

9 August 2022

OC220529

**Hon Michael Wood**  
**Minister of Transport**

**Action required by:**  
Tuesday, 23 August 2022

## **IMPLEMENTING THE EURO 6/VI EMISSIONS STANDARD**

### **Purpose**

Provides detailed advice supporting a Cabinet paper seeking Economic Development Committee (DEV) agreement to public consultation on a draft Land Transport Rule: Vehicle Exhaust Emissions 2007 (the Rule). The primary purpose of the Rule update is to require the implementation of the Euro 6/VI emission standard.

### **Key points**

- A DEV paper is attached to this briefing for the purpose of ministerial consultation. This paper seeks Cabinet agreement to publicly consult on a draft Rule, which will specify the implementation dates required for Euro 6/VI.
- Officials consider that you have legal authority to update this Rule, and that the update complies with the relevant requirements. The Land Transport Act 1988 (LTA) requires that you consider a number of matters when making a Rule, such as safety, economic, health, and environmental impacts. While we consider the Rule change will generate positive health impacts and not adversely affect others, you must consider these matters and cannot delegate this obligation to anyone else.
- You conducted informal consultation with industry in June to test implementation dates to require Euro 6/VI. A brief summary of the consultation feedback is provided; most responses reiterated previous feedback officials have received on this subject and provided to you.
- We have proposed minimum emissions standards for new and used motorcycles and mopeds, which are currently not subject to emissions standards in Aotearoa. These are Euro 4 from 1 January 2025 for both new and used motorcycles and mopeds, and Euro 5 from 1 January 2027 for both new and used motorcycles and mopeds.
- The tampering issue which we have previously advised on [OC220137 refers] requires further policy analysis, as it is operationally complex. We recommend the Ministry and Waka Kotahi work to develop a proposal to address this issue in 2023.
- Although requiring Euro 6/VI on imported vehicles is expected to have positive safety impacts, the link between safety and emission standards is not clear. During a fuller

Rule review in 2023 we will do more work to see how safety standards can better align with emissions standards.

- Subject to the outcome of Ministerial consultation on the Cabinet paper we will provide you with the final DEV Cabinet Committee paper and regulatory impact statement in time for you to sign and lodge it with the Cabinet Office by **10.00am on 20 October 2022**.

## Recommendations

We recommend you:

- 1 **advise** transport officials of any changes you wish to make to the draft DEV paper before commencing Ministerial consultation;
- 2 **note** the analysis given to the matters in section 164(2) of the LTA;
- 3 **note** that subject to the outcome of Ministerial consultation we will provide you with the final DEV Cabinet Committee paper and regulatory impact statement in time for you to sign and lodge it with the Cabinet Office by **10.00am on 20 October 2022**;
- 4 **agree** to publicly consult on requiring Euro 6b/VI-c for new vehicles in 2024, before moving to Euro 6d in 2025, and Euro VI-e for heavy vehicles in 2026 Yes / No
- 5 **agree** to publicly consult on used vehicles being required to move from Euro 4/IV to Euro 5/V in 2023; used light diesel vehicles and heavy vehicles being required to meet Euro 6/VI in 2025, and that requirements for light petrol vehicles to meet Euro 6/VI would be phased in to 2028 Yes / No
- 6 **agree** for new and used motorcycles and mopeds to meet a minimum emissions standard of Euro 4 from 1 January 2025 Yes / No
- 7 **agree** for new and used motorcycles and mopeds to then shift to a minimum emissions standard of Euro 5 from 1 January 2027 Yes / No
- 8 **note** that the relationship between safety and implementing the Euro 6/VI standard is expected to be positive, but this link is unclear
- 9 **note** that Waka Kotahi New Zealand Transport Agency and Te Manatū Waka Ministry of Transport officials will work to develop a proposal to address tampering over 2023 before the Euro 6/VI requirement is in force, during a full review of the Rule
- 10 **note** that Euro 6/VI vehicles require the use of urea, of which there is currently a global shortage. Officials will provide further advice if the shortage is ongoing ahead of the Euro 6/VI requirement
- 11 **note** that implementing an updated Rule to require Euro 6/VI has been delayed due to competing Cabinet priorities and will not be completed by the end of 2022; officials expect a new Rule to be in force by May 2023 (CAB-21-MIN-004)



