

Proposed Amendments to the
Land Transport Rule: Vehicle
Exhaust Emissions 2007
| Whakahoutanga kua
Tāpaetia ki te Ture Kawenga
Whenua: Tukuwaro Hau Kino
Waka 2007

Consultation document
May 2023

Executive summary and requirements for making a submission

The proposed changes to the Land Transport Rule: Vehicle Exhaust Emissions 2007 – the 'Vehicle Exhaust Emissions Amendment Rule' (the Amendment Rule) will reduce emissions from motor vehicles that cause significant harm to our health. The proposed changes to the Amendment Rule set out the lead in times for bringing in a stronger vehicle emissions standard. The aim of this consultation is to receive feedback on the new proposed emissions standard, for new and used vehicles, and the proposed lead in times for these changes.

The proposals are to:

- Rapidly shift the minimum requirement on *used imports* from Euro 4/IV to Euro 5/V.
- Phase in the shift from Euro 5/V to Euro 6/VI on *used imports* and *new vehicles* in several steps, between late 2024 and the start of 2028.
- Introduce an emissions requirement for mopeds and motorcycles.

Aotearoa, and Australia are the only remaining developed countries that are yet to move to Euro 6/VI¹. The world's three largest auto-markets are now moving beyond Euro 6/VI and onto the next generation of even stronger standards, Euro 7 (China in 2023, Europe over 2025-2027, the U.S. in 2027). The proposals aim to align with Australia where possible, as we share a global supply of new vehicles with Australia. The proposal also accounts for the large number of used imports from Japan.

Health impacts and air quality

Emissions harmful to human health include nitrogen oxides, particulate matter, and carbon monoxide, and are different to greenhouse gas emissions (carbon dioxide), which harm the climate.

The World Health Organization (WHO) sets guidelines for air quality, including stating limits for harmful emissions, such as nitrogen oxide, which should not be exceeded. In 2006, 24 percent of the population in Aotearoa were living in areas where nitrogen oxide concentration in the air exceeded the WHO guidelines. In 2016, this increased to 31 percent of the population. For Pacific peoples the rates were even higher, increasing from 43 percent to 54 percent. By contrast, in Europe the levels of transport-related pollution are reducing.²

Exposure to these harmful emissions have been found to contribute to premature deaths. In 2016, Auckland, Christchurch, and Dunedin experienced the highest number of premature deaths due to human made particulate matter known as PM2.5 and nitrogen oxides (NOx) air pollution.³

1 Based on reviewing standards of all 'developed countries' as defined by the UN (<https://unctadstat.unctad.org/EN/Classifications.html>) and all 'advanced economies' as defined by the IMF (<https://www.imf.org/external/pubs/ft/weo/2022/01/weodata/groups.htm>)

2 <https://www.stats.govt.nz/news/health-impacts-of-exposure-to-human-made-air-pollution/>

3 HAPINZ 3.0 (instantatlas.com)

About two thirds of our air-pollution related social costs⁴ are due to transport. Every year, harmful transport emissions are responsible for \$10.5 billion in social costs⁵, including:

- 13,000 cases of asthma in our tamariki
- 900 hospitalisations of tamariki presenting with asthma/wheeze
- 9000 cardiovascular and respiratory hospitalisations
- 2,200 premature deaths, which accounts for about one in fourteen deaths annually.

Enacting a Euro 6/VI emissions standard will lower the permitted level of nitrogen oxides by about 56 percent for light diesel vehicles and 80 percent for heavy vehicles compared to Euro 5/V, the current regulated requirement on new vehicles. Euro 6/VI will also lower the permitted levels of particulate matter and introduce more accurate testing practices, leading to better real-world emission reductions.^{6,7,8}

Benefits of Euro 6/VI vehicle emissions standards

The Euro 6/VI evaluation study demonstrated that Europe's shift to Euro 6d/VI over the last decade caused dramatic improvements in air quality, with reductions of:

- nitrogen oxides (65 percent for petrol cars, 91 percent for light diesel vehicles, and 72 percent for heavy vehicles)
- exhaust particles (86 percent for petrol cars, 91 percent for light diesel vehicles, and 28 percent for heavy trucks)
- carbon monoxide (83 percent for petrol cars, 41 percent for light diesel vehicles, 85 percent for heavy trucks)
- other pollutants.

These reductions in Europe relied on a number of improvements to the Euro 6 and VI standards being incorporated as well, which Aotearoa will also seek to include.

Requiring vehicle imports to meet a stronger emissions standard is a key tool to reducing the health impacts from domestic motor vehicle pollution. If adopted, the proposed Amendment Rule change is expected to save over \$6 billion in social costs out to 2050, against costs of less than \$0.2 billion.

Voluntary uptake of Euro 6/VI is low, especially for diesel vehicles, and is not expected to change materially without a legislative requirement.

Therefore, the Government is proposing to phase in new requirements for the new emissions standard over the next five years for the following groups of vehicles (when they are imported into the country): light vehicles, heavy vehicles, motorcycles/mopeds, and used disability vehicles.

The tables below set out the current proposed timeframes for these standards to come into effect for light and heavy vehicles, and motorcycles and mopeds.

4 Social costs measure the total cost of air pollution to the country, including loss of life, loss of productivity and income, and the costs of medical treatment, including hospital admissions.

5 Kuschel et al (2022). Health and air pollution in New Zealand 2016 (HAPINZ 3.0): Volume 1 – Finding and implications. Report prepared by G Kuschel, J Metcalfe, S Sridhar, P Davy, K Hastings, K Mason, T Denne, J Berentson-Shaw, S Bell, S Hales, J Atkinson and A Woodward for Ministry for the Environment, Ministry of Health, Te Manatū Waka Ministry of Transport and Waka Kotahi NZ Transport Agency, March 2022.

6 Euro 6 Evaluation Report (European Commission, 2022)

7 Remote sensing of heavy-duty vehicle emissions in Europe (The ICCT, 2022)

8 Euro 6e: Changes to the European Union light duty vehicle type-approval procedure (The ICCT, 2022)

Used vehicle imports are provided more time than brand new vehicles to comply with the stronger standards, to minimise the risk of vehicle supply constraints. Similarly, standards for brand-new vehicles are first applied to newly introduced models before applying to vehicles manufacturers are already supplying.

Aotearoa currently allows vehicle importers to show evidence of harmful emission levels through several regional (European, Japanese, American, and Australian) or global standards (United Nations Economic Commission for Europe (UNECE)). This approach shall continue where broad equivalence is possible.

The proposed Amendment Rule change also removes outdated and redundant information.

Proposed lead in time for the changes is indicated in the tables below. The time period provided is for the amount of time that will be given between the Minister of Transport publishing the Amendment Rule in the *New Zealand Gazette* and that requirement coming into force. Indicative timeframes for when each requirement enters into force are provided in brackets. Indicative timeframes assume that the Amendment Rule is published in the *Gazette* in July 2023. The actual date that the Amendment Rule is gazetted may differ, meaning the entry into force may fall on a later date to allow for the appropriate lead in time.

Note that the last row of requirements in each table is proposed to be a fixed date, the lead in time for these requirements may change depending on when the Amendment Rule is published in the *Gazette*.

Table 1: Proposed minimum requirements for light vehicles:

Certified for entry into service	Used Light Petrol, CNG/LPG	Used Light Diesel	New Light Petrol, CNG/LPG	New Light Diesel
Current requirement	Euro 4 US 2004 Japan 05 ADR 79/02	Euro 4 US 2004 Japan 05 ADR 30/01+79/01	Euro 5 US 2007 Japan 05 ADR 79/04	Euro 5 US 2007 Japan 05 ADR 79/04
6 months after publication in the Gazette (1 Feb 2024)	Euro 5 US Tier 2 Japan 05 Low Harm ADR 79/04	Euro 5 US Tier 2 Japan 09 ADR 79/04		
18 months after publication in the Gazette (1 Feb 2025)			<i>Newly introduced models only:</i> Euro 6d US Tier 3 Japan 2018 Low Harm	<i>Newly introduced models only:</i> Euro 6d US Tier 3 Japan 2018 (any code)
30 months after publication in the Gazette (1 Feb 2026)	Euro 6d US Tier 3 Japan 05 Low Harm (if manufactured up to 31 Dec 2024), or Japan 2018 Low Harm (any date of manufacture)	Euro 6d US Tier 3 Japan 2018 (any code)	<i>Existing models:</i> Euro 6d US Tier 3 Japan 2018 Low Harm	<i>Existing models:</i> Euro 6d US Tier 3 Japan 2018 (any code)
1 Jan 2028, at the latest (4.5 years after publication in the Gazette under current proposal)	Euro 6d US Tier 3 Japan 2018 Low Harm (All vehicles)			

- For both new and used disability vehicles, we propose to introduce Euro 5 requirements 6 months after the Amendment Rule is published in the Gazette. We propose new disability vehicles will transition to Euro 6 on the same timeline as new light vehicles. Used disability vehicles will move to Euro 6d requirements from 1 January 2028 at the latest.
- “Used imports” means used vehicles that are imported into Aotearoa for sale having been first registered overseas.
- “Newly introduced models” means brand new vehicles whose models are not currently manufactured and sold in Aotearoa.
- “Existing models” means brand new vehicles whose models are currently sold by the vehicle manufacturer in Aotearoa.
- “Low Harm” means, for Japan 2018: a vehicle must show a 75 percent or 50 percent harmful emission reduction code, and for Japan 05 Low Harm: a vehicle must show a 75 percent reduction, but also must be manufactured from 2012.

