others in the past to value the State Highway and local road networks, elements of which are revalued on a regular basis. These take into account different lives for the components of the road network, including for example, pavements, structures and other components. The values have been depreciated to reflect the life estimated to remain for these elements.

- For the State Highways, Waka Kotahi publishes the details of the valuation of the network in their annual report. Notably this assumes that the value of the land occupied by the road network is valued on an "over the fence" basis, taking a7ccount of the land values for the areas adjoining the road network. This valuation exercise is updated regularly as is the value of the assets embodied in the road network itself.
- For the local road network, for which the roading assets themselves are revalued on a regular basis, the approaches taken by the various authorities for assessing the value of the land assets differ, with some using an historic cost approach and others taking an approach more reflective of current land values. In some instances, values are not published and have had to be estimated for this study.

Bringing together the data for the State Highway and local road networks, the overall valuation of the New Zealand roading network (as at June 2019) is as summarised in Table ES.1. Because of issues with the valuation and the range of approaches used, in particular to value land, the results should be regarded as indicative rather than precise.

[1] Details of these economic costs are provided in WP C1.2.

Table ES.1 Summary valuation estimates for the New Zealand road network 2018/19

Item	Replacement Cost		Depreciated Replacement Cost	
	Total	Per Route Km	Total	Per Route Km
	$B	$M	$B	$M
Roads:				
State Highways	62.23	5.5	49.7	4.5
Local Roads (Note)	76.25	0.9	61.5	0.7
Total	**138.48**		**111.2**	
Analysis by Asset Category				
Recoverable, non-depreciating (land)			33.4	
Non-recoverable (all other asset types)			77.8	

Note This assumes a similar relationship between replacement costs and depreciated replacement costs for the local road network as was determined for the State Highway network.

Chapter 1 Introduction

1.1 Study scope and overview

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

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 associated with different transport modes – including road, rail, public transport and coastal shipping – and the extent to which those costs are currently offset by charges paid by transport users.

The DTCC is intended to support the wider policy framework of Te Manatū Waka, in particular 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.
- 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 Te Manatū Waka by a consultant consortium headed by Ian Wallis Associates Ltd. The Study has been 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 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% p.a., in real terms, of the optimised replacement costs of the assets involved).

1.3 Paper scope and structure

The State Highway and local road networks in New Zealand form a very important transport asset supporting the movement of people and freight across the country. Substantial sums have been invested in these networks over time. Therefore, it is important from an efficiency perspective to understand the current values of these assets, taking into account the extent to which they can be considered to have depreciated and the extent to which elements of the assets (such as land) can be considered to be recoverable.

Estimates of road network valuation can be used, via applying the target rate of return, to provide an estimate of the economic costs which could be attributed to road users and should in principle be recovered from them over time (see DTCC Working Paper C1.2). To enable such assessment, this paper provides estimates of the current value of the assets incorporated in the State Highway and local road networks in New Zealand as at the end of June 2019, taking into account any depreciation.

Developing the valuation (from scratch) of the NZ road network would be a major task and was outside the scope of this study. This working paper made use of the work undertaken by/for Waka Kotahi and the other road controlling authorities. Information was gathered from material published by Waka Kotahi and the Annual Reports of the 63 Territorial Local Authorities (TLAs) and was supplemented by discussions with Waka Kotahi. While these data sources are not consistent in all respects, they provide a sufficient guide to the road system cost estimates for the purposes of the DTCC study. The main issue is probably the valuation of the land used for the road network, but different local authorities also make different assumptions about the periods over which assets are depreciated.

The valuation for the road infrastructure itself is based on one of the following two general approaches:

- The *Optimised Depreciated Replacement Cost (ODRC)* of assets. This approach takes into account that in some instances assets would be replaced in a way that is different to their current form and so takes into account developments in construction technology and the requirements for new infrastructure. This approach is formally used by Waka Kotahi and a number of the local road controlling authorities.
- The *Depreciated Replacement Cost (DRC)* of assets. This approach has been taken by a number of the Road Controlling Authorities for valuation purposes: however, in many instances it was indicated that the replacement costs would be based on the most appropriate replacement technique, which would provide a similar approach to the formal optimised replacement cost approach.

The use of the DRC approach by local authorities may result in different and possibly higher valuations than the ODRC approach taken for the State Highway network. This may give rise to valuations which could over-estimate the value of the local road network, although given the approach taken is based on current approaches to replacing the asset the extent of this in practice is likely to be small.

The valuation of the land under the road network uses a variety of different approaches. Land costs are not depreciated under any approaches. Differences in the valuation of land for State Highways and for local roads may result in more significant differences between the total estimated values of these two sets of assets.