# IMPLEMENTING THE EURO 6/VI EMISSIONS STANDARD

## A draft Cabinet paper has been prepared and is attached for your consideration

- 1 The paper seeks the agreement of the Cabinet Economic Development Committee (DEV) to publicly consult on an updated draft Land Transport Rule: Vehicle Exhaust Emissions 2007 (the Rule).
- 2 We seek your review of the draft Cabinet paper and we will incorporate any changes prior to you commencing Ministerial consultation. If you are happy with the draft Cabinet paper, you could choose to commence Ministerial consultation immediately.
- 3 We will update and finalise the draft Cabinet paper following Ministerial consultation. To be considered by DEV on 26 October it must be signed and lodged with the Cabinet Office by 10.00am 20 October 2022.

## Land Transport Rule: Vehicle Exhaust Emissions 2007

- 4 In 2021, Cabinet agreed to update the Rule to require Euro 6 for light vehicles by the end of 2022 (CAB-21-MIN-004).
- 5 Adopting Euro VI for heavy vehicles is an action included in the Government's 2022 Emissions Reduction Plan. Under action 10.3.1: *Support the decarbonisation of freight* it is agreed that the Government shall "Consider the implementation timing of Euro VI standard for heavy vehicles."
- 6 The Rule is a legislative measure aimed at achieving improvements in air quality by reducing the levels of harmful emissions from motor vehicles.
- 7 The aim of the new draft Rule is to progressively improve the emissions standards of vehicles entering the New Zealand fleet by requiring newly imported vehicles to meet new emissions standards. This includes requiring used vehicles to move from the Euro 4/IV standard to Euro 5/V, and eventually Euro 6/VI, and requiring new vehicles to move from Euro 5/V to Euro 6/VI.
- 8 The updated Rule retains the current Rule exemptions, and some additional provisions for motorcycles. Exemptions include:
  - 8.1 immigrants' vehicles
  - 8.2 Class MA special interest vehicles
  - 8.3 mobile cranes
  - 8.4 vehicles specified in paragraph (a) of the definition of 'low volume vehicle' that comply with the emissions requirements of the Low Volume Vehicle Code

- 8.5 military vehicles
- 8.6 special interest motorcycles
- 8.7 farm motorcycles
- 8.8 enduro motorcycles
- 8.9 trials motorcycles

**The rule making process**

*Statutory context*

- 1 You are empowered by sections 152 and 155 of the Land Transport Act 1998 (the LTA) to update a rule of this nature.

**Matters that you must consider before making a new Rule**

- 2 Section 164 of the Land Transport Act requires you to have regard to and give such weight as you consider appropriate in each case, to a number of matters when deciding to recommend the making of a land transport rule. You must consider these matters yourself and cannot delegate this obligation to anyone else. They are set out in the following table with our advice on each.

Matter to be considered	Comment
<b>Section 164(2)(a)</b> The level of risk existing to land transport safety in each proposed activity or service	The link between safety and recent emissions standards is expected to be strong, but this link is unclear. This is elaborated on further below. We expect that the draft Rule will not have any significant impact on land transport safety.
<b>Section 164(2)(b)</b> The nature of the particular activity or service for which the rule is being established	The draft Rule is being established to support reductions in harmful emissions from vehicles entering the fleet.
<b>Section 164(2)(c)</b> The level of risk existing to land transport safety in New Zealand in general	The draft Rule is not expected to have any significant impact on land transport safety in New Zealand in general.
<b>Section 164(2)(d)</b> The need to maintain and improve land transport safety and security, including (but not limited to) personal security	The draft Rule enabling a requirement for Euro 6/VI could help to achieve improvements in overall safety of the New Zealand fleet, but this link is not clear.

