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Preliminary assessment of compliance cost and safety effects of WOF/COF policy changes to public consultation and RIA process

Project information

Project title		
Vehicle Licencing: Reduced inspection frequency for light vehicles		
Due date	10 October 2025	
Commissioning contact	Team	Position and role
Keegan Taylor	Regulatory Reform	Principal Adviser (Policy lead)
Analysis team personnel	Team	Role
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Context and scope		
The Regulatory Reform team is providing an options analysis for public consultation on reducing the frequency of Warrant of Fitness (WOF) and Certificate of Fitness (COF) for different light vehicle cohorts. The initial proposed options below apply to light vehicles: - Extend initial WOF-free period for new vehicles from 3 years to 5 years (referred to as 4-5yrs). - Extend initial WOF-free period for new vehicles from 3 years to 4 years (referred to as 4yrs). - Annual WOF inspections for vehicles currently on 6-monthly inspections (mainly vehicles manufactured before year 2000 and passenger service vehicles). Referred to as Mfr pre-2000. - Biennial WOF inspections for vehicles aged 4 to 14 (referred to as 4 to 14 yrs), and annual WOF inspections for vehicles aged 15 and over. - Annual COF inspections for rental vehicles, currently on 6-monthly inspections for the first 5 years (referred to as rental). - Annual COF inspections for rental and other passenger service vehicles (PSV), currently on 6-monthly inspections for the first 5 years (referred to as passenger service vehicles). After the initial analysis was completed an additional 7th option, (based on Option 4 with a smaller cohort) was added: - Biennial WOF inspections for vehicles aged 4 to 10 (referred to as 4 to 10 yrs), and annual WOF inspections for vehicles aged 11 and over. This note focuses on providing results of our preliminary assessment of safety and compliance cost effects to support the policy development process. In scope of this analysis: - Light passenger and light commercial vehicles - Costs relating to increased fatal, serious and minor crashes - Benefits related specifically to reduced inspections (i.e., costs of inspection, compliance time and unnecessary repairs) Out of scope: - Motorcycles, rental vehicles and trailers are excluded due to the lack of relevant data - Heavy vehicles are excluded as they are not affected by the policy. - Implementation and enforcement costs are excluded as details on implementation and enforcement options are not yet available. - Environmental costs but the effects are likely to be negligible.		

Executive summary

Overview

1. This note summarises the preliminary assessment of the two biggest effects resulting from the policy change – the safety effects and the change in the compliance costs of reducing the inspection frequency for light vehicles. It uses data from Motor Vehicle Register (MVR) and Crash Analysis System (CAS) to estimate the safety costs and calculates the expected change in the number of inspections and the effects on compliance costs (including costs of inspection and time) and unnecessary repairs.
2. Several uncertainties (due to limited or weak data) and unknowns (e.g., future safety trends) have constrained our ability to estimate the effects in a precise manner. To evaluate how the uncertainties with the data and assumptions affect the results, we undertook a Monte Carlo simulation of the key assumptions/variables and report the results as ranges.
3. Furthermore, we have used slightly out-dated vehicle fleet projections (using data up to 2023) for this analysis as an update of the projections is yet to be finalised as part of the current Vehicle Fleet Model redevelopment process. All estimates outlined in this document are, therefore, preliminary only and will need to be updated when new fleet projections become available.

Method

4. Our approach can be summarised as below:
 - (a) **Effects on inspection volume** – We calculated the number of annual inspections, with and without the policy change, by multiplying the projections of the number of vehicles in the fleet (for affected vehicle cohorts) by the required number of inspections by age group for each year.
 - (b) **Effects on compliance costs** – We calculated the changes in the total costs of inspection, compliance time and unnecessary repairs by multiplying the change in inspections by their associated resource costs.
 - (c) **Safety effects** – We estimated the changes in road crashes (by crash severity and vehicle cohort) by analysing respective crash data from 2015 to 2024 (since the last policy changes). Our analysis shows that the relative risk (between inspection-related crashes and non-inspection-related crashes) increases slightly with the number of weeks since the last inspection. To establish the likely change in crashes, we extended the relative risk forward to match the new inspection frequency. We then adjusted the resulting estimates for traffic growth and baseline risk reduction effects (eg due to vehicle and other improvements).
5. We have provided estimates of 95% confidence interval using Monte Carlo analysis to account for the level of uncertainties with the inputs and assumptions for the above.
6. We performed the analyses using R, GitLab and AWS environments.

Results

7. The results in [Table 1](#) show that Options 1 to 4 and 7 will likely be net beneficial for road users. The time since a vehicle's last inspection appears to have a weak effect on the risk of crash involvement with inspection-related contributing factors. Hence, the benefits of reducing inspection-related costs outweigh the potential increase in crash-related costs for these options.
8. The results for Options 3 are less reliable than options 1, 2, 4 and 7 because there were not enough crashes with inspection-related contributing factors in this vehicle cohort to establish a statistically sound relationship between the time since a vehicle's last inspection and its relative safety risk (see [Table 5](#)).

9. For Options 5 and 6, we were unable to model a relationship between the time since a vehicle's last inspection and its relative safety risk for those vehicle cohorts. This is because there was only one reported crash with an inspection-related contributing factor across 10 years of crash data.
10. Some considerations are:
- (a) The affected vehicle cohorts for options 3, 5 and 6 are relatively small (see [Figure 1](#)) so the scale of the risk is small. The vehicle cohort for option 3 (vehicles manufactured pre-2000) are also driven less and both their fleet size and level of travel (see [Figure 2](#)) are expected to diminish over time along with any safety risks exposure.
 - (b) The small numbers of relevant crashes for these cohorts suggest that the relative safety risk was not very high to start with.
11. Both considerations suggest that extending the inspection frequency under options 3, 5 and 6 will likely be net beneficial to society as well, though we still caution applying the [Table 1](#) results for those options.

Table 1. Key policy effects by of policy options – cumulative total for the years 2027 to 2055 (all dollar values are discounted at a 2% rate)

Key policy effects		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Increased social cost of road crashes	Fatal crashes	6 to 16	1 to 2	0 to 1	4 to 13	N/A	N/A	3 to 8
	Serious crashes	43 to 117	4 to 14	0 to 3	33 to 95			17 to 52
	Minor crashes	223 to 604	18 to 74	2 to 16	192 to 561			102 to 313
	Increased crash costs (\$m)	\$192 to \$522	\$17 to \$67	\$3 to \$22	\$151 to \$444	N/A	N/A	\$83 to \$255
Reduced compliance costs (ie benefits)	Inspections (m)	6.7	2.6	2.9	30.5	2.2	3.2	18.5
	Time (m hours)	3.8 to 6.2	1.5 to 2.5	1.6 to 2.7	17.2 to 28.3	2.6 to 4.2	3.7 to 5.9	10.6 to 17.2
	Benefits of fewer inspections (\$m)	\$467 to \$670	\$184 to \$264	\$279 to \$433	\$2254 to \$3398	\$380 to \$479	\$537 to \$678	\$1391 to \$2070
Net Present Value (NPV) (\$m)		\$22 to \$414	\$137 to \$230	\$267 to \$424	\$1987 to \$3110	\$380 to \$479	\$537 to \$678	\$1208 to \$1911
Benefit Cost Ratio (BCR)		1.0 to 3.1	3.2 to 12.9	15.4 to 138.2	6.0 to 18.8	N/A	N/A	6.3 to 21.1

Note: Both the NPV and BCR estimates only considered safety and compliance cost impacts and have not yet incorporated effects such as changes to enforcement and administrative costs.

Note: These ranges are based on a 95% confidence interval of 10000 random iterations for each item. The cost and benefit ranges will not solve to the BCR and NPV (see Annex 3 for how BCR and NPV results were distributed across the simulation).