Table 2: Proposed minimum requirements for heavy vehicles:

Certified for entry into service	Used Heavy	New Heavy
Current Requirement	Euro IV US 2004 Japan 05 ADR 30/01 + ADR 80/02	Euro V Japan 05 US 2007 ADR 80/03
6 months after publication in the Gazette (1 Feb 2024)	Euro V US Tier 2 Japan 09 ADR 80/03	
15 months after publication in the Gazette (1 Nov 2024)		<i>Newly introduced models:</i> Euro VI stage C US Tier 3 Japan 2016 ADR 80/04
27 months after publication in the Gazette (1 Nov 2025)	Euro VI stage C US Tier 3 Japan 2016 ADR 80/04	<i>Existing models:</i> Euro VI stage C US Tier 3 Japan 2016 ADR 80/04
1 Nov 2026, at the latest (39 months after publication in the Gazette under current proposal)		Euro VI stage E Japan 2016 US Tier 3

Table 3: Proposed minimum requirements for mopeds and motorcycles:

Certified for entry into service	Used Motorcycle/Moped	New Motorcycle/Moped
Current requirement		None
18 months after publication in the Gazette (1 Feb 2025)		Euro 4 US 2010 Japan 2012
1 Jan 2027, at the latest (41 months after publication in the Gazette under the current proposal)		Euro 5 US 2010 Japan 2016

Consultation on proposed Amendment Rule

Consultation on the proposed Amendment Rule is being carried out to ensure that legislation is sound and robust, and that the Amendment Rule's development takes account of the views of, and the impact on, people and organisations affected by the proposed changes.

Additional material

Further reports are available at <http://transport.govt.nz/harmful-vehicle-emissions> to inform your understanding of this topic:

- Draft Amendment Rule - the draft legislation.
- A regulatory impact statement providing more information on the costs and benefits is available (Ministry of Transport, 2022)
- Estimating the impacts of introducing the Euro 6/VI vehicle emissions standard for New Zealand (Emissions Impossible, 2022)
- Health and Air Pollution in New Zealand (HAPINZ) 3.0 report (Emissions Impossible, 2022)
- Euro 6 Evaluation Study (European Commission, 2022)

Submissions are sought by 5pm on Thursday 22 June 2023

Please read the information provided in this document, and include the following information in your submission:

- the title of this review
- your name, and title if applicable
- your organisation's name if applicable
- your email address

Send your submission by email to emissions@transport.govt.nz or use the online submission form at <https://consult.transport.govt.nz/policy/consultationeuro6vistandards> before this deadline.



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Proposed Change to the Land Transport Rule: Vehicle Exhaust Emissions 2007

Legislative framework for making Rules

What are Land Transport Rules?

Land Transport Rules (Rules) are legislation made by the Minister of Transport or another authorised Minister ('the Minister') under the Land Transport Act 1998 (Act). Rules are drafted in plain language to be easily understood.

The Act sets out principles, the policy framework, and the authority for making rules. Once made, Rules contain detailed requirements, including standards and processes, for putting those principles and policies into operation.

Rules cover a range of land transport issues. Rules do not include offences, penalties, or fees. Those must be placed in regulations.

Outcomes that Rules aim to achieve include:

- maintaining and improving land transport safety and security
- improving access and mobility
- assisting economic development
- protecting and promoting public health
- ensuring environmental sustainability.

Compliance with Rules is required because they form part of our transport law. The specific offences and penalties that apply to each Rule are set out in the Act or in regulations.

This proposed Amendment Rule change has been prepared by Te Manatū Waka Ministry of Transport (the Ministry), with input from New Zealand Transport Agency Waka Kotahi (Waka Kotahi) during the development and finalisation of the proposed Amendment Rule. The Ministry is running this consultation process on behalf of the Minister. The issues raised in submissions on the Amendment Rule will be analysed and considered in preparing the final Amendment Rule for the Minister to consider and sign.

Subject to the approval of the Minister, the proposed Amendment Rule is expected to be finalised and published in the *New Zealand Gazette* in 2023.

Background

The proposed Amendment Rule will progressively improve the harmful emissions standard of vehicles entering Aotearoa by requiring newly imported vehicles to meet a new stricter emissions standard. Harmful emissions, such as nitrogen oxides and particulate matter, are harmful to human health, and others such as carbon monoxide can cause disorientation and death.

Vehicles tend to remain in the Aotearoa fleet for a long time. They are scrapped at an average age of 19 years. To reduce harm over the long term, a tighter emissions standard is required as soon as possible.

The proposals do not focus on carbon dioxide (CO₂) emissions, which are harmful to the climate. Emissions harmful to the environment are regulated through other government policies.⁹ Despite this, truck distributors in Aotearoa have advised the proposals in this document could reduce the CO₂ emissions of trucks by 10 to 20 percent. It is also possible that the adoption of the proposals may encourage some broader behavioural change by distributors or buyers of vehicles if they shift to zero emission (electric and hydrogen powered) models.

Motor vehicle pollution is a problem in Aotearoa

Although our air quality is generally good by world standards, nearly one third of people live in areas with poor air quality, and research has shown that our air quality is getting worse.¹⁰ Air pollution is therefore still a major health concern in Aotearoa. Vehicles are a significant source of air pollution, especially in the Auckland region and beside busy roads.¹¹ Air pollution can cause significant health impacts ranging from respiratory symptoms and illness (morbidity) to premature death (mortality).

Of the common pollutants present in air pollution, the largest and best-known impacts on health (in terms of the burden on the health system and society) arise from the fine particulate matter. These particulates are known as PM₁₀ (particles with a size less than 10 µm) and PM_{2.5} (particles with a size less than 2.5 µm). Ultrafine particles (particles with a size less than 0.1 µm) are of particular concern because they can penetrate deep into the respiratory system and enter the bloodstream.

Awareness is also growing for the health risks from exposure to nitrogen oxides (NO and NO₂, referred to collectively as NO_x), especially NO₂.¹² This is particularly concerning as transport is understood to be the main source of these emissions in Aotearoa, and the presence of NO_x can be significant in cities.

Health and Air Pollution in Aotearoa (HAPINZ 3.0)

The HAPINZ 3.0 report, published in 2022, found that air pollution (primarily NO₂, PM₁₀ and PM_{2.5}) from the transport sector contributed \$10.5 billion in social costs per year, which is

⁹ Adopting Euro 6d and Japan 2018 helps. They significantly improve CO₂ emission measurements of vehicles which will improve the accuracy of figures used by the Clean Car Discount and Clean Car Standard.

¹⁰ <https://www.stats.govt.nz/news/health-impacts-of-exposure-to-human-made-air-pollution/>

¹¹ [our-air-2018.pdf](#) (environment.govt.nz)

¹² Mortality and Morbidity Effects of Long-Term Exposure to Low-Level PM_{2.5}, BC, NO₂, and O₃: An Analysis of European Cohorts in the ELAPSE Project | Health Effects Institute

roughly two thirds of the total of all air pollution costs (\$15.6 billion).¹³ By way of comparison the total social cost of road crashes that result in deaths and serious injuries is \$8 billion.¹⁴

The calculated social costs come from the below list of health impacts:

- 13,000 cases of asthma prevalence in our tamariki
- 900 childhood hospitalisations per year due to asthma/wheeze;
- 2,200 premature deaths, which accounts for about one in 14 deaths annually;
- 9,000 cardiovascular and respiratory hospital admissions, and;
- 300,000 restricted activity days (when air pollution causes symptoms which prevent people being able to go to work, school or undertake their usual activities).

Social costs measure the total cost of air pollution to the country, including loss of life, loss of productivity and income, and the costs of medical treatment, including hospital admissions.

The findings from HAPINZ are included in Annex One of this document and are linked on the webpage for this consultation.

Improving the harmful emissions ratings of vehicles entering the Aotearoa fleet will lead to reduced social costs over the long term

Requiring a stronger emissions standard will reduce detrimental health impacts and the social cost of these caused by our vehicle fleet.

The Euro 6/VI standard will lower the permitted level of nitrogen oxides by about 56 percent for light diesel vehicles and 80 percent for heavy vehicles compared to Euro 5/V, the current regulated requirement on new vehicles. Euro 6/VI also lowers the permitted levels of particulate matter and introduces more accurate testing practices, leading to better real-world emission reduction. Reducing emissions from diesel vehicles, and in particular the level of nitrogen dioxide that diesel engines produce, is the biggest improvement for the health of New Zealanders in moving from Euro 5/V to 6/VI.^{15, 16, 17}

A recent study published by the European Commission¹⁸ demonstrated that Europe's shift from Euro 5/V to Euro 6d/VI over the last decade caused dramatic reductions of multiple pollutants on a per-vehicle basis. This includes:

- Nitrogen oxides: 65 percent reduction for petrol cars, 91 percent for light diesel vehicles, and 72 percent for heavy vehicles.
- Exhaust particles: 86 percent reduction for petrol cars, 91 percent for light diesel vehicles, and 28 percent for heavy trucks.
- Carbon monoxide: 83 percent reduction for petrol cars, 41 percent for light diesel vehicles, 85 percent for heavy trucks.