Chapter 2 Valuation of the State Highway Network

2.1 Introduction

The State Highway network is revalued annually. For 2018/19, the valuation is based on work by WSP-Opus[2] for the infrastructure and by Darroch[3] for the land values. Waka Kotahi also made some minor adjustments to the values before their publication in the Waka Kotahi Annual Report.

2.2 Basis of valuation

According to the Waka Kotahi Annual Report *"The state highway network (excluding land and formation) is valued using an optimised depreciated replacement cost methodology based on the estimated current cost of constructing the existing assets by the most appropriate method of construction, reduced by factors for the age, condition and performance of the assets. The estimated current cost is expected to change over time. Formation is valued using unit rates for formation types applied to carriageway lengths multiplied by width, including shoulders. Formation is a non-depreciable asset class. Qualified independent valuers carry out the valuation*."

In many cases this approach uses updated unit value rates for the individual elements of the assets, as provided by BondCM, a consultancy offering specialist costing services.

Valuations are based on straight line depreciation on the current values of the elements of the State Highway network, assuming zero residual values. The values are updated as part of the regular valuation exercise. The lives assumed for the different assets by Waka Kotahi are set out in Table 2.1

Table 2.1: Assumed asset lives for State Highways

Item	Useful life (years)
Land	NA
Formation including pavement sub-base	NA
Pavement – Other	50
Pavement – Surface	9-14
Drainage	50
Traffic Facilities	10-25
Bridges	90-100
Culverts and Subways	50-75
Other Structures	10-100

Land has been valued on the basis that the land used for roading has a similar value to the land in the area through which the road passes, ie the "over the fence" approach. In part this has been undertaken in 2018/19 through a detailed revaluation exercise (for Auckland, Wellington and Bay of Plenty regions) and in part (for other areas) by determining appropriate uplift factors which were applied to the valuations in the previous year.

[2] WSP Opus "2019 Valuation of the State Highway Network Report"
[3] Darroch Limited "NZTA State Highways 2019 Corridor Land Valuation Estimate of values as at 30 June 2019"

2.3 Results of the valuation

The results of the valuation for 2018/19 for the State Highway network are summarised in Table 2.2.

- The valuation of the State Highway network involved an ODRC approach for all assets except land. Land has been revalued regularly on the basis of an “over the fence” approach.
- The current value of the State Highway network in terms of its depreciated (ODRC) value amounts to about $49.7bn. This represents an average of about $4.5 m per route km.
- Just over half this amount relates to land and formation costs, which account for 28% and 26% respective of the total ODRC. These items are assumed not to depreciate over time (but are subject to periodic revaluation).
- For the items which do depreciate, the total depreciated value amounts to about 65% of the optimised depreciated replacement cost; i.e. these assets are currently, on average, just over one-third of the way through their assessed lives (for depreciation purposes).
- Of the total depreciated replacement value, about 52% is for rural roads, 17% for urban roads and 31% for motorways.
- The total depreciated value represents an average of about $10,600 per person across the total NZ population.

Table 2.2: State Highways asset valuation – Values at June 2019

Item	Optimised Depreciated Replacement Cost		Average Proportion Depreciated (% all)	Depreciated Replacement Cost	
	Total	Per Route Km		Total	Per Route km
	$M	$000 (1)		$M	$000 (1)
Land	13,744	1,244	0	13,744	1,244
Formation	12,884	1,166	0	12,884	1,166
Pavement – Other	8,538	773	26%	6,285	569
Pavement – Surface	2,046	185	49%	1,039	94
Drainage	2,979	270	41%	1,770	160
Traffic Facilities	2,577	233	44%	1,451	131
Bridges	13,526	1,224	40%	8,067	730
Culverts and Subways	1,378	125	46%	738	67
Other Structures	4,555	412	20%	3,680	331
Total	**62,228**	**5,633**	**20%**	**49,657**	**4,494**
Breakdown by Road Type: (1)					
Rural	32,409	3,230		25,862	2,580
Urban	10,274	10,180		8,199	8,130
Motorway	19,544	33,070		15,596	26,390

Notes: (1) The distances used to estimate the costs by road type are longer than the total formally reported by the Waka Kotahi since these are based on the distance in each direction when the road is wider than 2 lanes. This will most significantly impact the distances used in the table for motorways and rural roads.