Caveats and limitations

12. The preliminary estimates are indicative only due to a range of uncertainties associated with the inputs and assumptions. However, based on the 95% confidence interval of the Monte Carlo simulation, we believe the policy changes are likely to be net beneficial for Options 1 to 4 and 7.
13. The main uncertainties of this analysis are:
- (a) The vehicle fleet projections used in the model to calculate inspections are based on projections using data up to 2023. We plan to update the analysis when new fleet projections become available in early 2026.
 - (b) The cost ranges for inspection fees, compliance time and unnecessary repairs. We have also not adjusted for any changes to inspection and repair fees because of these policy options.

- (c) Risk factors were calculated using a relatively small numbers of inspection-related reported crashes, especially for the vehicle cohort with a smaller fleet (eg rental, PSV or pre-2000 vehicles). Inspection related crashes only make up about 2% of total number of reported crashes (excluding non-injury and unlicensed vehicle crashes). The accuracy and the level of reporting of vehicle factors as a crash contributing factor by Police are uncertain.

14. Due to time constraints and lack of data, our analysis has not considered the following safety effects:

- (a) Under-reporting of vehicle defeats as a crash contributing factor will affect the resulting safety assessment. We have not made any adjustment to account for this, which will likely increase the size of the estimated safety effects (in 2012 the estimated increase was between 5% and 28%).
- (b) To buy or sell a vehicle, the law requires the vehicle to have a valid WOF that is no more than one month old when the buyer takes possession. Vehicles with less frequent inspection requirements might still have additional inspection over and above the legal requirements. In this case, the safety effects from the policy change would be lower. We have not yet made an adjustment to account for this, which will likely decrease the size of the estimated safety effects (in 2012 the estimated reduction was less than 10%).
- (c) With a less frequent inspection regime, safety conscious car owners could continue to get their vehicles inspected and repaired during the period when an inspection is not required. We have not yet made an adjustment to account for this, which will likely decrease the size of the estimated safety effects (in 2012 the estimated reduction was between 26% and 28%).
- (d) It is assumed a WOF/COF inspection will correctly identify relevant vehicle faults and require them to be addressed before a vehicle can pass. It is also assumed this resets the safety risk of those vehicle faults. However, we know that not all inspections are undertaken properly, which means that risk reset would not have occurred. If this were the case, we are likely to overstate the effects of inspections. We have not adjusted for any instances where this may have occurred, though the effects of some instances may be present in the CAS data, which would affect the safety risk analysis.
- (e) The risk analysis assumes that the presence of an inspection-related contributing factor leads to an increased risk of a crash. However, a crash can have multiple contributing factors, and the inspection-related ones may not necessarily be the primary cause of the crash. This suggests we likely overstate the safety effects.

Introduction

15. The Regulatory Reform policy team is investigating the potential effects of reducing the inspection frequencies of light vehicles to reduce regulatory compliance burden, without unduly affecting road safety. This document summaries our preliminary assessment of the effects on safety and compliance cost on seven policy options to support the policy consultation process.

The policy options

16. Table 2 tabulates the inspection frequency requirements by vehicle cohort for the current regime and for the six policy options analysed.

Table 2: Inspection frequency options for in-service private light passenger vehicles

Inspection frequency by vehicle cohort and inspection type		Current policy	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
WOF light vehicles	Under 3 years old	None	None	None	None	None	None	None	None
	>3 to 4 years old	Annual	None	None	Annual	Annual	Annual	Annual	Annual
	>4 to 5 years old	Annual	None	Annual	Annual	Biennial	Annual	Annual	Biennial
	4 – 10 years	Annual	Annual	Annual	Annual		Annua	Annua	
	11 – 14 years old	Annual	Annual	Annual	Annual		Annual	Annual	
	Other post-2000 YOM vehicles	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
	Pre-2000 YOM vehicles	6-monthly	6-monthly	6-monthly	Annual	Annual	6-monthly	6-monthly	Annual
COF light vehicles	Rental ≤ 5 years	6-monthly	6-monthly	6-monthly	6-monthly	6-monthly	Annual	Annual	6-monthly
	Rental > 5 years						6-monthly	6-monthly	
	Rental and PSV ≤ 5 years	6-monthly	6-monthly	6-monthly	6-monthly	6-monthly	6-monthly	Annual	6-monthly
	Rental and PSV > 5 years							6-monthly	

Note: PSV – Passenger service vehicle.

Effects assessed

17. As shown in Table 2, due to time constraints and the lack of specific policy details (eg on implementation and enforcement options), our analysis focuses only on the two main effects (safety and compliance costs).

Table 3: A summary of the effects assessed

Effects	Measures	Valuation	Expected results
Consumer compliance costs and charges	Change in time and inconvenience to comply	Value of time	Monetised reduction in compliance cost from reduced inspection frequency
	Change in annual inspection costs	Representative inspection costs	
	Change in avoidable repair costs	Representative repair costs	Total in present values (at 2% discount rate) for 2026-2055.
Safety	Changes in frequency and of inspection-detectable injury crashes	Average social cost of road crashes by severity (this includes loss of life and life quality, medical costs, loss output and productivity, legal and court costs and property damage costs)	Monetised increase in road crashes from reduced inspection frequency Total in present values (at 2% discount rate) for 2026-2055.

Data and inputs

18. Table 4 summarises the key data inputs and their sources. For practical purposes, we did not include values where there are many observations or inputs.

Table 4. Key data and inputs used in the analysis

Dataset/input	Detail	Values	Source
Crash analysis system (CAS)	CAS data provides detailed information about crashes. The CAS data used in this analysis includes crash date, severity of crash, vehicle id (plate), and presence of contributing vehicle factors (faults) and what they were (used to determine if it was an inspection related crash or not).	Various	NZTA
Motor vehicle register (MVR)	MVR data provides detailed information about the vehicle involved in crashes. The MVR data used in this analysis includes vehicle id (plate), vehicle type, vehicle inspection and licencing history, vehicle age, vehicle kms travelled and use (e.g. rental or passenger service vehicle).	Various	NZTA
Vehicle fleet model (VFM)	Aggregate projections of vehicle numbers by vehicle age to 2055 (based on data up to 2023).	Various	MOT
Safety improvement trend	Annual improvement in vehicle safety under the business-as-usual scenario because of newer vehicles with more safety features entering the fleet over time	1% to 2% per annum	Assumed
Social cost of road crashes	Average social cost per reported road injury crash, in June 2024 dollars	Fatal \$17,081,200 Serious \$1,792,500 Minor \$350,800	MOT
Inspection fees	Average fees charged for WOF/COF inspections which are assumed to represent the economic resource cost of those inspections (i.e., labour, stationary, property costs etc).	WOF: \$50 to \$90 COF: \$150 to \$200	Assumed based off Google searches
Compliance costs	The monetary cost of compliance time per hour in June 2024 dollars	Low \$33 High \$34.96	Treasury NZTA

Dataset/input	Detail	Values	Source
Compliance time	The time spent (in minutes) by the vehicle owner on WOF/COF inspections including waiting and travelling to/from.	WOF: 30 to 60 minutes COF: 60 to 120 minutes	Assumed based off Google searches
Repair costs	Average annual repair costs in June 2024 dollars	Various across different cohorts	DTCC C5
Non TSDA market share	Transport Service Delivery Agents include AA and VTNZ. Non-TSDAs are regular mechanics.	80%	Assumed from 2012 CBA
Unnecessary repairs (%)	Proportion of average annual repairs that were undertaken to pass an inspection, but not required to do so	0 to 10%	Assumed from 2012 CBA

Defining vehicle cohorts

19. The analysis uses the following vehicle age groupings to align with the policy settings:

- (a) "4-5yrs" – Associated with Option 1. Defined as vehicles aged between 3 and 5 years.
- (b) "4yrs" - Associated with Option 2. Defined as vehicles aged between 3 and 4 years.
- (c) "Mfr pre-2000" – Associated with Option 3 and 4. Defined as vehicles manufactured before year 2000.
- (d) "4 to 14 yrs" – Associated with Option 4. Defined as vehicles aged between 3 and 14 years (inclusive).
- (e) "Rental vehicle" - Associated with Options 5 and 6. Defined as vehicles that have an MVR "VEHICLE USAGE" value of 7. These are vehicles that are classified as rental vehicles.
- (f) "Passenger service vehicle" - Associated with Option 6. Defined as vehicles that have an MVR "VEHICLE USAGE" value of 2. These are vehicles that are classified as passenger service vehicles (taxis and the like).
- (g) "4 to 10 yrs" – Associated with Option 7. Defined as vehicles aged between 3 and 14 years (inclusive).
- (h) 'Unchanged years' – Are vehicle age groupings not associated with an option and discarded.