Matter to be considered	Comment
<p><b>Section 164(2)(da)</b> The appropriate management of infrastructure, including (but not limited to)—</p> <p>(i) the impact of vehicles on infrastructure; and</p> <p>(ii) whether the costs of the use of the infrastructure are greater than the economic value generated by its use</p>	<p>It is unlikely the draft Rule will have a measurable impact on infrastructure.</p>
<p><b>Section 164(2)(e)(i)</b> Whether the proposed rule assists economic development</p>	<p>The draft Rule is not expected to have any significant impact on economic development.</p>
<p><b>Section 164(2)(e)(ii)</b> Whether the proposed rule improves access and mobility</p>	<p>The draft Rule is not expected to have any significant impact on access and mobility.</p>
<p><b>Section 164(2)(e)(iii)</b> Whether the proposed rule protects and promotes public health</p>	<p>The draft Rule is likely to have a measurable impact on the reduction of particulate matter and nitrous oxide emissions which are harmful to human health. Out to 2050, the draft Rule is expected to lead to social harm cost reductions of over 6.7b NZD.</p>
<p><b>Section 164(2)(e)(iv)</b> Whether the proposed rule ensures environmental sustainability</p>	<p>Improved fuel consumption in Euro 6/VI vehicles will likely lead to reduced CO<sub>2</sub> emissions. However, the expected reduction in CO<sub>2</sub> emissions is estimated to be less than the low ten-thousands tonnes CO<sub>2</sub>e per annum and will reduce over time. In any case, the draft Rule is unlikely to have any negative impact on environmental sustainability.</p>
<p><b>Section 164(2)(ea)</b> The costs of implementing measures for which the rule is being proposed</p>	<p>The draft Rule is not expected to incur high implementation costs. Public consultation will be able to confirm what the costs may be incurred by vehicle importers and then passed on to consumers.</p>
<p><b>Section 164(2)(eb)</b> New Zealand's international obligations concerning land transport safety</p>	<p>MFAT have advised that the proposed measure is likely to be consistent with New Zealand's international trade law obligations. They do engage our obligations under the World Trade Organisation Technical Barriers to Trade (TBT) Agreement and will need to be notified to the TBT Committee.</p> <p>Under Section 10 of the Trans-Tasman Mutual Recognition Act 1997 (TTMRA), any goods produced in or imported into Australia that may be lawfully sold in Australia may be sold in New Zealand, despite any restriction on sale imposed by New Zealand law. Accordingly, the regulations will not apply to vehicles imported from Australia that do not meet New Zealand's emissions standards.</p> <p>On this basis, Waka Kotahi and Ministry officials will continue to work with MFAT and MBIE to understand possible implications of the TTMRA and provide further advice on the issue.</p>
<p><b>Section 164(2)(f)</b> The international circumstances in respect of land transport safety</p>	<p>The draft Rule is not expected to have any significant impact on international circumstances concerning land transport safety.</p>

Matter to be considered	Comment
<b>Section 164(2)(g)</b> Such other matters as you consider appropriate in the circumstances	Detail on other matters you may wish to consider are set out below.

**You conducted informal consultation on requiring Euro 6/VI in June 2022**

- 3 You sent a letter to the Chief Executives of the Motor Industry Association (MIA), Imported Motor Vehicle Association (VIA), the Automobile Association (AA), Motor Trade Association (MTA) and Special Interest Vehicles Association (SIVANZ) to canvass views on the proposed implementation dates for more stringent emissions standards, see below.