Source: *Waka Kotahi Annual Report 2018/19 for the optimised depreciated replacement costs. See WSP Opus (2019) for the .replacement costs.*

The breakdown of the current depreciated value of the road network by asset type is illustrated in Figure 2-1. This highlights the dominance of land and formation costs, which together account for over half the total value of the State Highway network. These assets are not depreciated

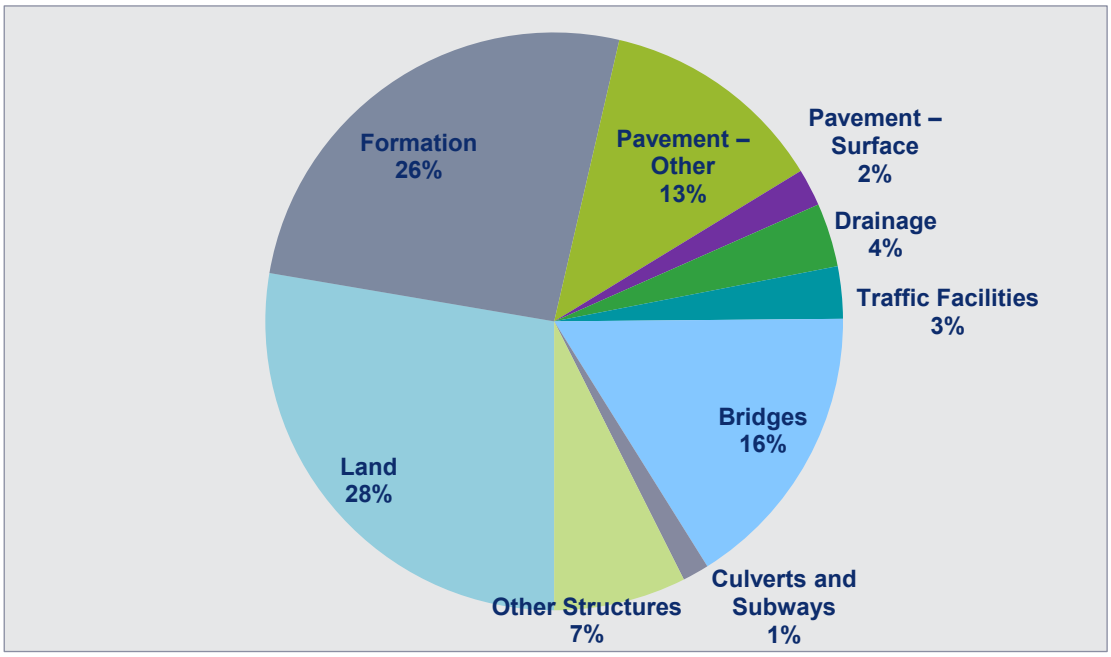

Figure 2-1: Breakdown of current State Highway valuation by asset type

At the margin, additional vehicles contribute to an increase in road wear. Following previous studies, we have estimated the wear cost due to the marginal vehicle in terms of additional routine maintenance expenditure, periodic maintenance and/or maintenance expenditure brought forward. However, the immediate effect of road wear is an externality imposed on other road users. The externality is the incremental vehicle operating cost (VOC) due to incremental roughness caused by incremental road use, as measured by the international roughness index (IRI) . Since the effect of road wear is almost entirely due to heavy vehicles, we calculated the costs related to a change in the number of heavy vehicles, or more precisely, in terms of the change in number of equivalent standard axles (ESA) relative to a base situation.

Our analyses distinguish between the social marginal cost, the short run marginal cost and the long run marginal cost. These terms are not always used consistently by authors or between modes. For this Working Paper we have defined the terms as follows:

- The social marginal cost (SMC) is, by analogy with congestion costs, the cost imposed on other road users by the marginal user in the absence of intervention by the road owner. An increase in ESA makes the pavement rougher and increases the VOC for all subsequent vehicles-- until the next reset (rehabilitation). Hence an increase in ESA immediately after reset is relatively costly but if the increase occurs shortly before reset the total externality will be small.

Chapter 3 Valuation of Local Roads

The values of local roads are published in the annual reports of the TLAs (and, in the case of Auckland, the Auckland Council). The general basis for the valuation for a typical TLA is set out in Appendix 4. In general, the value of the infrastructure itself is re-assessed annually by external consultants using broadly standard approaches - although the interpretation of these for example in terms of useful asset lives varies between the Councils, asset types and local characteristics.

The infrastructure is typically valued on the basis of the depreciated replacement cost (DRC) approach. The approach taken would in practice recognise changes in the ways of achieving a particular level of service, and therefore it is probably similar in many cases to the formal ODRC approach adopted by Waka Kotahi and discussed in the previous section. An investigation into the proportion of the LR network that is based on DRC and ODRC is outside the scope of this working paper but could in principle be completed by reviewing all individual TLA Annual Reports. However, there is no guarantee such an exercise can provide a precise answer.