Defining crash types

20. Crashes are categorised into two groups - inspection-related crash and non-inspection-related crashes.

21. A crash is considered inspection-related when the CAS contributing factors input data showed the vehicle involved (not necessarily responsible) had a vehicle factor that would have been picked up at WOF/COF inspection.

22. All other crashes (non-inspection-related crashes) are where the vehicle did not have one of those factors (see Annex 1).

Compliance cost analysis

Vehicle fleet and inspection projections

23. This analysis uses both the MVR light vehicle registration data and the vehicle fleet data to ensure the estimated number of inspections required is consistent with the number of vehicles registered (after accounting for inspection frequency by vehicle age).
24. The estimation process starts by aggregating the numbers of vehicle affected for each policy and then distributing inspection events evenly across each cohort over the inspection frequency. This is done for each year with any overlaps removed.
25. As vehicle fleet projections are not available for all the vehicle cohorts, additional steps are needed to disaggregate the vehicle fleet projections:
 - (a) For PSV and rental vehicles, using historic data from 2015 to 2024 we fitted a linear trend model to project the fleet size to 2055.
 - (b) For vehicles manufactured before year 2000, using the linear trend approach we projected this cohort will reduce to zero by 2035 (when the vehicles would be at least 35 years old).
26. The results are then summarised by vehicle cohort to produce the overall change to the number of inspections for each year for each policy option. [Figure 1](#) shows the vehicle fleet projections for each cohort while [Figure 2](#) shows their VKT projections.

Figure 1. Fleet projections by vehicle cohort

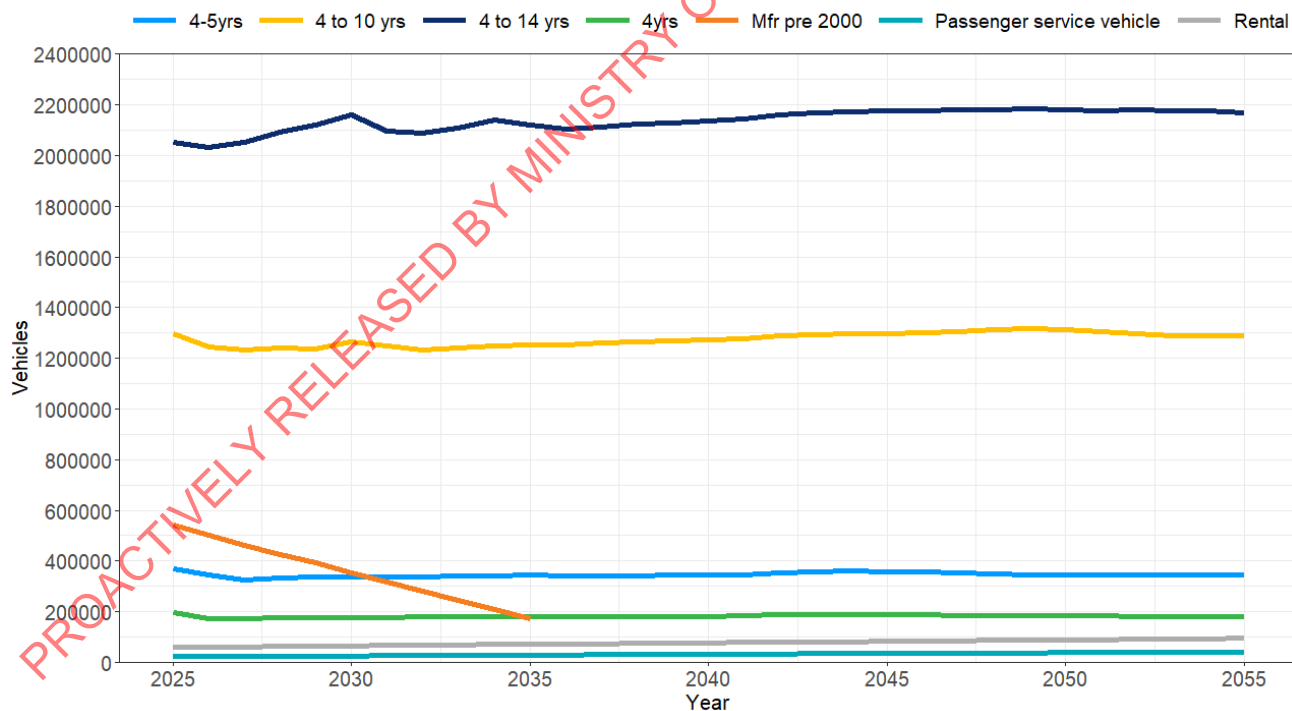
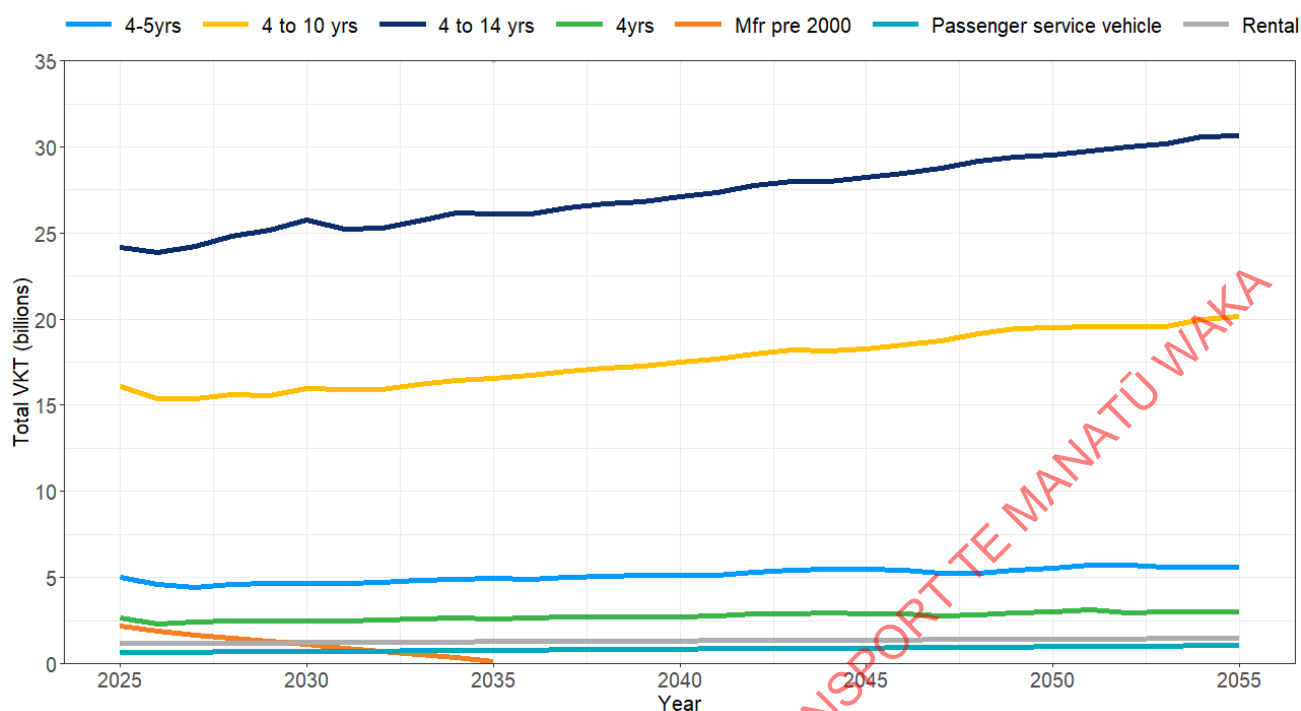


Figure 2. Total Vehicle Kilometres Travelled by vehicle cohort (billion kms)



Compliance costs

27. The analysis covers three compliance cost components:

- (a) Avoided cost of vehicle inspection
- (b) Avoided time cost of obtaining vehicle inspection
- (c) Avoided premature or unnecessary repair costs

28. The avoided costs of vehicle inspection were estimated by multiplying the change in the number of inspections by the corresponding inspection fees (WOF for cohorts 4-5 years, 4 years, 4-14 years, 4 to 10 yrs) and YOM pre-2000; COF for rental and PSVs).