	New light	New heavy	Used light	Used heavy
<b>Presently enacted requirement:</b>	<i>Euro 5 and similar standards from Japan, US</i>	<i>Euro VI and similar standards from Japan, US</i>	<i>Euro 4 and similar standards from Japan, US</i>	<i>Euro IV and similar standards from Japan, US</i>
<b>1 September 2023</b>			Euro 5 and similar standards required for all used imports	Euro 5 and similar standards required for all used imports
<b>1 June 2024</b>	Euro 6b and similar standards for all new imports			
<b>1 June 2025</b>	Euro 6d and similar standards required for all new imports	Euro VI-c and similar standards required for all new imports	Euro 6d and similar standards required for all used diesel vehicles, and petrol vehicles manufactured after 2024	Euro 6/VI and similar standards required for all used imports
<b>1 June 2026</b>		Euro VI-e and similar standards required for all new imports		
<b>1 January 2028</b>			Euro 6d and similar standards required for all used imports	

- 4 We assess implementing Euro 6/VI for new vehicles on these dates would save over \$6b in social costs out to 2050, with accumulative costs to consumers of between \$182 and up to \$236m. These costs consider the worst-case difference in manufacture price between Euro 5/V and Euro 6/VI vehicles, but not any costs passed down from industry associated with moving to Euro 6/VI.

The VIA recommended an alternative pricing option for harmful emissions; s 9(2)(g)(i)

- 5 The VIA did not comment on the achievability of the above dates for used vehicles, although its officials appeared broadly comfortable with these dates in conversations with Te Manatū Waka Ministry of Transport (the Ministry) officials.
- 6 The VIA instead recommended an alternative measure to reduce harm from newly imported vehicles, being a pricing mechanism akin to the Clean Vehicle Discount. Vehicles with stringent emissions standards would be rewarded, and vehicles with less stringent standards would be penalised.
- 7 This measure would require significant policy analysis, would take time to set up, and may be an administratively complex operation. It would also require initial funding, and further funding if the scheme was not revenue neutral.
- 8 Officials have considered this proposal at a high level and deem a Euro 6/VI requirement to be more appropriate at this time. If you want officials to investigate the pricing option further, this will need to be agreed with Waka Kotahi New Zealand Transport Agency (Waka Kotahi) and the Euro 6/VI implementation work would have to be put on hold.
- 9 VIA also recommend exempting hybrids from the proposal; officials do not recommend this as hybrids are not always cleaner than their non-hybrid Euro 6/VI counterparts.

*The new vehicle industry recommended more time ahead of requiring Euro 6/VI*

- 10 To date, the MIA has stated that achieving the most stringent standard, Euro 6d/VI-e will be impossible ahead of Australia's adoption of it. This will be true for some vehicle brands, but not all. Public consultation will produce more information about which vehicle manufacturers will be well placed to supply these vehicles ahead of a requirement in the Australia market. Therefore, we can gain a better understanding of the trade-off between the social cost benefits and any impact on vehicle supply.

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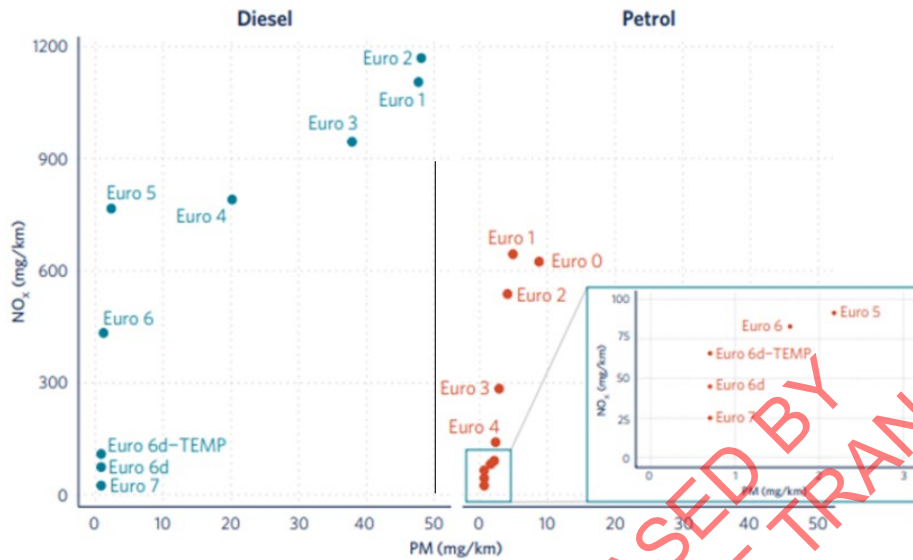
s 6(b)