There are also differences in the ranges of asset lives assumed by different councils: as examples, those assumed by the Far North District Council, the Gore District Council and the Christchurch City Council are compared in Appendix 4.

Although the principles (but not all the details) of the valuation of the infrastructure assets are broadly similar across all the local authorities, the value of land under the road network is not treated in such a standard manner, with different councils adopting widely different approaches and different valuation years. In some instances, the land is valued at historic cost and in others valued on the basis of a particular valuation date -- which in some instances is some time in the past, possibly as far back as 2002. There is only limited valuation of land on the basis of the "over the fence" approach used by Waka Kotahi.

In addition, while in most cases the value of the land under the road network is identified and valued as a separate item, in some instances the value of this is not separately identified. It may either be included in the infrastructure costs or valued separately along with the Council's other land holdings. Appropriate adjustments have been made to reflect as far as possible these different approaches. These are set out in Appendix 4. Because of these difficulties and the range of approaches used, in particular to value land, the results should be regarded as indicative rather than precise.

The local road network as a whole is valued at about $61.5b, about 23% more than the value of the State Highway network. Its average value per km is however substantially below that of the State Highway Network, at about $0.7m per route km compared to the State Highway value of $4.5m. Its average value per person (NZ population) is about $13,100 (Appendix 6, Table A6.2).

This average value per km varies significantly between different TLAs, as can be seen in Figure 3.1.

In general, the more rural areas have lower values per km although in some of these the particular challenges associated with the network seem to result in higher values. This would be the case for example in Gisborne, Taupo and Westland.

The details of the valuation of the local roading network by selected individual TLAs are set out in Appendix 6.

The local road network is an important asset owned by the residents of each TLA and the average value per inhabitant of these is set out in .

The highest values per person are typically found in the more rural areas with relatively low population densities. The more heavily populated urban areas typically have lower asset values per inhabitant. The average value for the country as a whole is about $13,100 per inhabitant.