29. The reduced compliance time was estimated by multiplying the estimated time per inspection by the changes in number of inspections. This is then monetised using the value of time (in \$/hour).

30. Unnecessary repair costs assumes that that a proportion of repairs that some vehicles undergo to pass an inspection were not needed. This arises due to asymmetric information in the inspection market – the vehicle owner does not also know exactly what repairs are needed to pass an inspection, but the seller of repairs does.

31. These were estimated by assuming a proportion of average annual repair costs that are unnecessary for each cohort and multiplying these by the number of inspections at regular mechanic garages.

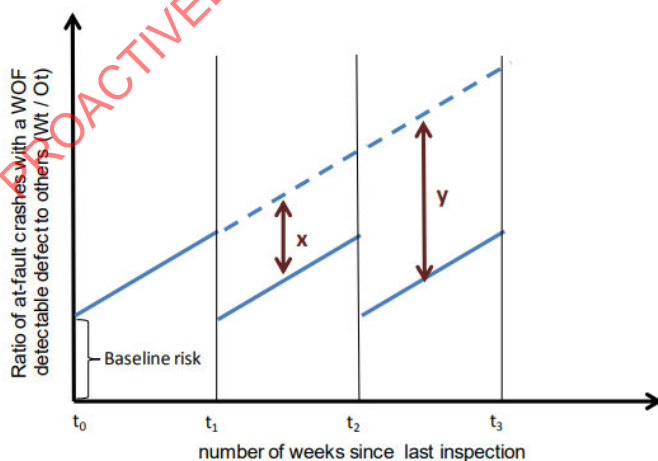
Safety analysis

Method

32. We estimate the safety effects using the key steps below:

- (a) Extracting historic (2015 to 2024) numbers of inspection-related and non-inspection-related injury crashes, for the affected vehicle cohorts, by crash severity from CAS.
- (b) Calculating the ratio of inspection-related to non-inspection-related injury crashes (for all injury crashes) by the number of weeks since the last inspection, for each affected vehicle cohort. For brevity, we refer this ratio as the **relative risk ratio**.
- (a) Identifying the relationship between the relative ratio and time since last inspection through econometric analysis and extend the relationship overtime.
- (b) Calculating the risk changes between the case with and without policy changes.
 - (i) As shown in Figure 3, a one-period extension of the inspection frequency (eg from annual to biennial) would increase the relative risk (by extrapolating the solid line forward) by an average of x per week (or by y per week for a two-period extension).
 - (ii) As the random variations in crash involvement for each vehicle age would be too large to provide a good indication of the crash risk, the analysis is carried out by vehicle age group to align with the vehicle cohorts affected by each policy option.
- (c) Projecting the counterfactual number of crashes for each vehicle cohort up to 2055 by taking average number of non-inspection related crashes (by age group and severity) using **the last three full years of data (2021-2024)** and scaling them for:
 - (i) changes in VKT over time (by vehicle cohort), and
 - (ii) baseline safety improvements, assumed to vary between 1% and 2% per annum.
- (d) Applying the risk change to the projected counterfactual crashes to estimate the additional crashes from the risk change under the policy options.
- (e) Converting the results to social cost using the average social cost of per reported road crashes (in 2024 prices).
- (f) Applying discounting to obtain present value of the safety effects.

Figure 3 Graphical illustration of the estimation approach



Relative risk since last inspection

33. Using data from 2015-2024, we established the relationship between the relative risk ratio and the number of weeks the last inspection for each of the affected vehicle cohorts (see Table 5). To interpret the results:

- (a) the intercept represents the baseline risk immediately after the previous inspection,
- (b) the risk coefficients are the incremental increases in risk for each week after the previous inspection,

Table 5. Changes in relative risk since last inspection (for each week increment)

Light vehicle cohort (by vehicle age group)	Intercept (risk unrelated to time since last inspection)	Relative risk coefficient (i.e. slope of the risk line)			Degrees of freedom
		Low limit estimate (-2SD)	Central estimate	Upper limit estimate (+2SD)	
Up to 3 years	0.00819	0.00009	0.00064***	0.00118	15
Up to 5 years	0.00063	0.00023	0.00071**	0.00118	19
4 – 14 years	0.00732***	0.00004	0.00012***	0.00020	51
Pre-2000	0.01590***	0.00000	0.00025	0.00062	26
Rental	NA	NA	NA	NA	NA
Rental and PSV	NA	NA	NA	NA	NA
4 to 10 years	0.00708	0.00000	0.00008**	0.00015	45

Note: Asterisks denote statistical significance at 1% (***), 5% (**) and 10% (*). SD – Standard deviation.

34. The results indicate a higher relative risk for the younger vehicle cohorts. This could be the combined result of the current inspection requirement and the level of travel:

- (a) Vehicles under 3 years of age do not require periodic inspection and have the highest average annual mileage per vehicle. They have a higher inspection-related relative crash risk than those with more frequent inspections.
- (b) Vehicles manufactured before 2000 currently require 6-monthly inspections and have much lower annual mileage per vehicle. They have a slightly higher (but not statistically significant) inspection-related relative crash risk than vehicles aged between 4 and 14 years.

35. Regression results were unable to be derived for the Rental and Rental + PSV cohorts because there was only one crash with an inspection-related contributing factors across 10 years of crash data. This meant we were unable to determine a statistical relationship between the time since last inspection and the likelihood of having crash with an inspection related contributing factor. This could be the result of the:

- (a) relatively small size of the cohorts (see [Figure 1](#)),
- (b) vehicles having a lower inspection-related relative crash risk due to having 6-monthly inspections, and/or
- (c) potential under reporting of relevant crashes for those vehicle cohorts

36. In the Monte Carlo simulation, we substitute the central estimates by the +/- 2 standard deviation estimates to generate a range.

Estimating the effects on injury crashes

37. Table 6 shows the estimated changes in the annual number of injury crashes (by severity) by policy cohort using the crash data for 2022-24. It also shows the total estimated increase to 2055 after adjusting for VKT and assumed annual road safety improvements (to account for any vehicle and other improvements that could occur without the policy change).
38. In the Monte Carlo simulation, we vary the assumed annual road safety improvements (0%, 1% and 2%) and report the results as a range.
39. The resulting injury crash estimates are converted to dollar terms using the average social cost per reported crash (by severity), in June 2024 dollars¹.

