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National Transport Commission
Level 3/600 Bourke Street
Melbourne VIC 3000

Submitted via: enquiries@ntc.gov.au

NTC Consultation draft Heavy Vehicle (Mass, Dimension and Loading) National Regulation Amendment and Explanatory Document

Dear Commissioners

Cement Concrete & Aggregates Australia (CCA) welcomes the opportunity to comment on the National Transport Commission's consultation draft of the Heavy Vehicle (Mass, Dimension and Loading) National Regulation Amendment and associated Explanatory Document.

CCA is the peak body representing Australia's heavy construction materials industry, including cement manufacturing, concrete production and quarrying operations. Our sector underpins Australia's housing and infrastructure delivery and is characterised by high-density, mass-constrained freight tasks, dynamic loads and time-critical deliveries. As a result, the practical operation of mass and dimension regulation has a direct and material impact on safety, productivity, decarbonisation outcomes and construction costs borne by the wider community.

What CCA Supports

CCA **strongly supports** the intent of the NTC's reform agenda to modernise heavy vehicle regulation and reduce unnecessary regulatory complexity. CCA supports:

- 1. Alignment of General Mass Limits (GML) with Concessional Mass Limits (CML)**
Aligning baseline GML axle and group mass limits with existing CML settings appropriately reflects the safety and engineering capability of the modern heavy vehicle fleet and removes unnecessary reliance on NHVAS Mass Management accreditation for routine operations.
- 2. Increase in Prescriptive Length to 20 Metres for Rigid Truck and Dog Combinations**
Increasing general access length from 19 metres to 20 metres has the potential to deliver significant productivity, safety and network efficiency benefits by mainstreaming configurations currently reliant on PBS Level 1 approvals.
- 3. Extension of Euro VI Steer Axle Concessions to Road Trains and Twin-Steer Vehicles**

Extending the existing 0.5-tonne steer axle concession removes a clear disincentive to fleet renewal and improves safety outcomes for regional and remote supply chains.

4. **Reform of Tag Trailer Tow Mass Ratios**

Replacing the restrictive 1:1 tow mass ratio with the proposed 1:1.3 ratio better reflects engineering reality and improves the efficient movement of plant and equipment across construction and quarrying operations.

What CCAA Does Not Support

Notwithstanding this broad support, CCAA **does not support** several elements of the draft Regulation as currently proposed:

1. **Removal of the 1-Tonne Tri-Axle Mass Transfer Allowance (1TMTA)**

Construction materials freight involves inherently dynamic loads, including fluid concrete and shifting aggregates. The 1TMTA functions as a critical compliance tolerance rather than a productivity concession. Its removal would convert the proposed 21-tonne tri-axle limit into a hard cap, forcing systematic under-loading to manage compliance risk and negating the intended productivity benefits of the mass increase.

2. **Failure to Explicitly Link 20-Metre Length to Tier 1 Bridge Formula Mass Limits**

Length without corresponding mass delivers no benefit for density-constrained freight and would preserve reliance on Notices or permits, undermining the objective of regulatory simplification.

3. **Insufficient Provision for Zero-Emission Heavy Vehicles**

The proposed 0.5-tonne Euro VI concession is materially insufficient to offset the 2.5–3.0-tonne tare weight penalty associated with battery-electric heavy vehicles and renders zero-emission construction vehicles commercially unviable.

4. **Exclusion of 20-Metre B-Doubles from the Current Amendment**

“Pocket” B-doubles are critical to urban cement and construction supply and should not be deferred to a future reform package.

5. **Ongoing Ambiguity Regarding Tri-Drive Configurations**

Regulatory ambiguity that effectively excludes tri-drive rigid trucks from simplified access frameworks penalises safer, high-traction vehicles used in quarry environments.

Changes Requested by CCAA

CCAA requests that the final Regulation:

1. Retain the **1-Tonne Tri-Axle Mass Transfer Allowance** alongside the new 21-tonne GML tri-axle limit.
2. Explicitly link **20-metre rigid truck and dog combinations to a 50.5-tonne GCM** where Tier 1 Bridge Formulae are satisfied.
3. Introduce a **Zero-Emission Heavy Vehicle mass framework**, including:
 - a minimum 2.0-tonne GVM concession;
 - steer axle limits of 8.0 tonnes (single) and 13.0 tonnes (twin); and
 - full harmonisation with the 2.55 m vehicle width standard
4. Include **20-metre B-doubles** in the current amendment package.
5. Explicitly include **tri-drive axle configurations** within prescriptive 20-metre access arrangements.