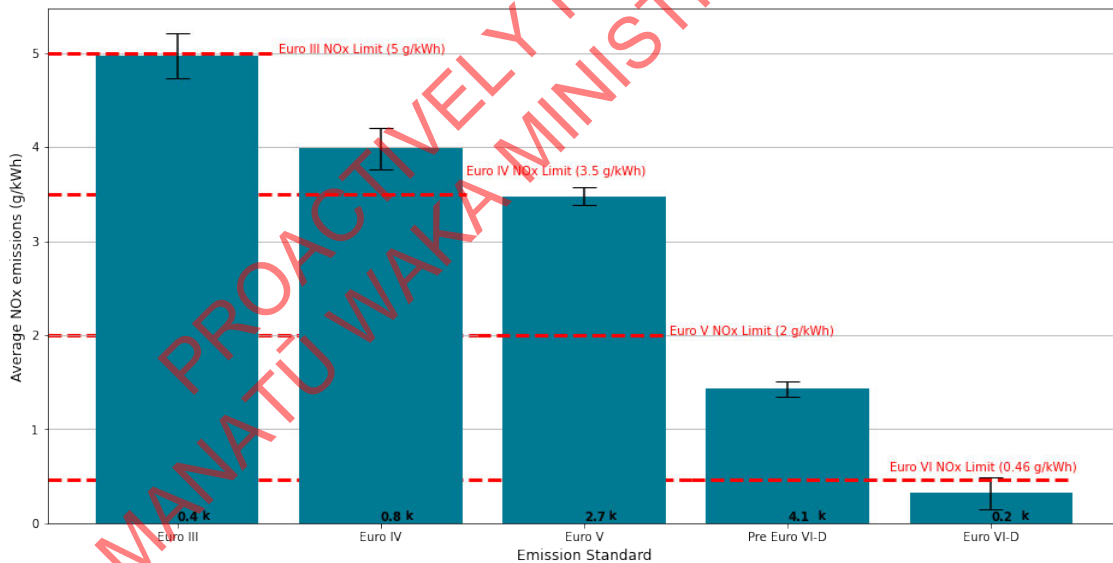
- 12 Waiting for Australia ahead of adopting Euro 6d/VI-e will leave Aotearoa without any mechanism to independently regulate harmful emissions and curb the very high social costs associated with them – in effect outsourcing this to Australia and whatever priority it attaches to this work. We would have to wait for Australia to upgrade its petrol refineries and for an updated Australian Design Rule (Australia's version of the Euro standard) for Australian diesel vehicles. Delaying the introduction of Euro 6/VI would lock in vehicles with high levels of harmful emissions in the fleet for longer.
- 13 The MIA also recommended requiring Euro 6/VI with no letter specification, and at later dates, allowing a year between existing and new vehicle models.
- 14 The regulatory impact statement that will accompany the Cabinet paper goes into more detail on this, but officials generally recommend adopting the most recent Euro standard, as it results in the greatest social harm cost savings. As depicted by the below graphs, Euro 6d/VI-e results in significantly lower nitrogen dioxide (NO<sub>2</sub>) emissions than earlier iterations of the standard. This is particularly true for diesel vehicles, which cause the bulk of the health harm.



**Figure 1 Comparison of real-world NO<sub>x</sub> and PM emissions estimated from remote sensing.** Results are grouped by Euro standard with diesel vehicles shown in blue and petrol vehicles in red<sup>1</sup>



**Figure 2 Comparison of real-world NO<sub>x</sub> emissions across the Euro VI standard<sup>2</sup> (pre Euro VI-d includes Euro VI-a, VI-b, VI-c)**



15 The MTA supports the intention of the draft Rule update, but deferred comment on its impact to MIA and VIA. SIVANZ queried the exemption of special interest vehicles and were told by officials that this exemption was not proposed to be changed in this Rule update. The AA did not respond.