Table 6. Average annual injury crashes by severity and policy cohort for years 2021-24 and 2025-2055 after adjusting for VKT and road safety improvements

	Historical (2021 to 2024)			Projected (2025 to 2055) Counterfactual scenario			Estimated average annual increase due to policy changes (2027 to 2055)		
	Fatal	Serious	Minor	Fatal	Serious	Minor	Fatal	Serious	Minor
>3 to 4 years old	2.5	15.8	82.1	2.1 to 2.4	13.0 to 15.2	67.3 to 78.6	2.1 to 2.5	12.9 to 15.7	67.5 to 81.6
>4 to 5 years old	3.5	25.5	131.0	2.9 to 3.3	20.8 to 24.3	107.0 to 125.0	3.0 to 4.0	21.6 to 29.0	111.0 to 149.0
>4 – 14 years old	58.2	425.0	2501.0	46.9 to 54.7	342.0 to 400.0	2012.0 to 2350.0	46.9 to 55.3	343.0 to 403.0	2016.0 to 2373.0
Pre-2000	24.0	112.0	535.0	13.9 to 14.6	64.5 to 67.7	309.0 to 325.0	13.9 to 14.7	64.5 to 68.1	309.0 to 327.0
Rental	4.0	12.5	53.0	2.3 to 2.6	7.1 to 8.2	30.0 to 34.7	N/A	N/A	N/A
PSV	1.0	1.0	6.3	0.7 to 0.8	0.7 to 0.8	4.1 to 4.7	N/A	N/A	N/A
>4 to 10 years old	35.0	221.3	1339.0	28.9 to 33.8	182.6 to 213.5	1105.1 to 1292.1	28.9 to 34.1	182.9 to 215.6	1106.8 to 1304.6

¹ See Annual Update of Social Cost of Road Crashes and Injuries, 2024 update. See link here <https://www.transport.govt.nz/area-of-interest/safety/social-cost-of-road-crashes-and-injuries>

Results

40. A Monte Carlo simulation was conducted to account for the uncertainty that underpins several of the inputs. The simulation consisted of 10000 random simulations testing the inputs in [Table 7](#).

Table 7. Inputs tested in the Monte Carlo simulation

Input tested	Distinctions	Values
Increase in relative risks per week since last inspections	By policy cohort	See Table 5
Average annual improvement in vehicle safety	None	See Table 4
Inspection fees	WOF or COF inspection (applies to different cohorts)	See Table 4
Compliance time	WOF or COF inspection (applies to different cohorts)	See Table 4
Repair costs	By policy cohort	See Table 4
Unnecessary repairs (%)	None	See Table 4

41. The results in [Table 8](#) were based on finding the 95% confidence interval for each effect in the simulation (see [Annex 3](#) for how the results were distributed across the simulation).
42. The size of the ranges indicates that there is significant uncertainty for each effect. Despite that, the results suggest that all policy options could be net beneficial to society (that is the benefits outweigh the costs where:
- (a) Options 1, 2, 4 and 7 are the most reliable due to having statistically sound models for the relative risk increase underpinning them (see [Table 5](#)).
 - (b) Results for Option 3 are not reliable due to the relative risk increase not being statistically significant. For Options 5 and 6 we were unable to establish a model at all due to a lack of crashes with inspection related contributing factors.
43. Some considerations are for Options 3, 5 and 6 are:
- (a) The affected vehicle cohorts are relatively small (see [Figure 1](#)) so the scale of the risk is small. The vehicle cohort for option 3 (vehicles manufactured pre-2000) are also driven less and both their fleet size and level of travel (see [Figure 2](#)) are expected to diminish over time along with any safety risks exposure.
 - (b) The small numbers of relevant crashes for these cohorts suggest that the relative safety risk was not very high to start with.
44. Both considerations suggest that extending the inspection frequency under options 3, 5 and 6 will likely be net beneficial to society as well, though we still caution applying the [Table 1](#) results for those options.
45. Fatal crash costs account for the higher proportion of increased safety costs. This is due to the high value for the social cost per reported fatal crash (see [Table 4](#)). The potential increase in fatal crashes over a 30-year period will likely be small (see [Table 1](#) and [Table 6](#)).
46. Reduced costs of inspection fees account for the largest proportion of benefits, which reflects a reduction of resources (such as labour) allocated to inspections that could be allocated elsewhere. There likely will be some impact on WOF/COF agents because of this reduction. [Annex 2](#) includes a high-level estimation of the potential industry impacts.

Table 8. Monetised effects of policy options – cumulative total for the years 2027 to 2055 (all dollar values are discounted at a 2% rate)

Key policy effects (\$m)		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Costs	Increased fatal crashes	\$76 to \$206	\$7 to \$29	\$1 to \$11	\$57 to \$168	N/A	N/A	\$34 to \$104
	Increased serious injury crashes	\$58 to \$157	\$5 to \$19	\$1 to \$5	\$44 to \$128	N/A	N/A	\$22 to \$69
	Increased minor injury crashes)	\$58 to \$158	\$5 to \$19	\$1 to \$6	\$50 to \$148	N/A	N/A	\$27 to \$82
	<i>Total costs</i>	\$192 to \$522	\$17 to \$67	\$3 to \$22	\$151 to \$444	N/A	N/A	\$83 to \$255
Benefits	Reduced inspection fees	\$282 to \$433	\$111 to \$171	\$148 to \$227	\$1284 to \$1974	\$259 to \$316	\$367 to \$447	\$771 to \$1204
	Reduced compliance time	\$95 to \$157	\$37 to \$62	\$50 to \$82	\$430 to \$713	\$64 to \$103	\$91 to \$145	\$265 to \$430
	Avoided repair costs	\$33 to \$142	\$13 to \$56	\$42 to \$163	\$270 to \$1027	\$23 to \$88	\$32 to \$125	\$166 to \$635
	<i>Total benefits</i>	\$477 to \$687	\$186 to \$268	\$270 to \$419	\$2345 to \$3493	\$193 to \$244	\$275 to \$348	\$1391 to \$2070
Net Present Value (NPV) (\$m)		\$22 to \$414	\$137 to \$230	\$267 to \$424	\$1987 to \$3110	\$380 to \$479	\$537 to \$678	\$1208 to \$1911
Benefit Cost Ratio (BCR)		1.0 to 3.1	3.2 to 12.9	15.4 to 138.2	6.0 to 18.8	N/A	N/A	6.3 to 21.1

Note: Both the NPV and BCR estimates only considered safety and compliance cost impacts and have not yet incorporated effects such as changes to enforcement and administrative costs.

Note: These ranges are based on a 95% confidence interval of 10000 random iterations for each item. The cost and benefit ranges will not solve to the BCR and NPV.

Limitations

The following exclusion may overstate the safety effects.

47. To buy or sell a vehicle, the law requires the vehicle to have a valid WOF that is no more than one month old when the buyer takes possession. Vehicles with less frequent inspection requirements might still have additional inspection over and above the legal requirements. In this case, the safety effects from the policy change would be lower. We have not yet made an adjustment to account for this, which will likely decrease the size of the estimated safety effects (in 2012 the estimated reduction was less than 10%).
48. With a less frequent inspection regime, safety conscious car owners could continue to get their vehicles inspected and repaired during the period when an inspection is not required. We have not yet made an adjustment to account for this, which will likely decrease the size of the estimated safety effects (in 2012 the estimated reduction was between 26% and 28%).
49. It is assumed a WOF/COF inspection will correctly identify relevant vehicle faults and require them to be addressed before a vehicle can pass. It is also assumed this resets the safety risk of those vehicle faults. However, we know that not all inspections are undertaken properly, which means that risk reset would not have occurred. If this were the case, we are likely to overstate the effects of inspections. We have not adjusted for any instances where this may have occurred, though the effects of some instances may be present in the CAS data, which would affect the safety risk analysis.
50. The risk analysis assumes that the presence of an inspection-related contributing factor leads to an increased risk of a crash. However, a crash can have multiple contributing factors, and the inspection-related ones may not necessarily be the primary cause of the crash. This suggests we likely overstate the safety effects.

The following limitations may understate the safety effects.