For clarity, **Attachment 1** provides a concise summary of the productivity and cost impacts across the cement, concrete and aggregates (CCA) sectors, supported by national freight task data set out in **Attachment 2**, and CCAA's full technical submission is provided overleaf.

CCAA considers these amendments a generational opportunity to improve freight productivity, reduce construction costs and support decarbonisation of the heavy vehicle fleet. These benefits will only be realised if the final Regulation reflects the operational realities of mass-constrained and dynamic construction materials freight.

Should officials wish to discuss this matter, please contact CCAA's Industry Policy Director, Mr David Rynne via [REDACTED] and [REDACTED]

Yours sincerely

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About CCAA

CCAA is the voice of the \$15 Billion heavy construction materials industry representing cement manufacturers, concrete suppliers, and extractive operators throughout Australia.

Our members range from large global companies to SMEs and family operated businesses and are engaged in the quarrying of sand, stone and gravel, the manufacture of cement and the supply of pre-mixed concrete.

These businesses service local, regional, and national construction and infrastructure markets to meet Australia's building and construction needs through the provision of roads, railways, bridges, ports, airports, hospitals, schools, and footpaths.

Full CCAA submission

Consultation draft Heavy Vehicle (Mass, Dimension and Loading) National Regulation Amendment and Explanatory Document

1. Executive Summary

This submission assesses the National Transport Commission's consultation draft of the Heavy Vehicle (Mass, Dimension and Loading) National Regulation Amendment through the operational and economic lens of Australia's cement, concrete and aggregates (CCA) sector.

Construction materials freight is fundamentally different from general road freight. As shown in **Attachment 2**, the CCA sector accounts for approximately 39 per cent of national road freight tonnes but only 21 per cent of tonne-kilometres, reflecting short-haul, mass-constrained operations with high payload intensity and no practical opportunity for backloading. As a result, CCA vehicles almost always "weigh out" before they "cube out", meaning even modest changes to mass limits, tolerances or tare weight have disproportionate impacts on productivity, compliance risk and cost-to-serve.

CCAA supports the NTC's objective to modernise heavy vehicle regulation and reduce unnecessary regulatory complexity. In particular, the alignment of General Mass Limits (GML) with Concessional Mass Limits (CML) and the proposed increase in prescriptive length to 20 metres represent a significant opportunity to improve productivity across all three CCA commodities.

If implemented correctly, the reforms deliver clear, quantifiable payload gains. As summarised in **Attachment 1**:

- **Aggregates:** linking 20-metre truck and dog combinations to Tier 1 Bridge Formula mass limits (50.5 tonnes GCM) delivers a **net payload increase of approximately 7.5 tonnes per trip** (around **+28 per cent**), reducing transport costs by more than **20 per cent** and materially lowering truck movements.
- **Cement:** aligning GML with CML for B-double and road-train configurations delivers a **net payload gain of approximately 2 tonnes per trip** (around **+5 per cent**), directly reducing cost-to-serve for urban and regional cement supply.

Note, for cement transport, aligning GML with existing CML settings removes unnecessary reliance on mass accreditation for routine operations. While large operators already operating under CML will see limited direct payload or cost impacts, the reform materially benefits smaller and non-accredited fleets and simplifies compliance across the sector.

- **Concrete:** increased axle mass allowances support a **net payload gain of approximately 1 tonne per trip** for conventional diesel agitators (around **+6 per cent**), improving fleet efficiency without increasing vehicle numbers.

These outcomes directly support national objectives for productivity, safety, congestion reduction and emissions abatement.

However, the draft Regulation also contains several critical flaws that risk undermining these gains for the construction materials sector.

Most significantly, the proposed **removal of the 1-Tonne Tri-Axle Mass Transfer Allowance (1TMTA)** converts the new 21-tonne tri-axle limit into a hard compliance cap. For sectors handling dynamic loads such as fluid concrete and shifting aggregates, the 1TMTA functions as a compliance tolerance rather than a productivity concession. Its removal will force systematic under-loading to manage enforcement risk, eroding or negating the payload gains outlined above.