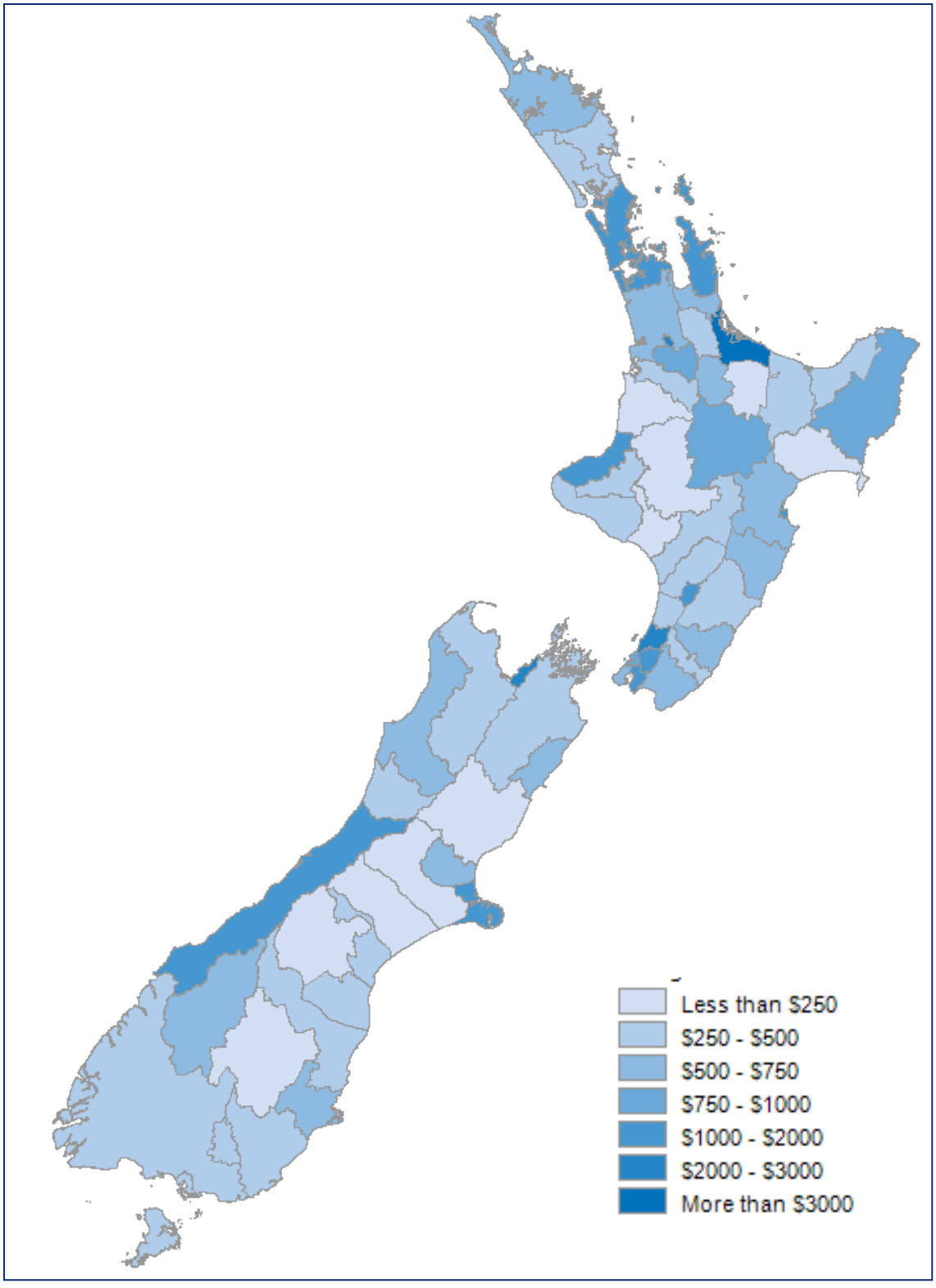

Figure 3-1: Average value of local roads per route km ($000s)

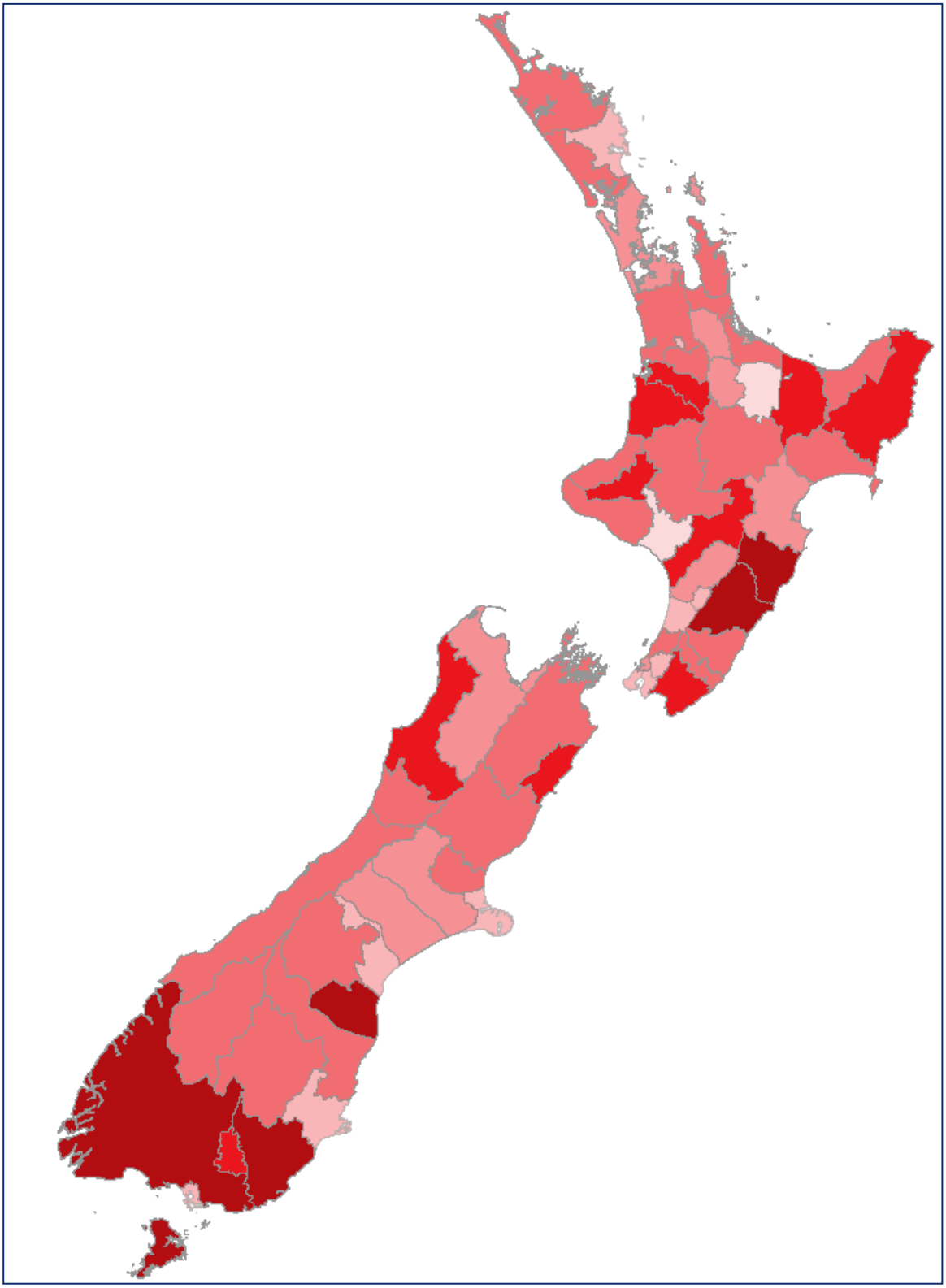

Figure 3-2: Value of TLA local road assets per inhabitant ($000s)