51. Under-reporting of vehicle defeats as a crash contributing factor will affect the resulting safety assessment. We have not made any adjustment to account for this, which will likely increase the size of the estimated safety effects (in 2012 the estimated increase was between 5% and 28%).
52. Our safety analysis focussed on how the policy options affect the relative risk of being in a crash. It did not account for how the policy options might affect the likely severity of crashes (i.e., a minor injury crash becoming a serious injury crash).

It is uncertain how the following limitations may influence the safety effects.

53. The vehicle fleet projections used in the model to calculate inspections are based on projections using data up to 2023. We plan to update the analysis when new fleet projections become available in early 2026.
54. Risk factors were calculated using a relatively small numbers of inspection-related reported crashes, especially for the vehicle cohort with a smaller fleet (eg rental, PSV or pre-2000 vehicles). Inspection related crashes only make up about 2% of total number of reported crashes (excluding non-injury and unlicensed vehicle crashes).
55. The accuracy and the level of reporting of vehicle factors as a crash contributing factor by Police are uncertain.
56. The social costs per reported crash assume an average number of injuries for each crash. This injury composition was based on an average across three years for all crashes. The specific injury composition for crashes with inspection-related contributing factors may differ, though this is unlikely to affect the results significantly.

Annex 1: Vehicle contributing factor associated with inspection-related crashes

57. Developed based on similar lists from previous analyses and consultation with the Insights and Analytics team and NZTA analysts.

Vehicle contributing factor code	Contributing factor name	Include/Exclude
136	Lost control – vehicle fault	Exclude – unknown if fault is inspection related
420	Other vehicle controls	Exclude – unknown if inspection related
537	Child restrained failure/inappropriate	Exclude – child restraints are not covered by inspections
600	Other lights or reflectors	Include
602	Headlights inadequate / no headlights / failed suddenly	Include
604	Brake lights or indicators faulty or not fitted	Include
605	Tail lights inadequate or no tail lights	Include
606	Reflectors inadequate or no reflectors	Include
607	Lights or reflectors obscured	Include
609	Lights or reflectors at fault or dirty	Include
610	Other brakes	Include
611	Parking brakes failed/ defective	Include
613	Service brake failed	Include
614	Service brake defective	Include
615	Jack – knifed / uneven breaking	Exclude – sounds like it could refer more to driver behaviour
620	Other steering	Include – this might apply to the system rather than behaviour
621	Defective steering	Include
622	Steering failed suddenly	Include
630	Other tyres	Include
631	Puncture or blowout	Exclude – not something that gets to an inspection
632	Worn tread on tyre	Include
633	Incorrect tyre type	Include
634	Mixed tyre types / space savers	Include
640	Other windscreen / mirror	Include
641	Shattered windscreen	Include
643	Rear vision mirror	Include
650	Other mechanical	Include
651	Engine failure	Include
652	Transmission failure / broken axle	Include
653	Accelerator or throttle jammed	Exclude – not something that gets to an inspection
660	Other chassis / gear	Include
661	Body, chassis or frame failure	Include
662	Suspension failure	Include
664	Other body /doors	Include
665	Inadequate tow coupling	Include
666	Inadequate or no safety chain	Include
667	Door / bonnet catch failed, defective or not shut	Include
668	Wheel off	Exclude – not something that gets to an inspection
672	Seatbelt failed / defective	Exclude – affects severity, not crash risk
673	Air bag failed / defective	Exclude – affects severity, not crash risk
697	Vehicle software failure	Exclude – not covered by inspection

Annex 2: Supplementary analysis on industry employment and revenue impacts

This annex provides an indicative of how the policy changes might affect industry employment and revenue to support the completion of the Regulatory Impact Assessment.

We have replicated the simple approach adopted in 2012, with updated inputs and simplified workings.

The estimates rely on several assumptions outlined below:

- Proportion of vehicle inspections requires re-test (i.e. for those did not pass the first time) (based on 2012 analysis).
- Proportion of vehicles to have a basic safety check when inspection frequency reduced (based on 2012 analysis).
- Time in hours spend on inspection (for first inspection and for re-test) and providing basic vehicle services (based on 2012 analysis).
- Total annual FTE hours for each inspector of 1,800 hours with 70% productive time.
- Charges for WOF inspections and basic service fees).

As there are high-level of uncertainties with these assumptions, our estimates only aim to provide a high-level sense of the relative magnitude of the effects between options. Due to the small vehicle cohort size of options 5 and 6, related effects for these options have not been estimated.

The figures below provide the estimated effect on a single example year and are based on 2024 fleet numbers and revenue in \$2025 terms.

Table 9. Changes to annual number of inspections (based on 2024 volume)

Scenario	Number of Inspections pa	Change	% Change
Base	4,923,639		
Option1	4,571,491	-352,148	-7%
Option2	4,767,874	-155,765	-3%
Option3	4,333,798	-589,841	-12%
Option4	3,451,877	-1,471,762	-30%
Option7	4,173,446	-750,193	-15%

Table 10. Changes to industry employment (Full time equivalent compared to Base)

Scenario	Effects on industry employment	
	Low safety check uptake	High safety check uptake
Option1	-164	-154
Option2	-73	-68
Option3	-275	-257
Option4	-686	-642
Option7	-350	-327

Table 11. Changes to industry annual revenue \$mil (compared to base)

Scenario	Effects on industry annual revenue (\$m)	
	Low safety check uptake	High safety check uptake
Option1	-\$23	-\$20
Option2	-\$10	-\$9
Option3	-\$38	-\$33
Option4	-\$96	-\$82
Option7	-\$49	-\$42

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Annex 3- Distribution graphs of CBA outputs