13 Kuschel et al (2022). Health and air pollution in New Zealand 2016 (HAPINZ 3.0): Volume 1 – Finding and implications. Report prepared by G Kuschel, J Metcalfe, S Sridhar, P Davy, K Hastings, K Mason, T Denne, J Berentson-Shaw, S Bell, S Hales, J Atkinson and A Woodward for Ministry for the Environment, Ministry of Health, Te Manatū Waka Ministry of Transport and Waka Kotahi NZ Transport Agency, March 2022.

14 <https://www.nzta.govt.nz/resources/research/reports/698>

15 Euro 6 Evaluation Report (European Commission, 2022)

16 Remote sensing of heavy-duty vehicle emissions in Europe (The ICCT, 2022)

17 Euro 6e: Changes to the European Union light duty vehicle type-approval procedure (The ICCT, 2022)

18 <https://op.europa.eu/en/publication-detail/-/publication/a9a2eadb-5f1d-11ed-92ed-01aa75ed71a1/language-en>

These reductions in Europe relied on several improvements to the Euro 6 and VI standards being incorporated as well, which described later and detailed in **Annex One**.

The proposed implementation timeframes for Euro 6/VI balance protecting the health of New Zealanders and ensuring adequate vehicle supply

New Zealanders need to continue to have access to vehicles at prices they can afford while we seek to reduce harmful air pollution. Although implementing Euro 6/VI as soon as 2024 would result in the greatest levels of avoided social harm, if the notice period is too short, it will be difficult for distributors to source vehicles meeting the new standards and/or with the appropriate testing documentation. That could restrict the number of vehicle models available to Aotearoa consumers and drive-up prices.

In contrast, leaving the transition too long means continuing to accept social harms that are inequitably felt in our country.

Details of the proposal

New Vehicles

For new light vehicles, we propose to introduce Euro 6d for newly introduced vehicle models (i.e. models not previously sold in Aotearoa) 18 months after the Amendment Rule is published in the *Gazette*. For existing models of new vehicles, we propose to introduce the Euro 6d requirement 30 months after the Amendment Rule is published in the *Gazette*.

For new heavy vehicles, we propose to introduce Euro VI-C for newly introduced vehicle models 15 months after the Amendment Rule is published in the *Gazette*. For existing models of new vehicles, we propose to introduce the Euro VI-C requirement 27 months after the Amendment Rule is published in the *Gazette*. We then propose to move to a Euro VI-E requirement for all new and used heavy vehicles from 1 November 2026 at the latest.

Aotearoa has historically aligned with Australia on emissions standards as our geographical proximity means distributors of new vehicles treat us as a single market. Most of our brand-new vehicles are also approved for sale (homologated) to the Australian Design Rule that Australia uses to mandate Euro standards.

Australia is planning to move to Euro 6d for light vehicles soon, although a date has not yet been confirmed. Their timelines for moving to Euro 6d are dependent on first improving their petrol quality, which may occur late 2024.¹⁹

Australia will move to Euro VI for heavy vehicles between November 2024 and November 2025 (Australian Design Rules (ADR) 80/4).²⁰ However, Australia is only planning to introduce the more moderate level standards of Euro VI (known as Stage C) and is not looking to introduce full Euro VI (stage E) standards. This is due to their uniquely heavy-duty operating requirements, including “road trains”, where trucks can pull up to four trailers at once, thereby carrying much heavier loads than what is permitted here.

If Aotearoa requires stronger standards than Australia, this could potentially have drawbacks as suppliers may find it less appealing to produce vehicles for Aotearoa that are different to those produced for Australia.

However, as most of the global automotive market is already operating at Euro 6, with Australia, Aotearoa, Russia, and some developing countries being key exceptions, it is not anticipated that Aotearoa moving to the Euro 6 emissions standard would cause significant disruption for vehicle distributors.

Aotearoa currently has much stronger carbon dioxide (harmful to the environment) emission requirements for vehicles than Australia does. Distributors have largely responded to this by supplying us with different volumes and models of vehicles. As a result, new brands and models have started to become popular in response to government policy aiming to reduce CO₂ emissions to try to mitigate the impacts of climate change.

Buses used in public transport are already required to achieve Euro VI, and from 2025, new buses used in public transport must be zero carbon emission to reduce the impacts of climate

¹⁹ <https://consult.dcceew.gov.au/better-fuel-for-cleaner-vehicles>

²⁰ <https://www.infrastructure.gov.au/infrastructure-transport-vehicles/vehicles/vehicle-safety-environment/emission-standards>

change.²¹ This means that this proposed Amendment Rule should not cause any supply constraints on our public transport fleet.

Used Vehicles

For used light vehicles (both petrol and diesel), we propose to introduce Euro 5 requirements 6 months after the Amendment Rule is published in the *Gazette*. We then proposed to move to a Euro 6d requirement 30 months after the Amendment Rule is published in the *Gazette*. Note that we propose a phase-in of the Japan Low Harm standards, which means full Euro 6d requirements, including the equivalent Japan standards will not be required for all vehicles until 1 January 2028. See Proposal 1 for details.

For used heavy vehicles, we propose to introduce Euro V requirements 6 months after the Amendment Rule is published in the *Gazette*. We then propose to move to Euro VI-C requirements 27 months after the Amendment Rule is published in the *Gazette*. We propose to move to a Euro VI-E requirement for all used and new heavy vehicles from 1 November 2026 at the latest.

Aotearoa imports a large number of used vehicles and almost all used imports originate from Japan.

The proposed Amendment Rule will require used imports to shift from Euro 4 to Euro 5 next year. This is unlikely to cause supply constraints or price increases, as 85 percent of used vehicle imports already meet this threshold. However, there is a short-term risk that importers could be caught out where they have purchased vehicles overseas that, due to shipping or other logistical delays, could be blocked because they arrive after the new requirements commence. To reduce that risk, the proposed Amendment Rule states that as long as the vehicle has been successfully *inspected* (which can occur in Japan) ahead of the shift from Euro 4 to Euro 5, the vehicle can still enter our fleet.

Subsequently, used imports will be subject to meeting Euro 6/VI. A phased approach for Japanese used import petrol vehicles out to 2028 has been proposed. This is because Japan regulated a requirement for petrol vehicles to have emissions similar in strength to Euro 6 in 2018. Given used petrol vehicle imports are routinely 7 to 10 years old, it will take until 2028 before there is widespread supply of used vehicles in Japan that meet Euro 6/VI standards. Petrol cars cause less social harm than diesel ones, so a longer transition period for used petrol cars is not expected to undermine the benefits of this proposal.

Used disability vehicles will be granted additional time to shift to Euro 6

For both new and used disability vehicles, we propose to introduce Euro 5 requirements 6 months after the Amendment Rule is published in the *Gazette*. We propose new disability vehicles will transition to Euro 6 on the same timeline as new light vehicles. We propose that used disability vehicles move to Euro 6d requirements from 1 January 2028 at the latest.

Modified vehicles are needed by people with disabilities. This does not usually pose an issue for new vehicle imports, as these vehicles are bought new and then modified to suit the needs of its disabled driver or passenger/s. However, supply constraints could occur in the case of used light imports, as these vehicles will have already been modified and used before being imported to Aotearoa.

²¹ <https://www.nzta.govt.nz/resources/requirements-for-urban-buses/>

Currently, vehicle distributors must apply for a case-by-case exemption to the Director of Land Transport where they seek to import a disability vehicle that does not meet the required emissions standard. While that would still be permitted, we propose to give an explicit time extension to used disability vehicles to reduce the need for distributors to apply for case-by-case exemptions.

The proposed Amendment Rule provides a definition for light disability vehicles (below) and allows extra time for used light disability vehicles to meet the stronger emissions standard (see Proposal 4).

Under the proposed Amendment Rule, a Disability Vehicle means a light vehicle that is used for the transportation of a person with a disability and is modified to do either or both of the following:

- (a) enable a person in a wheelchair to safely enter and exit the vehicle and enable the person and the wheelchair to be safely restrained while the vehicle is moving:
- (b) provide a person in a wheelchair or of limited mobility with assistance to enter and exit the vehicle through the use of a swivel or swing-out seat.

The proposed Amendment Rule also introduces minimum exhaust emissions standard for motorcycles and mopeds

For both new and used motorcycles and mopeds, we propose to introduce Euro 4 requirements 18 months after the Amendment Rule is published in the *Gazette*. We then propose to move to Euro 5 requirements from 1 January 2027 at the latest.

Most major vehicle markets have required minimum standards on motorcycles including the United States, Europe, and Japan, since 1999. Today, the majority of the global automotive market requires emission levels that are broadly aligned to Euro 5. No market has yet proposed a standard that is Euro 6 in strength.

In contrast, Aotearoa does not currently require any form of minimum harmful emissions standard to be met for motorcycles and mopeds.

The government has little information on the emissions standards of motorcycles and mopeds currently entering Aotearoa. However, the vehicle industry has suggested that many larger and open-road motorcycles sold here today are already built to a Euro 4 and 5 standards. In comparison, many lower-priced urban motorcycles and mopeds are built with no emissions standards at all, and so could emit more harmful pollution per kilometer driven than cars.

Existing exemptions will be kept and some new exemptions will be added

The proposed Amendment Rule applies to motor vehicles that are required to be certified for entry into, or operation in, service. This means that some vehicle types, such as all-terrain-vehicles (ATVs) are not included.