Chapter 4 Summary of Valuation Results

Bringing together the data for the State Highway and local road networks, the total value of the NZ roading network is summarised in Table 4. 1. The application of this value in deriving the annualised economic costs of the NZ road network is described in WP C1.2.

The total depreciated replacement cost (DRC) value is just over $110 billion, split about 45% for State Highways and 55% for local roads. The land costs, which amount to about 30% of the total costs, are the only cost category which is classified as recoverable. Valuing this however is challenging since its realistic value would reflect the accessibility provided by the road network itself. Without this accessibility, values particularly for the State Highway network would be substantially lower, since the land use opportunities would be more constrained.

Table 4.1 Summary valuation estimates for the New Zealand road network 2018/19

Item	Replacement Cost		Depreciated Replacement Cost	
	Total	Per Route Km	Total	Per Route Km
	$B	$M	$B	$M
Roads:				
State Highways	62.23	5.5	49.7	4.5
Local Roads (Note)	76.25	0.9	61.5	0.7
Total	**138.48**		**111.2**	
Analysis by Asset Category				
Recoverable, non-depreciating (land)			33.4	
Non-recoverable (all other asset types)			77.8	

Note This assumes a similar relationship between replacement costs and depreciated replacement costs for the local road network as was determined for the State Highway network.

Appendix 1 Bibliography

Darroch Limited "New Zealand State Highways 2019 Corridor Land Valuation Estimate of Values", as at 30 June 2019

Waka Kotahi Annual Report 2018/19

WSP Opus "2019 Valuation of the State Highway Network Report"

2018/19 Annual reports of all the TLAs

Appendix 2 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 3 Typical Statement of Valuation Principles for Local Authorities

Gore District Council Annual Report 2018/19

"The preparation of financial statements in conformity with New Zealand equivalents to International Public Sector Accounting Standards (NZ IPSAS) requires management to make judgements, estimates and assumptions that affect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances, the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and in future periods if the revision affects both current and future periods."

Revaluation

All assets are valued at historical cost, except for the following:

• Land and buildings have been valued by Quotable Value Limited (Registered Valuers) at market value or depreciated replacement cost as at 30 June 2019. Subsequent additions are recognised at cost. Land and buildings are re-valued every three years.

• Infrastructural assets (except for land under roads) have all been valued at depreciated replacement cost by Opus International Consultants Limited as at 30 June 2016. Subsequent additions are recognised at cost. Infrastructural assets are re-valued every 3 years.

All valuations are carried out or reviewed by independently qualified valuers and are carried out at least triennially.

Other councils

Other councils adopt a similar framework for the revaluation of the roading assets although there are some differences in the details of the approach particularly in relation to assumed asset lives. This is illustrated in Appendix 4. The approach to the valuation of land costs varies widely between Councils, in part reflecting the lack of any depreciation allowance for this item.

Appendix 4 Typical Lives of Assets for Depreciation Purposes

These vary from Council to Council as is illustrated below.

Table A4.1: Far North District Council

Infrastructural Assets: Infrastructural assets are depreciated on a straight line basis at rates that will write off their cost, less any estimated residual value, over their expected useful life.

Roading	• bridges	70-100 years
	• culverts	100 years
	• pavement surface	9-100 years
	• pavement formation	N/A (not depreciated)
	• pavement layers	10-100 years
	• footpaths	25-75 years
	• street lights	20-40 years
	• kerb and channel	75 years
	• traffic signals	12-55 years
	• berms	N/A (not depreciated)
	• signs	13 years
	• barriers and rails	13-30 years

Table A4.2: Gore District Council

	Life (years)
Infrastructural assets	
Water Reticulation	10 - 100
Sewerage Reticulation	15 - 60
Stormwater Reticulation	60
Refuse	10 - 50
Roads – Formation	N/A
Roads – Pavement (non-depreciable)	N/A
Roads – Pavement (depreciable)	7 - 60
Roads – Footpaths, Kerbs, Bridges and Culverts	50 -100
Roads – Signs, Road markings and Street lighting	20 -100