Figure 4. NPV and BCR simulation results for Option 1

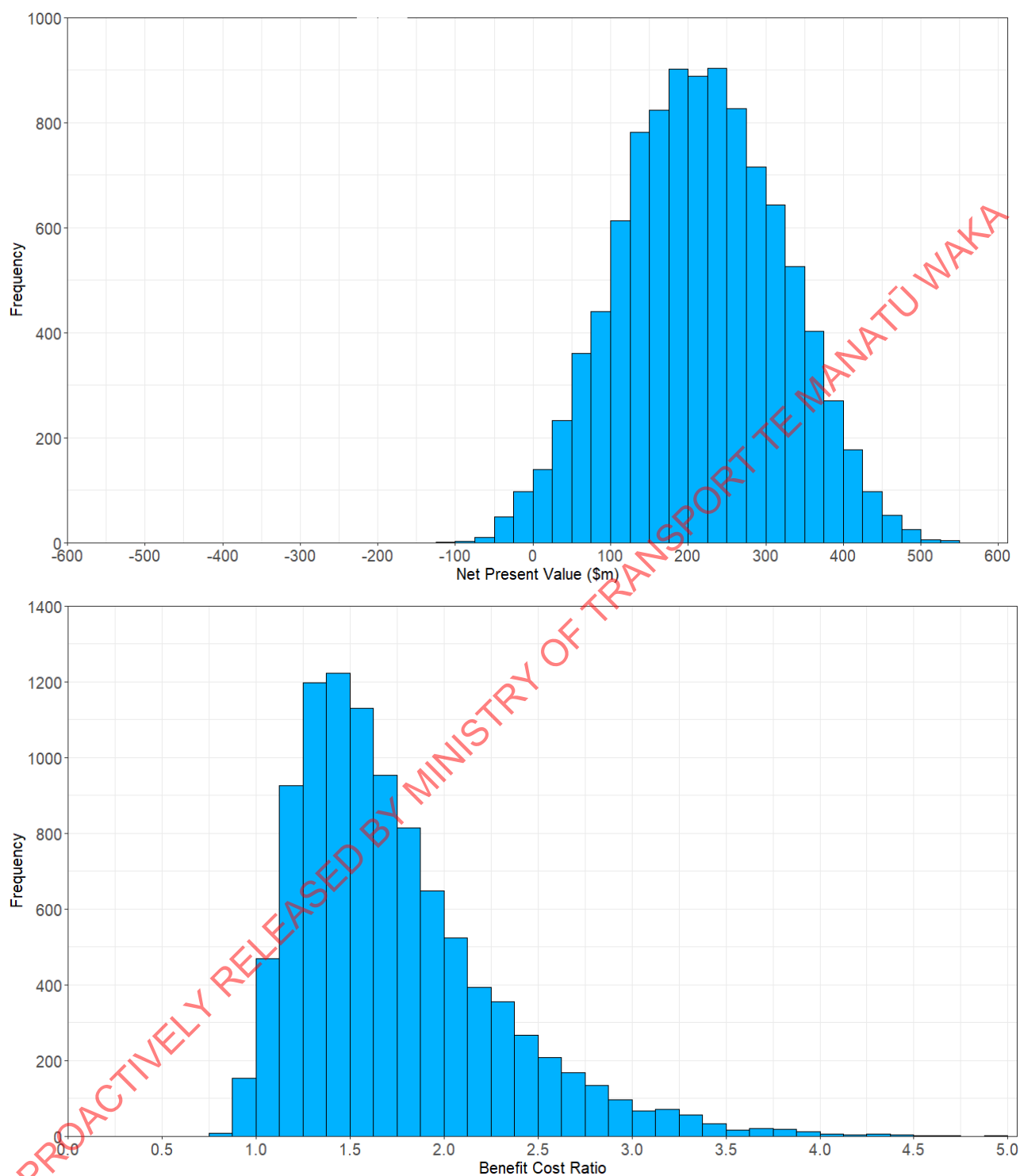


Figure 5. NPV and BCR simulation results for Option 2

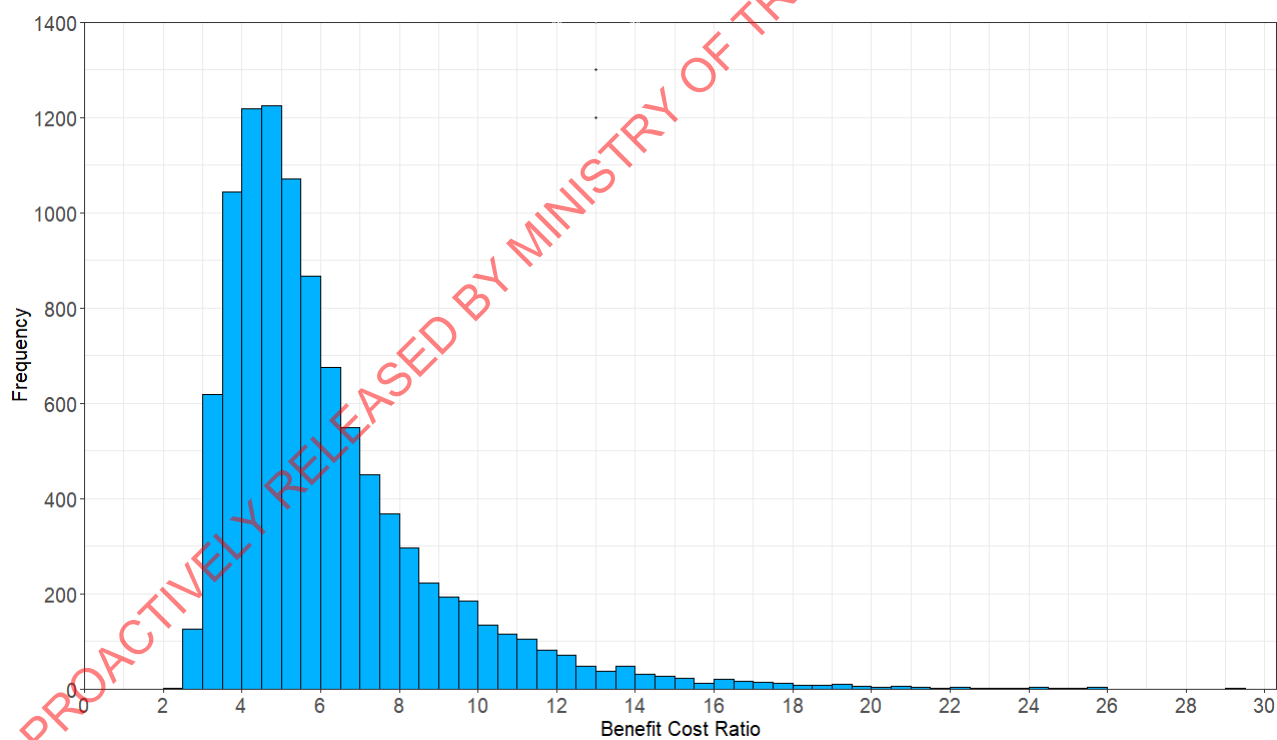
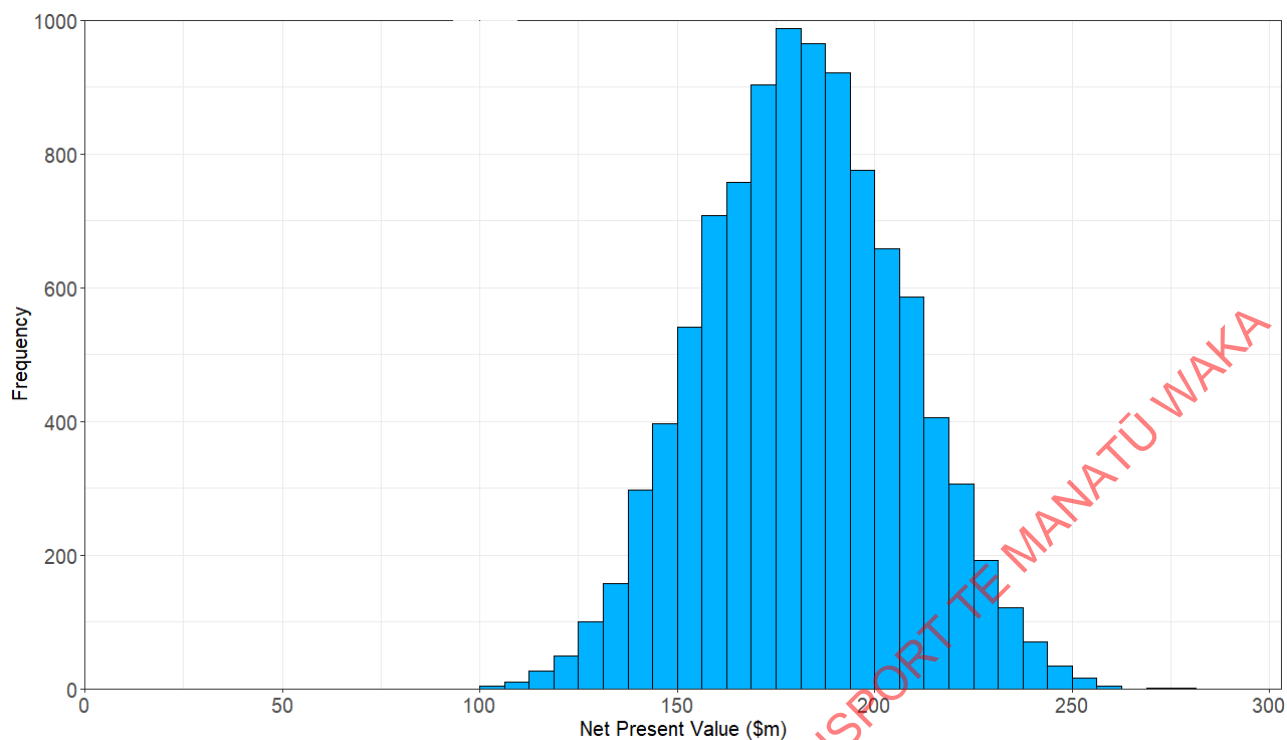