<sup>1</sup> <https://theicct.org/wp-content/uploads/2021/12/Impacts-of-LEZ-Sofia-TRUE-Report-EN-v4-dec21.pdf>

<sup>2</sup> Kazemi Bakhshmand, S., Mulholland, E., Tietge, U., & Rodríguez, F. (2022). Remote sensing of heavy-duty vehicle emissions in Europe [Publication pending]. International Council on Clean Transportation.

- 16 Public consultation will enable a full response to the Euro 6/VI implementation dates by individual vehicle manufacturers and other stakeholders, and as such ensure a clearer indication of their achievability by industry.

### **Motorcycles and mopeds would be required to meet minimum emissions standards under the new Draft Rule**

- 17 The current Rule does not apply minimum emissions standards for motorcycles and mopeds. Waka Kotahi also does not currently collect relevant vehicle data when motorcycles are registered, so we cannot accurately determine their fuel consumption, CO<sub>2</sub> emissions, or harmful emissions. Although they are a small proportion of our overall fleet, the social costs per kilometre driven by the average motorcycle are approximately twice that of the average petrol car in our fleet.<sup>3</sup>
- 18 The draft Rule will require Euro 4 and similar standards for new and used motorcycles and mopeds entering the fleet from 1 January 2025. A less stringent emission standard is proposed due to:
- 18.1 the small proportion of these vehicles in our fleet, and;
  - 18.2 the lack of data available to analyse what impact applying emissions standards to these vehicles will have.
- 19 The draft Rule would then propose requiring Euro 5 for new and used motorcycles and mopeds in 2027. The Euro 6/VI standard does not consider motorcycles and mopeds, hence why we have not suggested a date to adopt it.
- 20 The above dates have only been informally canvassed with a couple of industry parties – namely the MIA and VIA. Public consultation on the above dates will help to reveal what potential impact this proposal could have.

### **Te Manatū Waka Ministry of Transport and Waka Kotahi will seek to resolve the issue of tampering in 2023**

- 21 As previously discussed, [OC220137 refers], the issue of tampering is likely to become more significant once Euro 6/VI is required for newly imported vehicles.
- 22 The tampering issue is operationally complex and requires further policy analysis. Waka Kotahi and the Ministry will work to consider tampering further under a more comprehensive review of the Rule to be undertaken next year.
- 23 Tampering usually involves either the removal or bypassing of filters and catalysts, rather than their replacement, or, more often, avoiding the use of exhaust reagent (most commonly known as AdBlue). AdBlue is a mix of urea and water that is injected into the exhaust stream of diesel engines. The resulting chemical reactions convert NO<sub>2</sub> into harmless substances. This process is referred to as selective catalyst reduction (SCR).

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<sup>3</sup> Metcalfe J and Kuschel G (2022). Estimating the impacts of introducing Euro 6/VI vehicle emission standards for New Zealand

- 24 While the SCR process works well in reducing NO<sub>2</sub> emissions, it requires drivers to purchase AdBlue on a regular basis. This imposes a direct cost on the operator of the vehicle and is therefore an ongoing financial incentive to avoid the use of AdBlue. Tampering in this context usually involves modifying software installed in vehicles that monitor levels of AdBlue and indicate when a vehicle needs to refill.
- 25 Euro 6/VI requires the use of the SCR process in diesel vehicles. This means that the issue of tampering with the SCR process is likely to get larger over time as we require these standards.
- 26 The forms of tampering stated above will not cause a Euro 5 or 6 diesel vehicle to fail the provisions in the current Rule. This is because the current Rule defines failure as the presence of visible smoke (opacity) and checks only for carbon monoxide and hydrocarbons being within permitted levels, which are far less stringent than Euro 5/V or Euro 6/VI. Importantly, it does not test for NO<sub>2</sub> emissions which is what tampering with the SCR process or removing a catalytic converter would drastically alter. If the opacity of the exhaust is not affected, modifications (tampering) are currently considered legal.
- 27 As a result, tampering is expected to increase in scale as a problem, as all new diesel engines use urea-based liquid, such as AdBlue. The Ministry and Waka Kotahi will aim to address the tampering issue ahead of requiring Euro 6/VI for new imports.