Table A4.3: Christchurch City Council

Roading and transport infrastructure assets:	Assumed life
Formation	Not depreciated
Pavement sub-base	Not depreciated
Basecourse	40-120 yrs
Footpaths and cycleways	25-80 yrs
Surface	2-80 yrs
Streetlights and signs	5-50 yrs
Kerb, channel, sumps and berms	80 yrs
Parking meters	10 yrs
Railings	20-50 yrs
Landscape/medians	8-80 yrs
Drain pipes/culverts/retaining walls	20-115 yrs
Bridges	70-100 yrs
Bus shelters and furniture	6-40 yrs

Appendix 5 Estimation of Land Values (where no details are available)

For the TLAs where no information was available on the value of the land under the roading network, estimates were made taking into account the data available for similar areas. For this purpose, the TLAs were separated into five main categories (based on subjective assessment) as below:

- Small rural
- Large rural
- Small urban
- Mid urban
- Large urban.

For each of these categories the average observed share of land costs in the total value of the local roads network was determined for the areas for which this information was available. These ratios were then applied to the TLAs by TLA category for which no data on land costs was available. In total this process was used for 13 out of the 67 TLAs, of which five were classified as small rural areas, six as large rural areas, one as a small urban area and one as a mid-size urban area. The value of land estimated in this way accounted for about 10% of the total land values for the TLAs as a whole.

Appendix 6 Details of TLA Valuation Estimates

Table A6.1: Local road valuation estimates by TLA 2018/19

Local Government	Total Roading Assets ($000)	$ Per Km ($000)	Total Local Km (1)	Sealed roads (%)
Ashburton	380,032	145	2,619.9	57.4%
Auckland	16,150,000	2,169	7,446.3	88.6%
Buller	273,574	452	604.8	52.9%
Carterton	150,215	336	447.1	65.4%
Central Hawkes Bay	710,639	567	1,252.5	68.4%
Central Otago	417,505	220	1,897.2	27.8%
Chatham Islands	76,136	426	178.9	7.3%
Christchurch	2,610,146	1,091	2,392.9	85.4%
Clutha	859,369	297	2,897.9	29.1%
Dunedin	1,260,545	714	1,764.3	60.6%
Far North	1,445,076	576	2,507.2	34.3%
Gisborne	1,585,844	839	1,889.4	45.3%
Gore	347,620	385	904	40.1%
Grey	231,922	381	609.2	61.0%
Hamilton	1,550,152	2,290	676.8	99.4%
Hastings	1,211,409	739	1,639.8	79.3%
Hauraki	328,120	517	634.9	81.8%
Horowhenua	231,941	402	576.5	90.6%
Hurunui	255,444	175	1,459.9	42.2%
Hutt City	574,480	1,185	484.8	100.0%
Invercargill	282,516	484	583.9	81.0%
Kaikoura	118,258	558	211.9	52.5%
Kaipara	526,913	337	1,564.4	28.1%
Kapiti Coast	1,142,695	2,771	412.4	96.8%
Kawerau	2,022	51	39.6	98.7%
MacKenzie	106,756	146	732.2	29.3%
Manawatu	443,182	324	1,369.6	71.8%
Marlborough	718,211	464	1,547.3	59.3%
Masterton	516,620	642	804.7	65.2%
Matamata/Piako	370,624	368	1,008	94.0%
Napier	667,750	1,820	366.8	100.0%
Nelson	677,181	2,170	312.1	89.1%
New Plymouth	1,452,468	1,128	1,287.5	86.9%
Opotiki	144,329	429	336.7	51.7%
Otorohanga	259,552	322	806.3	67.2%
Palmerston North	722,871	1,275	567.1	93.3%
Porirua	792,864	3,102	255.6	100.0%
Queenstown/Lakes	600,891	711	845.4	75.9%
Rangitikei	459,466	375	1,225.7	65.0%
Rotorua	151,370	151	1,003.4	86.9%
Ruapehu	293,333	219	1,339.2	36.9%
Selwyn	794,249	307	2,586.3	56.9%
South Taranaki	479,636	294	1,630.9	84.2%
South Waikato	259,491	511	507.8	97.2%
South Wairarapa	338,642	507	668.5	59.9%
Southland	1,377,960	277	4,970.3	39.6%
Stratford	254,166	415	612.9	66.2%
Tararua	788,614	403	1,958	60.5%
Tasman	705,178	403	1,750.6	55.4%
Taupo	639,890	817	783.2	90.7%
Tauranga	1,920,290	3,407	563.6	100.0%
Thames-Coromandel	733,986	1,054	696.6	69.0%