Figure 6. NPV and BCR simulation results for Option 3

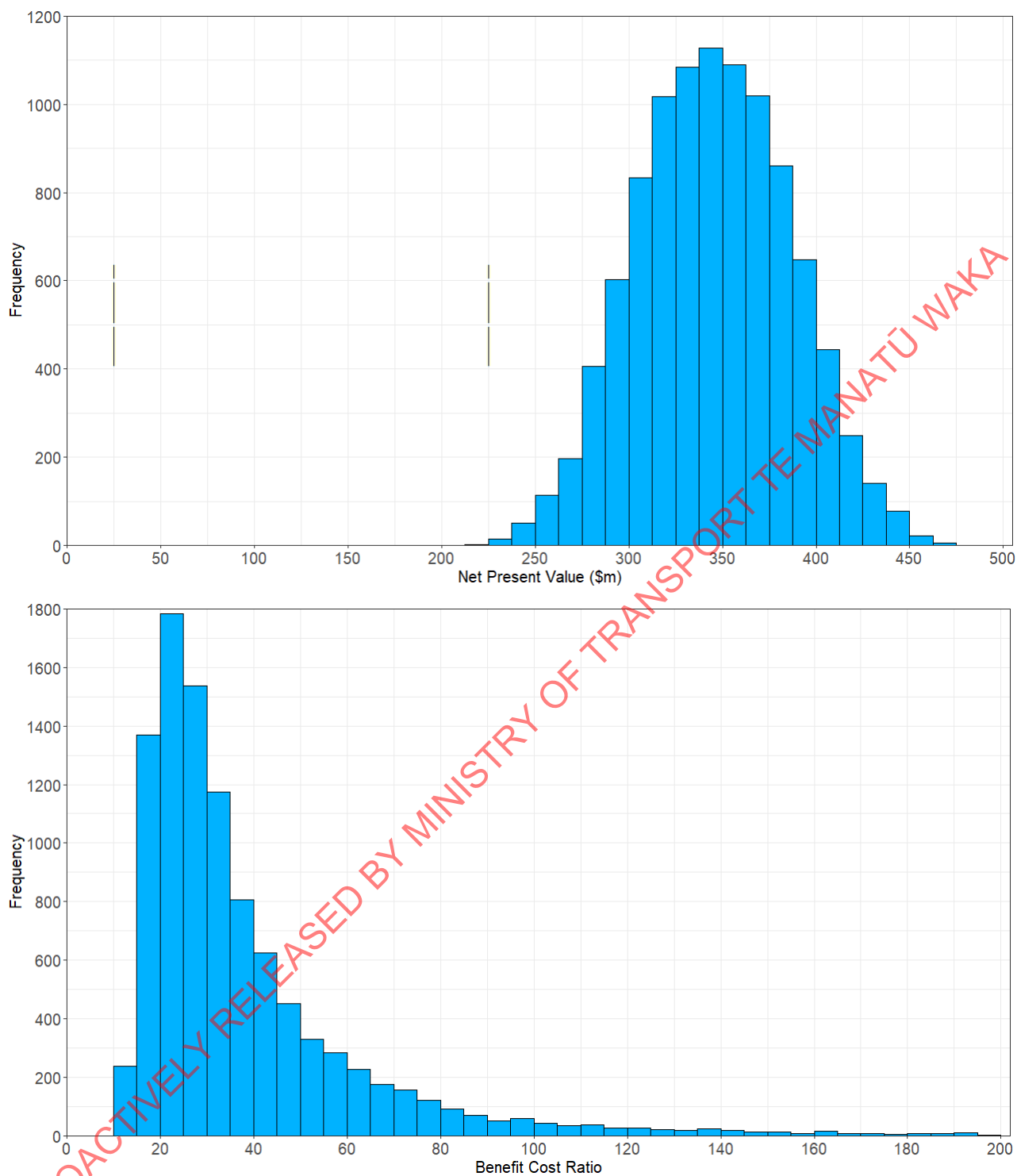


Figure 7. NPV and BCR simulation results for Option 4

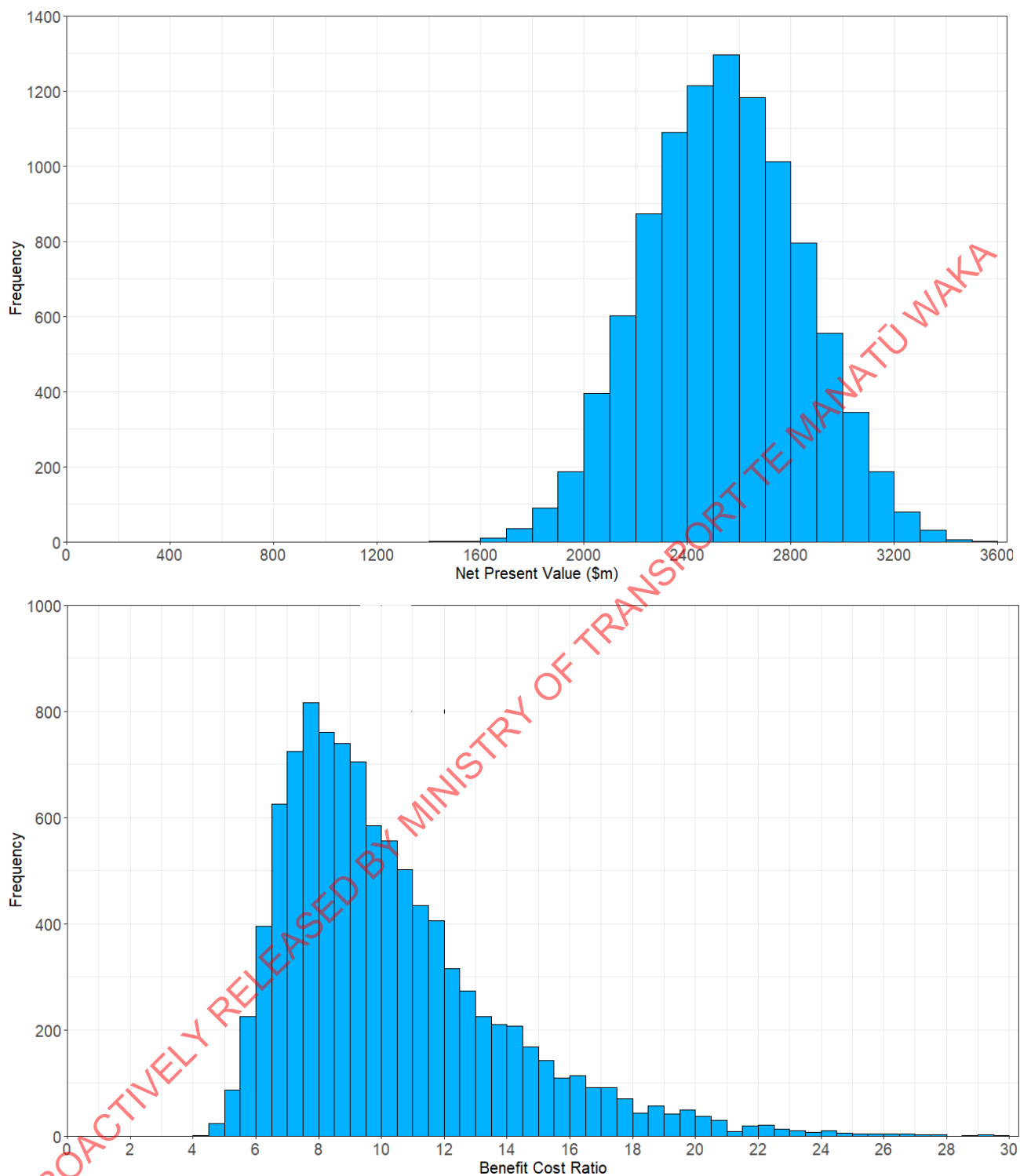


Figure 8. NPV and BCR simulation results for Option 7