The proposed Amendment Rule retains the current Rule exemptions and some additional provisions for motorcycle exemptions:

All existing exemptions are proposed to be retained:

- immigrants' vehicles
- Class MA special interest vehicles
- mobile cranes
- vehicles specified in paragraph (a) of the definition of 'low volume vehicle' that comply with the emissions requirements of the Low Volume Vehicle Code
- military vehicles.

Exemptions proposed to be added:

- special interest motorcycles (note special interest *mopeds* are not exempted from the requirements in the proposed Amendment Rule).
- farm motorcycles
- enduro motorcycles
- trials motorcycles.

Accepted standards from other jurisdictions

Aotearoa accepts emissions testing standards from four regions: Europe (the Euro standards), Australian (Australian Design Rules, or ADRs), the United States (US EPA tiers), Japan (Japanese Regulations). We also support the EU regulations harmonised globally by the United Nations Economic Commission for Europe (UNECE).

Appropriate equivalencies need to be selected. This is challenging because the emission limits and testing practices between the standards do not all align exactly. The tables below describe the standards we are currently considering as accepted alternatives to Euro 5/V and 6/VI. The tables describe whether the standard aligns to Euro 5/V or 6/VI or not as well as providing some context.

Emissions testing standards from other jurisdictions

Light vehicles:

Euro 5 equivalents	Alignment with Euro 5	Technical detail
US Tier 2	Stronger	Uses different values and testing that are on average stronger than Euro 5 standards. ²² Very few vehicles enter Aotearoa using US standards.
Japan 2005	Weaker	<p>Uses different values and testing, which are roughly equivalent to Euro 4. Almost all used imports, and a small number of new vehicles, use Japanese standards.</p> <p>To improve alignment, petrol vehicles will be limited to those manufactured after 1 January 2012, and which demonstrate a Low Harmful Emissions code. Diesel vehicles will be required to use Japan 2009, which is the latest available framework for diesel vehicles prior to the current (Japan 2018) regulation. Almost all used imports in 2023 already achieve these conditions.</p>
ADR 79/04	Aligns	<p>Harmonised to UNECE83/06.</p> <p>Most brand new vehicles entering Aotearoa reference ADRs at present.</p>
UNECE R83/06	Aligns	Harmonised to Euro 5.

²² https://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jan2017_vF.pdf

Euro 6d equivalents	Alignment with Euro 6d	Technical detail
US Tier 3	Stronger	Uses different values and testing that are on average stronger than Euro 6 standards. ²³
Japan 2018	Weaker	<p>Uses different values and testing, which are roughly equivalent to Euro 6b (not 6d) for petrol, and Euro 5 for diesel. (Japan 2018 NOx limits are double those used by Euro 6, and are similar to the Euro 5 limits).</p> <p>To improve alignment, petrol vehicles will need to demonstrate a Low Harmful Emissions code. There is not an obvious way to compensate for the difference for diesel vehicles. RDE would help improve this. RDE on diesel vehicles is currently not required in Japan, but will be soon.</p> <p>From 2025, we expect widespread supply of vehicles meeting the Low Harm threshold, which will be available as 5-7 year old used imports from Japan.</p>
Future ADR79/05	Expected to align	Australia does not yet have a Euro 6 ADR. However Australia intends to publish ADR79/05 aligning to Euro 6d (with RDE) soon. Once published, this would be accepted by Aotearoa, assuming it is equivalent to Euro 6d.
Future UNECE R83/08	Expected to be stronger	<p>In June 2023, the UNECE is likely to publish a new global standard (UNECE R83/03) harmonised with Europe's new Euro 6e standard (with RDE). This has a stronger NOx limit than Euro 6e. This may become a well-utilised global standard until the even stronger (Euro 7) standards are harmonised.</p> <p>Once published, this would be accepted by Aotearoa as better than Euro 6d and therefore an acceptable alternative.</p>

²³ https://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jan2017_vF.pdf

Heavy vehicles:

Euro V equivalents	Alignment with Euro V	
US Tier 2	Similar	Several differences, but is only available framework prior to the current (US Tier 3) regulation. In the proposed Amendment Rule, the term 'US Tier 2' replaces the earlier term 'US 2007' but points to the same US standard.
Japan 2009	Similar	Has a different test cycle (JE05 vs ETC) to Euro V and stronger limits for NOx (0.7 vs 2.0) and PM (0.01 vs 0.03). Both standards are outdated and were developed around the same time. ²⁴
ADR 80/03	Aligns	Harmonised with UNECE R49/05
UNECE R49/06	Aligns	Harmonised with Euro V.

Euro VI stage C and stage E equivalents	Euro VI stage C and stage E	Technical detail
US Tier 3	Similar	Several differences but is latest available US option. Real-world emissions of heavy vehicles to these US regulations may be weaker than Euro VI. ²⁵ (An upcoming tier of U.S. regulations enacted for 2027 are significantly stronger than Euro VI stage E and will likely be similar to Europe's own upcoming 2027 regulation).
Japan 2016	Similar	Has the same test cycle (WHTC) as Euro VI, and similar limits for NOx (0.4 vs 0.46) and same level of PM (0.01), so is similar in strength. ²⁶ However, Euro VI (particularly later stages) is stronger due to real-world emissions testing and compliance requirements ²⁷ .
ADR 80/04	Initially aligns	Harmonised with UNECE R49/06 which is equivalent to Euro VI stage C. This ADR is therefore weaker than and would be expected to produce (higher) poorer levels of harmful emissions in urban environments than vehicles meeting Euro VI-stage E. Therefore when Aotearoa requires stage E vehicles this ADR would no longer be supported.
UNECE 49/07	Aligns	Harmonised with Euro VI stage E.

24 <https://www.transport.govt.nz/assets/MoT-Euro-6-modelling-final-report-4-July.pdf>

25 <https://theicct.org/wp-content/uploads/2021/06/In-use-NOx-emissions-May2020.pdf>

26 https://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jan2017_vF.pdf

27 <https://op.europa.eu/en/publication-detail/-/publication/a9a2eadb-5f1d-11ed-92ed-01aa75ed71a1/language-en>

Japan Low Harm Standards

5BA and CBA codes

The proposed Amendment Rule includes the Japan emissions standard 5BA under the definition of *Japan 2018 Low Harm*. This was included in response to some industry feedback received. However, the inclusion of 5BA lowers the requirement for reduced harmful emissions from 75 percent to 50 percent. Te Manatū Waka want to understand the impact on supply of including or excluding 5BA from the Amendment Rule.

There was also industry feedback to include the older Japan emissions standard CBA (the older equivalent of 5BA for *Japan 2005 Low Harm*). However, Waka Kotahi data indicates that it is a low volume of vehicles that are currently imported under this standard, so we are not proposing to include this standard at this stage. Te Manatū Waka wants to understand the impact on supply of including or excluding CBA from the Amendment Rule.

Te Manatū Waka also notes that there may be inconsistencies if 5BA is included and not CBA, however 5BA is subject to stronger testing standards so the impacts are not clear. We request any feedback on possible inconsistencies as part of this consultation.

Japan 2005

Japan 2005 Low Harm means a vehicle compliant to Japan 2005 and first registered on or after 1 January 2012, which is the date that Japanese testing moved from outdated (“J10/15”) to the more accurate (“JC08”) testing procedures. The JC08 test is of a similar generation to the NEDC that was historically used by Euro 5. Japan 2005 vehicles must also show a “Dxx code”, signifying a 75 percent reduction in harmful emissions over the Japan 2005 regulation, to bring emission levels more in line with Euro 5.

Japan 2018

Whereas Euro 6 requires vehicle emissions to be tested up to 131km/h, continue to comply for 100,000 km of vehicle life and, and be supported through real-world driving emission testing (‘RDE’), Japanese 2018 regulations are weaker: vehicles are to comply for 80,000km and at speeds only up to 97km/h. Petrol vehicles are not subject to RDE, meaning that NOx and particulate emissions in particular are expected to be considerably higher in real world driving. Therefore, while NOx and other limits on Japan 2018 appear similar to Euro 6d, actual emissions are expected to be worse, this is why we are proposing the use of low harmful emission codes (6xx and 5xx) to compensate.

Diesel vehicles

Diesel vehicles are not available with ‘low emission codes’ (all vehicles are stated as 3xx) however from late 2024 all light diesel vehicles sold into Japan must achieve Real Driving Emissions (RDE), which should lower NOx and particulate emissions, but not to the level required under Euro 6d. This is because the Japanese 2018 diesel light commercial vehicle limit of 0.24g/km for NOx is roughly double the Euro 6d limit of 0.125. The situation is the same for diesel cars, with Japan 2018 at 0.15 double the Euro 6d limit of 0.08.

Further information

Next generation standards are already underway

In Europe, a Euro 7 vehicle standard is being developed which is proposed to replace Euro 6 for new light vehicles sales from 2025, and Euro VII for new heavy vehicle sales in Europe from 2027.²⁸ Euro 7 is proposed to significantly reduce emissions in diesel vehicles and introduce requirements on electric vehicles.

The United States has recently adopted tougher 'Euro VII' style harmful emission heavy vehicle standards that will apply from 2027. The United States already regulates light vehicles to a standard stronger than Euro 6 and intends to strengthen the standard further in 2027.²⁹ China moves to a standard stronger than Euro 6/VI for light and heavy vehicles this year.³⁰ China, the United States, and the Europe Union are respectively the three largest vehicle purchasing markets in the world; the standards they require significantly influence the global automotive market.