**There is a developing global shortage of urea**

- 28 Urea – required for AdBlue – is also used in the production of nitrogen fertilisers for agriculture. In November 2021, China and Russia restricted urea exports to preserve their domestic supplies of fertiliser. This has followed strong increases in the market price of urea over the past year, with prices reportedly doubling or trebling since mid-2020, after several years of very low global prices.
- 29 As China and Russia are two of the world's largest urea producers, these restrictions have created a shortage of urea on the global marketplace, and by extension, AdBlue. This has been reported on widely in overseas media, particularly in Australia where there is an acute urea shortage. New Zealand stakeholders have subsequently expressed concerns that we could also be affected.

*Aotearoa is in a better position than many other countries*

30 s 9(2)(b)(ii) [Redacted]

31 s 9(2)(b)(ii) [Redacted]

32 It is not known when the urea shortage is likely to subside. As Euro 6/VI vehicles require the use of urea, requiring Euro 6/VI is going to mean more urea will be needed in Aotearoa. As it is important industry have as much lead time as possible ahead of the new requirements, officials do not recommend the implementation dates change based

on the current urea shortage. Officials will continue to monitor the shortage and provide further advice on this issue ahead of the date that Euro 6/VI is required, if it proves to be ongoing.

s 9(2)(f)(iv)

**A full review and update of the Rule will be undertaken next year**

- 38 The purpose of the Rule updates this year are to insert the dates from which Euro 6/VI is required to give industry enough planning and lead time.
- 39 As previously mentioned, a full Rule review is proposed for 2023. The scope of this is yet to be defined between Waka Kotahi and the Ministry, but will likely include: simplifying the Rule, to enable easier compliance; aligning the Rule with Aotearoa's safety goals and standards, and a proposal to address tampering.
- 40 The full review was not undertaken this year because there was not sufficient time to undertake the policy analysis and consultation needed to address the above issues for

this year. Delaying an update to the Rule would also mean having to delay the implementation dates for Euro 6/VI, which would perpetuate adverse health outcomes.

### Next steps

- 41 Due to competing priorities at Cabinet, the Rule update has been delayed. Officials expect this work to be complete in May 2023, rather than by the end of 2022 as originally proposed.
- 42 After public consultation is complete in December, Ministry and Waka Kotahi officials will work to analyse submissions made on the draft Rule, with a particular eye to understanding any potential impact on vehicle supply across manufacturers and vehicle types.
- 43 If it is deemed necessary, officials will conduct a short two-week targeted engagement with industry to test the technical accuracy of the Rule and any revisions made following consultation. Officials will update you on the outcome of consultation through a briefing and request permission to undertake targeted engagement with industry if it is needed.
- 44 Once the Rule is final, Ministry officials will provide you with a copy for sign off.
- 45 Rules made under section 152A of the LTA are secondary legislation, and in accordance with the publication requirements of the Legislation Act 2019 –
  - 45.1 you must notify the making of the rule in the *Gazette* along with a statement of where it is available for inspection and purchase; and
  - 45.2 the rule must be made available for inspection free of charge and for purchase at a reasonable price.
- 46 On your agreement to the final Rule, we intend to give notice of the making of the Rule in the *Gazette* and publish the Rule on Waka Kotahi's website to satisfy the requirements above. Under section 114(1) of the Legislation Act 2019 and the rules and practice of the House, the rule must be presented to the House of Representatives no later than the sixteenth day after it is made.
- 47 Rules are subject to the 28-day rule so unless Cabinet agrees a waiver, they must not come into force until at least 28 days after they have been notified in the *Gazette*.
- 48 If substantive changes to the policy of the draft Rule are required, you will notify Cabinet in the first quarter of 2023, ahead of signing the new Rule.