Timaru	439,285	255	1,722.6	56.1%
Upper Hutt	316,975	1,292	245.3	99.5%
Waikato	1,276,007	520	2,454.1	75.5%
Waimakariri	979,506	625	1566	60.1%
Waimate	342,714	256	1,337.2	48.0%
Waipa	1,002,605	915	1,095.7	95.7%
Wairoa	198,071	221	897.6	31.8%
Waitaki	529,332	294	1,802.1	43.1%
Waitomo	247,165	244	1,014.8	45.4%
Wanganui	368,999	530	696.3	99.9%
Wellington	4,005,443	3,800	1,054.1	82.7%
Western Bay of Plenty	869,780	1,292	673.4	55.3%
Westland	277,737	306	907.3	77.4%
Whakatane	366,903	435	843.4	68.0%
Whangarei	846,478	489	1,730.5	59.8%
TOTAL	**61,459,143**	**729**	**84,273**	**63.2%**

Notes (1) Distances are based on total route-kms

Table A6. 2: Local road valuation estimates by TLA 2018/19 - value per resident

Local Government	Total Roading Assets ($000)	Resident population 2018	Asset value per person ($000)
Ashburton	380,032	33,423	11.4
Auckland	16,150,000	1,571,718	10.3
Buller	273,574	9,591	28.5
Carterton	150,215	9,198	16.3
Central Hawkes Bay	710,639	14,142	50.3
Central Otago	417,505	21,558	19.4
Chatham Islands	76,136	663	114.8
Christchurch	2,610,146	369,006	7.1
Clutha	859,369	17,667	48.6
Dunedin	1,260,545	126,255	10.0
Far North	1,445,076	65,250	22.1
Gisborne	1,585,844	47,517	33.4
Gore	347,620	12,396	28.0
Grey	231,922	13,344	17.4
Hamilton	1,550,152	160,911	9.6
Hastings	1,211,409	81,537	14.9
Hauraki	328,120	20,022	16.4
Horowhenua	231,941	33,261	7.0
Hurunui	255,444	12,558	20.3
Hutt City	574,480	104,532	5.5
Invercargill	282,516	54,204	5.2
Kaikoura	118,258	3,912	30.2
Kaipara	526,913	22,869	23.0
Kapiti Coast	1,142,695	53,673	21.3
Kawerau	2,022	7,146	0.3
MacKenzie	106,756	4,866	21.9
Manawatu	443,182	30,165	14.7
Marlborough	718,211	47,340	15.2
Masterton	516,620	25,557	20.2
Matamata/Piako	370,624	34,404	10.8
Napier	667,750	62,241	10.7
Nelson	677,181	50,880	13.3
New Plymouth	1,452,468	80,679	18.0
Opotiki	144,329	9,276	15.6
Otorohanga	259,552	10,104	25.7
Palmerston North	722,871	84,639	8.5
Porirua	792,864	56,559	14.0
Queenstown/Lakes	600,891	39,153	15.3
Rangitikei	459,466	15,027	30.6
Rotorua	151,370	71,877	2.1
Ruapehu	293,333	12,309	23.8
Selwyn	794,249	60,561	13.1
South Taranaki	479,636	27,534	17.4
South Waikato	259,491	24,042	10.8
South Wairarapa	338,642	10,575	32.0
Southland	1,377,960	30,864	44.6
Stratford	254,166	9,474	26.8
Tararua	788,614	17,943	44.0
Tasman	705,178	52,389	13.5
Taupo	639,890	37,203	17.2
Tauranga	1,920,290	136,713	14.0
Thames-Coromandel	733,986	29,895	24.6
Timaru	439,285	46,296	9.5
Upper Hutt	316,975	43,980	7.2
Waikato	1,276,007	75,618	16.9
Waimakariri	979,506	59,502	16.5

Waimate	342,714	7,815	43.9
Waipa	1,002,605	53,241	18.8
Wairoa	198,071	8,367	23.7
Waitaki	529,332	22,308	23.7
Waitomo	247,165	9,303	26.6
Wanganui	368,999	45,309	8.1
Wellington	4,005,443	202,737	19.8
Western Bay of Plenty	869,780	51,321	16.9
Westland	277,737	8,640	32.1
Whakatane	366,903	35,700	10.3
Whangarei	846,478	90,960	9.3
TOTAL	**61,459,143**	**4,699,719**	**13.1**

Domestic Transport Costs and Charges Study

Working Paper C2

Valuation of the Road Network

transport.govt.nz

ISBN 978-1-99-117849-7

Te Kāwanatanga o Aotearoa
New Zealand Government