Aotearoa needs to move quickly with Euro 6 so that it can look to adopting the next generation of standards sooner and maintain better alignment with other developed countries and major markets.

Why is Aotearoa seeking specific versions of the Euro 6 and VI standards?

Over time, the Euro 6 and VI standards have been enhanced. These are differentiated by letters of the alphabet (e.g. Euro 6b vs Euro 6d) and known as stages.

Later stages deliver much better reductions to harmful emissions and provide more accurate information that better represents actual emission levels in real-world driving.

For light vehicles, the later Euro 6 stages also significantly improve the accuracy of fuel consumption and CO₂ emissions by introducing a more accurate testing methodology, named WLTP, and the use of real-world driving emissions testing (RDE), rather than being reliant on laboratory-testing. To illustrate the change, light vehicles were permitted to emit more than double the NO_x limits in real world conditions under early stages of the Euro 6 standard, but the margin dropped to a 43 percent permitted exceedance under Euro 6d, and this reduces to 10 percent under Euro 6e (the next level of standard). Particulate matter emissions have likewise been tightened through RDE.

The older approach used by Euro 6b and Euro 5 had been trending towards being worse than 40 percent underreporting for CO₂/fuel use.³¹ This approach was famously implicated by the international 'dieselpgate' scandal, whereby an automaker lab-tested NO_x and other emission results were not at all representative of real-world testing due to deliberate falsification.³²

The benefits of Euro 6d were demonstrated by the European Commission Euro 6 evaluation study. It states:

28 https://single-market-economy.ec.europa.eu/sectors/automotive-industry/environmental-protection/emissions-automotive-sector_en

29 <https://www.epa.gov/newsreleases/epa-proposes-stronger-standards-heavy-duty-vehicles-promote-clean-air-protect> and <https://www.epa.gov/newsreleases/final-epa-standards-heavy-duty-vehicles-slash-dangerous-pollution-and-take-key-step>

30 <https://theicct.org/publication/chinas-stage-6-emission-standard-for-new-light-duty-vehicles-final-rule/> and <https://theicct.org/publication/chinas-stage-vi-emissions-standard-for-heavy-duty-vehicles-final-rule/>

31 <https://theicct.org/publication/on-the-way-to-real-world-co2-values-the-european-passenger-car-market-in-its-first-year-after-introducing-the-wltp/>

32 https://www.eca.europa.eu/lists/ecadocuments/brp_vehicle_emissions/brp_vehicle_emissions_en.pdf

- Euro 6b lowered NOx by 51 percent whereas Euro 6d delivered a much better reduction of 92 percent³³, meaning the latter was nearly twice as effective.
- Particulate exhaust emissions were also improved. Euro 6b showed a reduction of 68 percent, compared to Euro 6d showing a reduction of 91 percent for light diesel vehicles.

The European Study showed that light vehicles were regularly not achieving the regulated limits until the introduction of RDE and other enhancements that came with Euro 6d.

Independent studies by non-governmental organisations show similar or even greater levels of reduction moving from Euro 6b to 6d, especially in the case of diesel vehicles (see Annex 1).

In the case of heavy vehicles, the European Study showed that while they were now largely achieving the Euro VI regulated limits when driving at steady high speeds (e.g. on highways), this is not the case when vehicles were driving at slower and variable speeds common in urban environments. Studies show dramatic improvements in urban use of heavy vehicles between Euro VI stage C and subsequent stages (see also Annex 1). Heavy vehicle harmful emission reductions are important in urban environments, given they are highly populated and therefore cause harm to people working and living in these areas.

To ensure strong harmful emission reduction occurs in practice, we are proposing Aotearoa begin a pathway to adopting Euro 6d and Euro VI stage E for all vehicles by 2028 and 2026, respectively.

Implementing a stronger emissions standard does not apply to vehicles already in the Aotearoa fleet

Over 70 percent of annual vehicle sales are of second-hand vehicles already registered in Aotearoa. These vehicles will not be subject to the proposed changes in the Amendment Rule. This should minimise the likelihood groups such as lower income households, younger workers, and students would be negatively affected in the short term by new emissions requirements.

Some of these groups are also more likely to live around heavy traffic and heavy industry areas and therefore will benefit greatly from this Amendment Rule as it will reduce harmful emissions where they live.

Benefits outweigh the costs

The benefits of this change are expected to outweigh the costs within a matter of months. Listed below are the cost premiums for manufacturing a Euro 6/VI vehicle compared with a Euro 5/V vehicle, for brand new vehicles, and the social benefit for each 10,000km driven compared to the vehicle it replaces. The benefits accumulate very quickly as the vehicle is driven:

- Petrol light passenger vehicles:
\$300 one-off cost per vehicle against \$250 benefit per 10,000km driven.
- Diesel light commercial vehicles:
\$900 one-off cost per vehicle against \$1,950 benefit per 10,000km driven.

³³ <https://op.europa.eu/en/publication-detail/-/publication/a9a2eadb-5f1d-11ed-92ed-01aa75ed71a1/language-en>

- Diesel heavy duty vehicles:
\$4000 one-off cost per vehicle against \$9,230 benefit per 10,000km driven.³⁴

It is difficult to project what price increases could occur by phasing in the Euro 6/VI requirement for used vehicles as far out as 2028. The Ministry of Transport will monitor the effect on prices. However, as most of the global automotive market already manufactures vehicles to Euro 6/VI, we do not anticipate there to be any significant additional costs.

Costs of an exhaust reagent in diesel vehicles

Euro 6/VI diesel vehicles require the use of exhaust reagent (most commonly known as AdBlue®). Between 30–60 litres of exhaust reagent (priced between 0.6–1.50 per litre) is needed per 1000 litres of diesel used. This would be an additional cost to diesel vehicle users but could be offset by gains made in reduced fuel consumption.

Exhaust reagent is considered to be a minimal expense in other jurisdictions where Euro 6/VI has been required for some time. Passenger vehicles (such as diesel vans and utes) generally require around 10 litres of exhaust reagent every 10,000km, which can be topped up during a routine service or at a petrol station.³⁵

³⁴ On average, very heavy trucks cost more to achieve Euro VI, however there is significantly less of them, and their price is high anyway, regardless of the Euro specification. Benefit assume ~20 tonne truck.

³⁵ While exhaust reagent for Euro 6 light vehicles may be a small extra cost, mistakenly topping up exhaust reagent directly into the fuel tank could damage the engine.

What are we seeking your feedback on?

Te Manatū Waka, the Ministry of Transport welcome your comments on the proposed Amendment Rule, set out in this overview, and on the consultation draft of the Amendment Rule.

When you provide your feedback, please consider and comment on the following:

- What impact would the proposals have, and on whom? We are particularly interested in your comments on any costs (to you or to your organisation) of implementing the proposals.
- Would any groups or individuals in particular be disadvantaged by the proposals, and how?
- Would any groups or individuals in particular benefit from the proposals, and how?
- Are there any implementation or compliance issues that would need to be considered?

Wherever possible, when making your comments, please provide examples or evidence to illustrate your point.

Each proposal also includes a subset of questions that pertain to the specific proposal

Proposal one: Requiring a stronger emissions standard for light vehicles

The proposed Vehicle Exhaust Emissions Amendment Rule (Amendment Rule) prescribes stronger standards for new import light vehicles, and newly imported used light vehicles, specifically moving to Euro 5, and then to Euro 6.

Proposed lead in time for the changes is indicated in the tables below. The time period provided is for the amount of time that will be given between the Minister of Transport publishing the Amendment Rule in the *New Zealand Gazette* and that requirement coming into force. Indicative timeframes for when this enters into force are provided in brackets. Indicative timeframes assume that the Amendment Rule is published in the *Gazette* in July 2023. The actual date that the Amendment Rule is gazetted may differ, meaning the entry into force may fall on a later date to allow for the appropriate lead in time.

Note that the last row of requirements in each table is proposed to be a fixed date, the lead in time for these requirements may change depending on when the Amendment Rule is published in the *Gazette*.

Table 1. Proposed lead in time and minimum standards for *light* vehicles:

Certified for entry into service	Used Light Petrol, CNG/LPG	Used Light Diesel	New Light Petrol, CNG/LPG	New Light Diesel
Current requirement	Euro 4 US 2004 Japan 05 ADR 79/02	Euro 4 US 2004 Japan 05 ADR 30/01+79/01	Euro 5 US 2007 Japan 05 ADR 79/04	Euro 5 US 2007 Japan 05 ADR 79/04
6 months after publication in the Gazette (1 Feb 2024)	Euro 5 US Tier 2 Japan 05 Low Harm ADR 79/04	Euro 5 US Tier 2 Japan 09 ADR 79/04		
18 months after publication in the Gazette (1 Feb 2025)			<i>Newly introduced models only:</i> Euro 6d US Tier 3 Japan 2018 Low Harm	<i>Newly introduced models only:</i> Euro 6d US Tier 3 Japan 2018 (any code)
30 months after publication in the Gazette (1 Feb 2026)	Euro 6d US Tier 3 Japan 05 Low Harm (if manufactured up to 31 Dec 2024), or Japan 2018 Low Harm (any date of manufacture)	Euro 6d US Tier 3 Japan 2018 (any code)	<i>Existing models:</i> Euro 6d US Tier 3 Japan 2018 Low Harm	<i>Existing models:</i> Euro 6d US Tier 3 Japan 2018 (any code)
1 Jan 2028, at the latest (4.5 years after publication in the Gazette under current proposal)	Euro 6d US Tier 3 Japan 2018 Low Harm (All vehicles)			

Notes regarding Japan 05 and 2018:

“Low Harm” means, for Japan 2018: a vehicle must show a 75 percent or 50 percent harmful emission reduction code, and for Japan 05 Low Harm: a vehicle must show a 75 percent reduction, but also must be manufactured from 2012.

Japan 2018 diesel vehicles are expected to be tested using Real Driving Emission (RDE) if manufactured from January 2025, making the standard closer to, but not as strong as Euro 6d.

Consultation questions for proposal one – light vehicles

1. Are you an importer of *light* vehicles?
 - a. Yes – new light vehicles
 - b. Yes – newly imported used light vehicles
 - c. No – I import other vehicles
 - d. No – I am not a vehicle importer
2. Do you consider the proposed timeframes to require stronger standards for harmful emissions from *light* vehicles should:
 - a. Be pushed back
 - b. Be bought forward
 - c. Proceed as proposed
 - d. Not be implemented at all
3. Please explain your answer for question for question two.
4. Do you agree with the grouping on international standards for each implementation date? Are the requirements and limitations of each international standard appropriately aligned?
 - a. Yes
 - b. No – and why
5. If you are a vehicle importer, what impact will this proposal have on your ability to supply *light* vehicles to Aotearoa?
6. Europe has agreed a stronger Euro 6e standard apply from September 2023. Euro 6e is anticipated to be harmonised into a global standard named UNECE Regulation 83 Series 08 around the middle of 2023, which countries can then adopt. Europe has drafted a proposal for Euro 7 to take effect from 2025 that would reduce diesel vehicle emissions significantly from Euro 6. The U.S. have proposed Euro 7-ambition requirements from 2027, and China from mid 2023.

When should Aotearoa require the Euro 6e and UNECE R83/08, and Euro 7 standards on light vehicles, which would further reduce harmful emissions, and why?

Japan Low Harm Standards

7. The proposed Amendment Rule includes the Japan emissions standard 5BA under the definition of *Japan 2018 Low Harm*. From your perspective, what would the impact on supply be if 5BA was included or excluded from the Amendment Rule?
8. The proposed Amendment Rule does not include the Japan emissions standard CBA under the definition of *Japan 2005 Low Harm*. From your perspective, what would the impact on supply be if CBA was included or excluded from the Amendment Rule?
9. Te Manatū Waka also notes that there may be inconsistencies if 5BA is included and not CBA, however 5BA is subject to stronger testing standards so the impacts are not clear. Do you foresee any inconsistencies if 5BA is included and CBA is not?

Proposal two: Requiring a stronger emissions standard for heavy vehicles

The proposed Vehicle Exhaust Emissions Amendment Rule (Amendment Rule) prescribes stronger standards for new import heavy vehicles, and newly imported used heavy vehicles, namely moving to Euro V, and then to Euro VI.

Proposed lead in time for the changes is indicated in the tables below. The time period provided is for the amount of time that will be given between the Minister of Transport publishing the Amendment Rule in the New Zealand Gazette and that requirement coming into force. Indicative timeframes for when this enters into force are provided in brackets. Indicative timeframes assume that the Amendment Rule is published in the Gazette in July 2023. The actual date that the Amendment Rule is gazetted may differ, meaning the entry into force may fall on a later date to allow for the appropriate lead in time.

Note that the last row of requirements in each table is proposed to be a fixed date, the lead in time for these requirements may change depending on when the Amendment Rule is published in the Gazette.

Table 2. Proposed lead in time and minimum standards for *heavy vehicles*:

Certified for entry into service	Used Heavy	New Heavy
Current Requirement	Euro IV US 2004 Japan 05 ADR 30/01 + ADR 80/02	Euro V US 2007 Japan 05 ADR 80/03
6 months after publication in the Gazette (1 Feb 2024)	Euro V US Tier 2 Japan 09 ADR 80/03	
15 months after publication in the Gazette (1 Nov 2024)		<i>Newly introduced models:</i> Euro VI stage C US Tier 3 Japan 2016 ADR 80/04
27 months after publication in the Gazette (1 Nov 2025)	Euro VI stage C US Tier 3 Japan 2016 ADR 80/04	<i>Existing models:</i> Euro VI stage C US Tier 3 Japan 2016 ADR 80/04
1 Nov 2026, at the latest (39 months after publication in the Gazette under current proposal)		Euro VI stage E Japan 2016 US Tier 3

Consultation questions for proposal two

10. Are you an importer of *heavy* vehicles?
 - a. Yes – new heavy vehicles
 - b. Yes – newly imported used heavy vehicles
 - c. No – I import other vehicles
 - d. No – I am not a vehicle importer
11. Do you consider the proposed timeframes to require stronger standards for harmful emissions from *heavy* vehicles should:
 - a. Be pushed back
 - b. Be brought forward
 - c. Proceed as proposed
 - d. Not be implemented at all
12. Please explain your answer for question for question two.
13. Do you agree with the grouping on international standards for each implementation date? Are the requirements and limitations of each international standard appropriately aligned?
 - a. Yes
 - b. No – and why
14. If you are a vehicle importer, what impact will this proposal have on your ability to supply *heavy* vehicles to Aotearoa?
15. Europe has drafted a proposal for Euro VII to take effect from mid 2027 that would reduce diesel vehicle emissions significantly from Euro VI. The U.S. have enacted Euro VII-ambition requirements from 2027, and China from mid 2023.

When should Aotearoa in principle require the Euro VII standard for heavy vehicles and why?

Proposal three: Requiring motorcycles and mopeds to meet minimum exhaust emissions standard

Motorcycles and mopeds are not currently required to meet a minimum emissions standard. The proposed Vehicle Exhaust Emissions Amendment Rule (Amendment Rule) prescribes the Euro 4 standard for motorcycles and mopeds, before moving to Euro 5. The Euro 5, US 2010, and Japan 2016 regulations proposed below are already required in the U.K./Europe, the United States, and Japan respectively. No Euro 6 standard for motorcycles and mopeds has yet been developed, so is not proposed here.

Proposed lead in time for the changes is indicated in the tables below. The time period provided is for the amount of time that will be given between the Minister of Transport publishing the Amendment Rule in the New Zealand Gazette and that requirement coming into force. Indicative timeframes for when this enters into force are provided in brackets. Indicative timeframes assume that the Amendment Rule is published in the Gazette in July 2023. The actual date that the Amendment Rule is gazetted may differ, meaning the entry into force may fall on a later date to allow for the appropriate lead in time.

Note that the last row of requirements in each table is proposed to be a fixed date, the lead in time for these requirements may change depending on when the proposed Amendment Rule is published in the Gazette.

Table 3. Proposed lead in time and minimum standards for motorcycles and mopeds:

Certified for entry into service	Used Motorcycle/Moped	New Motorcycle/Moped
Current requirement		None
18 months after publication in the Gazette (1 Feb 2025)		Euro 4 US 2010 Japan 2012
1 Jan 2027, at the latest (41 months after publication in the Gazette under current proposal)		Euro 5 US 2010 Japan 2016

Consultation questions for proposal three

16. Are you an importer of motorcycles and/or mopeds?
 - a. Yes – new motorcycles and/or mopeds
 - b. Yes – newly imported used motorcycles and/or mopeds
 - c. No – I import other vehicles
 - d. No – I am not a vehicle importer
17. Do you consider the proposed timeframes to require stronger standards for harmful emissions from motorcycles and/or mopeds should:
 - a. Be pushed back
 - b. Be brought forward
 - c. Proceed as proposed
 - d. Not be implemented at all
18. Please explain your answer for question for question two.
19. Do you agree with the grouping on international standards for each implementation date? Are the requirements and limitations of each international standard appropriately aligned?
 - a. Yes
 - b. No – and why
20. If you are a vehicle importer, what impact will this proposal have on your ability to supply motorcycles and/or mopeds to Aotearoa?

Proposal four: Provisions for disability vehicles

The proposed Vehicle Exhaust Emissions Amendment Rule (Amendment Rule) provides a definition for light disability vehicles and allows extra time for used light disability vehicles to meet a stronger emissions standard. New disability vehicles are not proposed to have extra time to meet stronger emissions standards.

Proposed lead in time for the changes is indicated in the tables below. The time period provided is for the amount of time that will be given between the Minister of Transport publishing the Amendment Rule in the New Zealand Gazette and that requirement coming into force. Indicative timeframes for when this enters into force are provided in brackets. Indicative timeframes assume that the Amendment Rule is published in the Gazette in July 2023. The actual date that the proposed Amendment Rule is gazetted may differ, meaning the entry into force may fall on a later date to allow for the appropriate lead in time.

Note that the last row of requirements in each table is proposed to be a fixed date, the lead in time for these requirements may change depending on when the proposed Amendment Rule is published in the Gazette.

Table 4. Proposed lead in time and minimum standards for used light disability vehicles:

Certified for entry into service	Used Light Petrol, CNG/LPG (Disability only)	Used Light Diesel (Disability only)
Current Requirement	Euro 4 US 2004 Japan 05 ADR 79/02	Euro 4 US 2004 Japan 05 ADR 30/01 + ADR 79/01
6 months after publication in the Gazette (1 Feb 2024)		Euro 5 US Tier 2 Japan 2005 ADR 79/04
1 Jan 2028, at the latest (4.5 years after publication in the Gazette under current proposal)	Euro 6d US Tier 3 Japan 2018 Low Harm	Euro 6d US Tier 3 Japan 2018

Consultation questions for proposal four

21. Are you an importer of disability vehicles?
 - a. Yes – new disability vehicles
 - b. Yes – newly imported used disability vehicles
 - c. No – I import other vehicles
 - d. No – I am not a vehicle importer (but I do purchase or use disability vehicles)
 - e. No – I am not a vehicle importer and I do not purchase or use disability vehicles.
22. Do you consider the proposed timeframes to require stronger standards for harmful emissions from disability vehicles should:
 - a. Be pushed back
 - b. Be bought forward
 - c. Proceed as proposed
 - d. Not be implemented at all
23. Please explain your answer for question for question two.
24. Do you agree with the grouping on international standards for each implementation date? Are the requirements and limitations of each international standard appropriately aligned?
 - c. Yes
 - d. No – and why
25. If you are a vehicle importer, what impact will this proposal have on your ability to supply disability vehicles to Aotearoa?

Accepted standards from other jurisdictions

Aotearoa accepts emissions testing standards from four regions: Europe (the Euro standards), Australian (Australian Design Rules, or ADRs), the United States (US EPA tiers), Japan (Japanese Regulations). We also support the EU regulations harmonised globally by the United Nations Economic Commission for Europe (UNECE).

Appropriate equivalencies need to be selected. This is challenging because the emission limits and testing practices between the standards do not all align exactly. The tables below describe the standards we are currently considering as accepted alternatives to Euro 5/V and 6/VI. The tables describe whether the standard aligns to Euro 5/V or 6/VI or not as well as providing some context.

Table 5: Emissions testing standards from other jurisdictions

Light vehicles:

Euro 5 equivalents	Alignment with Euro 5	Technical detail
US Tier 2	Stronger	Uses different values and testing that are on average stronger than Euro 5 standards. ³⁶ Very few vehicles enter Aotearoa using US standards.
Japan 2005	Weaker	Uses different values and testing, which are roughly equivalent to Euro 4. Almost all used imports, and a small number of new vehicles, use Japanese standards. To improve alignment, petrol vehicles will be limited to those manufactured after 1 January 2012, and which demonstrate a Low Harmful Emissions code. ³⁷ Diesel vehicles will be required to use Japan 2009, which is the latest available framework for diesel vehicles prior to the current (Japan 2018) regulation. Almost all used imports in 2023 already achieve these conditions.
ADR 79/04	Aligns	Harmonised to UNECE83/06. Most brand new vehicles entering Aotearoa reference ADRs at present.
UNECE R83/06	Aligns	Harmonised to Euro 5.

³⁶ https://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jan2017_vF.pdf

³⁷ Japan 2005 Low Harm means a vehicle compliant to Japan 2005 and first registered on or after 1 January 2012, which is the date that Japanese testing moved from outdated (“J10/15”) to the more accurate (“JC08”) testing procedures. The JC08 test is of a similar generation to the NEDC that was historically used by Euro 5. Japan 2005 vehicles must also show a “Dxx code”, signifying a 75 percent reduction in harmful emissions over the Japan 2005 regulation, to bring emission levels more in line with Euro 5.

Euro 6d equivalents	Alignment with Euro 6d	Technical detail
US Tier 3	Stronger	Uses different values and testing that are on average stronger than Euro 6 standards. ³⁸
Japan 2018	Weaker	<p>Uses different values and testing, which are roughly equivalent to Euro 6b (not 6d) for petrol, and Euro 5 for diesel. (Japan 2018 NOx limits are double those used by Euro 6, and are similar to the Euro 5 limits).</p> <p>To improve alignment, petrol vehicles will need to demonstrate a Low Harmful Emissions code.³⁹ There is not an obvious way to compensate for the difference for diesel vehicles. RDE would help improve this. RDE on diesel vehicles is currently not required in Japan, but will be soon.⁴⁰</p> <p>From 2025, we expect widespread supply of vehicles meeting the Low Harm threshold, which will be available as 5-7 year old used imports from Japan.</p>
Future ADR79/05	Expected to align	Australia does not yet have a Euro 6 ADR. However Australia intends to publish ADR79/05 aligning to Euro 6d (with RDE) soon. Once published, this would be accepted by Aotearoa, assuming it is equivalent to Euro 6d.
Future UNECE R83/08	Expected to be stronger	<p>In June 2023, the UNECE is likely to publish a new global standard (UNECE R83/03) harmonised with Europe's new Euro 6e standard (with RDE). This has a stronger NOx limit than Euro 6e. This may become a well-utilised global standard until the even stronger (Euro 7) standards are harmonised.</p> <p>Once published, this would be accepted by Aotearoa as better than Euro 6d and therefore an acceptable alternative.</p>

38 https://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jan2017_vF.pdf

39 Whereas Euro 6 requires vehicle emissions to be tested up to 131km/h, continue to comply for 100,000 km of vehicle life and, and be supported through real-world driving emission testing ('RDE'), Japanese 2018 regulations are weaker: vehicles are to comply for 80,000km and at speeds only up to 97km/h. Petrol vehicles are not subject to RDE, meaning that NOx and particulate emissions in particular are expected to be considerably higher in real world driving. Therefore, while NOx and other limits on Japan 2018 appear similar to Euro 6d, actual emissions are expected to be worse, this is why we are proposing the use of low harmful emission codes (6xx and 5xx) to compensate.

40 Diesel vehicles are not available with 'low emission codes' (all vehicles are stated as 3xx) however from late 2024 all light diesel vehicles sold into Japan must achieve Real Driving Emissions (RDE), which should lower NOx and particulate emissions, but not to the level required under Euro 6d. This is because the Japanese 2018 diesel light commercial vehicle limit of 0.24g/km for NOx is roughly double the Euro 6d limit of 0.125. The situation is the same for diesel cars, with Japan 2018 at 0.15 double the Euro 6d limit of 0.08.

Heavy vehicles:

Euro V equivalents	Alignment with Euro V	
US Tier 2	Similar	Several differences, but is only available framework prior to the current (US Tier 3) regulation. In the proposed Amendment Rule, the term 'US Tier 2' replaces the earlier term 'US 2007' but points to the same US standard.
Japan 2009	Similar	Has a different test cycle (JE05 vs ETC) to Euro V and stronger limits for NOx (0.7 vs 2.0) and PM (0.01 vs 0.03). Both standards are outdated and were developed around the same time. ⁴¹
ADR 80/03	Aligns	Harmonised with UNECE R49/05
UNECE R49/06	Aligns	Harmonised with Euro V.

Euro VI stage C and stage E equivalents	Euro VI stage C and stage E	Technical detail
US Tier 3	Similar	Several differences but is latest available US option. Real-world emissions of heavy vehicles to these US regulations may be weaker than Euro VI. ⁴² (An upcoming tier of U.S. regulations enacted for 2027 are significantly stronger than Euro VI stage E and will likely be similar to Europe's own upcoming 2027 regulation).
Japan 2016	Similar	Has the same test cycle (WHTC) as Euro VI, and similar limits for NOx (0.4 vs 0.46) and same level of PM (0.01), so is similar in strength. ⁴³ However, Euro VI (particularly later stages) is stronger due to real-world emissions testing and compliance requirements ⁴⁴ .
ADR 80/04	Initially aligns	Harmonised with UNECE R49/06 which is equivalent to Euro VI stage C. This ADR is therefore weaker than and would be expected to produce (higher) poorer levels of harmful emissions in urban environments than vehicles meeting Euro VI-stage E. Therefore when Aotearoa requires stage E vehicles this ADR would no longer be supported.
UNECE 49/07	Aligns	Harmonised with Euro VI stage E.

41 <https://www.transport.govt.nz/assets/MoT-Euro-6-modelling-final-report-4-July.pdf>

42 <https://theicct.org/wp-content/uploads/2021/06/In-use-NOx-emissions-May2020.pdf>

43 https://theicct.org/sites/default/files/publications/ICCT_G20-briefing-paper_Jan2017_vF.pdf

44 <https://op.europa.eu/en/publication-detail/-/publication/a9a2eadb-5f1d-11ed-92ed-01aa75ed71a1/language-en>

Consultation questions

26. Do you agree with the comparison of other standards with Euro standards presented here?
27. If you answered "no", what would you change?

Annex One: HAPINZ 3.0 findings infographic

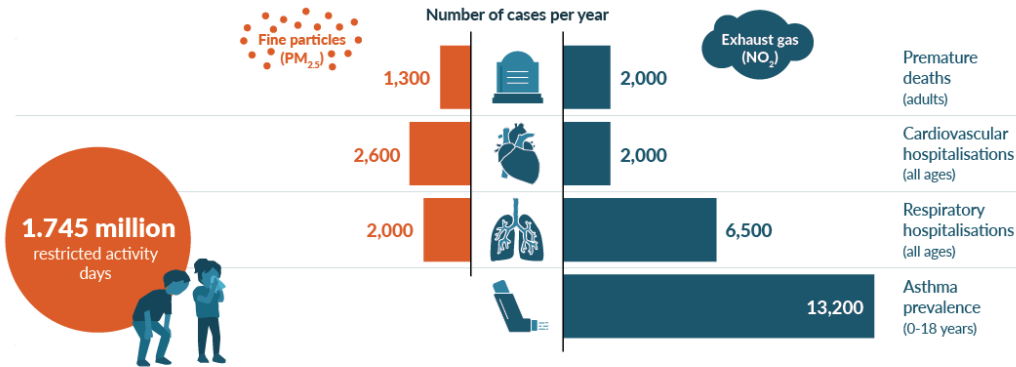
Health and Air Pollution in New Zealand (HAPINZ)

HAPINZ 3.0 study key findings

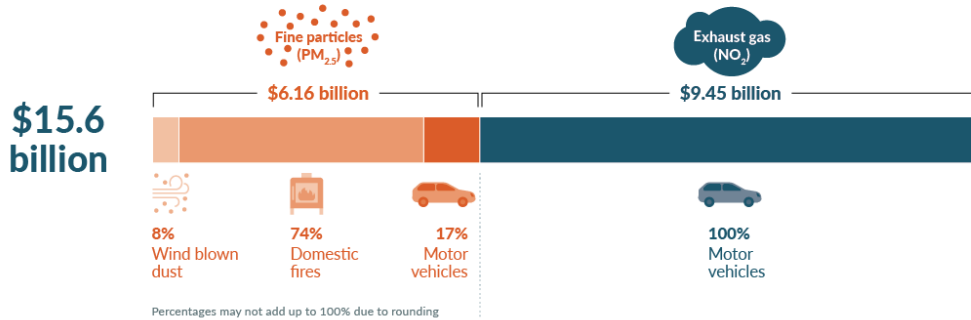
Air pollution does significant harm to our people, especially our tamariki.

Clean air matters to Kiwis: making improvements in air quality makes a difference to people's health.

Health impacts from human-made air pollution (2016)



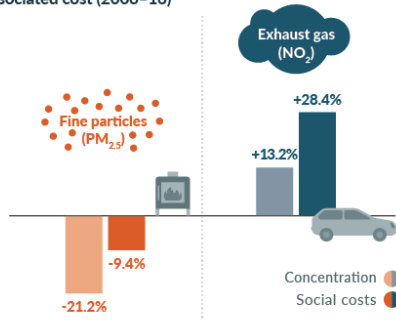
Social costs of health impacts from human-made air pollution (2016)



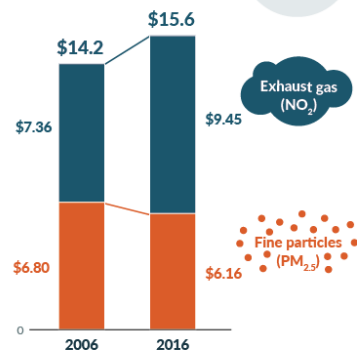
Trends in air pollution and social costs (2006-16)

Improvements in $PM_{2.5}$ were offset by increased exposure to NO_2 .

Change of $PM_{2.5}$ and NO_2 population-weighted concentration and associated cost (2006-16)



Social costs per year in billion \$



+10.2%
was the overall increase of the health burden

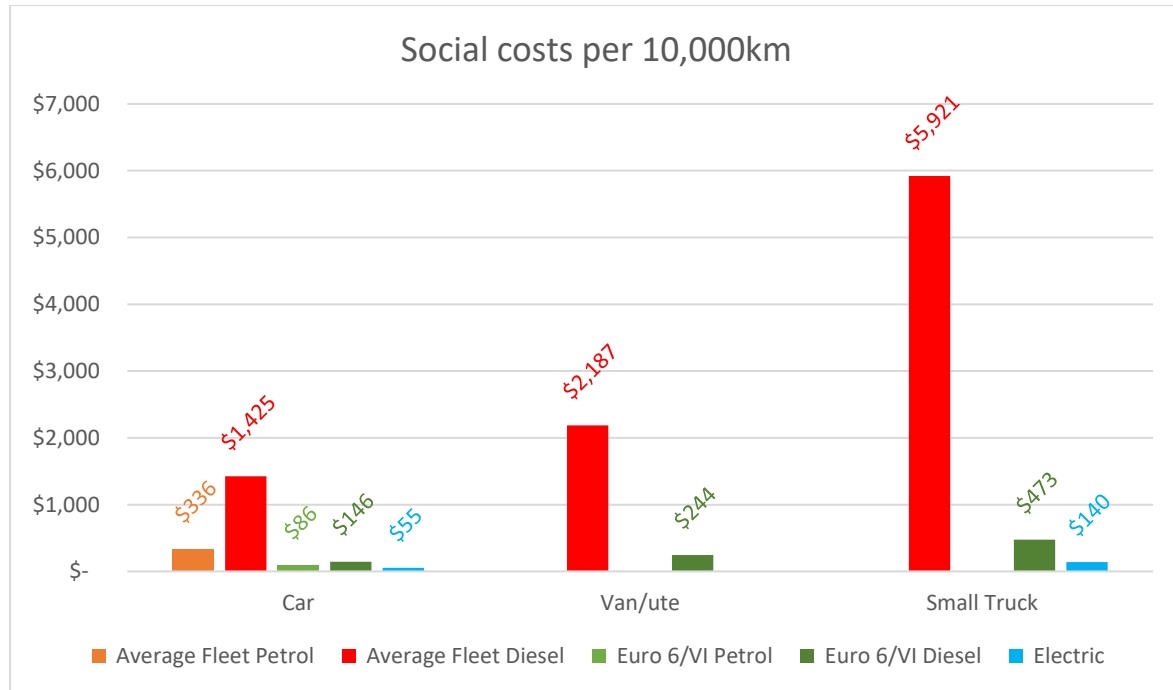


Annex Two: The Euro 6/VI standards and their efficacy

Figure 1: Social costs of different vehicle types in Aotearoa

Euro 6/VI vehicles (green) produce lower social costs per 10,000km than average fleet vehicles (orange and red). Petrol Euro 6 cars produce lower social costs than diesel Euro 6 cars. Electric vehicles still produce some social costs due to pollution from tyres and brakes.

Graphed from figures in table 4 at <https://www.transport.govt.nz/assets/MoT-Euro-6-modelling-final-report-4-July.pdf>



The gap between regulated emissions and on-road/real-world emissions, especially for diesel vehicles, has been recognised by law makers in Europe and other jurisdictions. As a result, the Euro 6/VI standard has been amended in stages since it was first introduced in Europe in 2014. Although stated emission limits are similar throughout Euro 6a to Euro 6d and Euro VI-A to Euro VI-E, the newer iterations change testing procedures to ensure that the intended reductions are actually achieved in both the laboratory and in real-world driving. The European Commission states Euro 6b lowered NOx by 51 percent and Euro 6d by 92 percent⁴⁵ and independent analysis (graphed below) shows improvements for both Euro 6 and VI:

45 <https://op.europa.eu/en/publication-detail/-/publication/a9a2eadb-5f1d-11ed-92ed-01aa75ed71a1/language-en>

Figure 2: Euro 6d vehicles produce much lower NO_x and PM emissions than earlier light vehicle standards

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

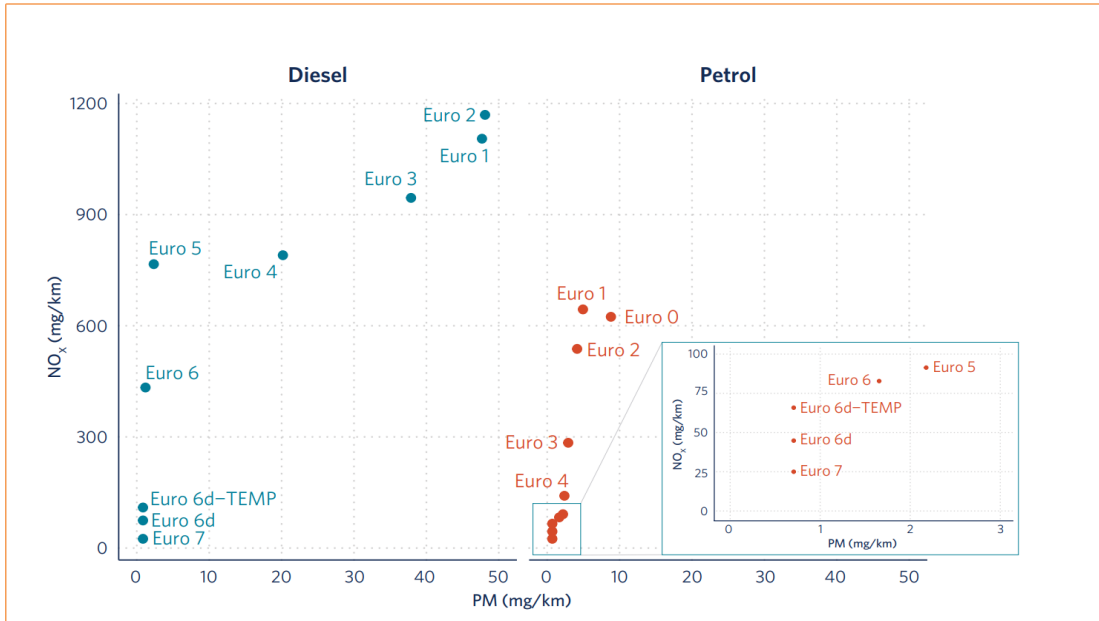


Figure 3: Euro VI-D produces much lower NO_x emissions than earlier heavy vehicle standards

<https://theicct.org/publication/remote-sensing-of-heavy-duty-vehicle-emissions-in-europe/>