The draft Regulation also fails to provide a viable pathway for zero-emission heavy vehicles, with insufficient mass concessions and the absence of harmonised 2.55 m width settings rendering battery-electric construction vehicles commercially unviable. As shown in **Attachment 1**, battery-electric concrete agitators would incur a **payload penalty of approximately 15-16 per cent** compared to diesel equivalents due to a 2.5–3.0 tonne battery tare penalty offset by only a 0.5 tonne concession. This outcome renders zero-emission vehicles commercially unviable and conflicts with national decarbonisation objectives.

In addition, the exclusion of 20-metre “pocket” B-doubles and the continued regulatory ambiguity surrounding tri-drive rigid truck configurations represent missed opportunities to mainstream safer, more productive vehicles already operating under PBS or permit-based arrangements.

In summary, the proposed amendments represent a genuine opportunity to improve freight productivity and reduce construction costs for the Australian community. The evidence demonstrates, however, that these benefits will only be realised if the final Regulation reflects the operational realities of mass-constrained construction materials freight. CCAA therefore urges the NTC to retain the 1TMTA, explicitly link 20-metre length to Tier 1 mass limits, introduce a fit-for-purpose mass framework for zero-emission vehicles, and resolve outstanding access issues for B-doubles and tri-drive configurations.

2. Strategic Context and Regulatory Landscape

2.1 The Construction Materials Freight Task

The movement of heavy construction materials is the lifeblood of the Australian infrastructure and housing sectors. The freight task is distinguished from general logistics by the immutable physical properties of the cargo. CCA are mass-constrained commodities,

meaning the efficiency of the supply chain is strictly a function of the legal mass limits applied to axles and vehicle combinations. Unlike the retail or Fast-Moving Consumer Goods (FMCG) sectors, which often reach volumetric limits ("cube out") before reaching mass limits ("weigh out"), every kilogram of tare weight in a construction vehicle is a direct deduction from its payload and economic utility.

Specific characteristics defining this sector include:

- **High Density:** With concrete densities exceeding 2.4 tonnes per cubic metre and aggregates around 1.5 tonnes per cubic metre, vehicles operate at maximum legal mass limits on almost every laden journey.
- **One-Way Utility:** The specialized nature of the fleet - specifically concrete agitators and pneumatic cement tankers - precludes backloading. Vehicles travel laden to the delivery point and return empty, necessitating maximum efficiency on the outbound leg to justify the round-trip cost.
- **Dynamic Loading Profiles:** The sector deals with "live" loads. Concrete is a fluid that shifts its center of gravity during braking, cornering, and discharge. Aggregates settle and shift. This dynamic behavior necessitates regulatory tolerances that acknowledge the physics of the load.

2.2 The NTC Reform Agenda

The current consultation represents the culmination of the Heavy Vehicle National Law (HVNL) Review, aiming to simplify a legislative framework often criticised for being overly prescriptive and slow to adapt. By moving key mass and dimension controls from the primary Law into the *Heavy Vehicle (Mass, Dimension and Loading) National Regulation* (MDL), the NTC seeks to create a more responsive regulatory environment.¹

The core proposal to align GML with CML reflects a recognition that the modern heavy vehicle fleet is safer and more capable than the fleet for which the original GML limits were designed decades ago. Historically, accessing higher mass limits required operators to enroll in the Mass Management Module of the NHVAS, incurring significant audit and compliance costs. "Mainstreaming" these limits acknowledges that 17-tonne tandem and 21-tonne tri-axle groups are safe for general access on the established road network.

However, regulatory simplification must not come at the cost of operational reality. The interaction between the repeal of CML, the removal of the 1TMTA, and the introduction of new steer axle limits for Euro VI vehicles creates a complex matrix of winners and losers. For the CCAA, ensuring that its members are not the unintended losers of this simplification is the primary objective of this response.

3. Critical Evaluation of Proposed Regulatory Amendments

3.1 Pillar 1: Alignment of General Mass Limits (GML) with Concessional Mass Limits (CML)

The draft regulation proposes to increase the baseline GML mass limits to those currently afforded under CML. Specifically:

- **Tandem Axle Groups:** Increase from 16.5 tonnes to **17.0 tonnes**.
- **Tri-Axle Groups:** Increase from 20.0 tonnes to **21.0 tonnes**.
- **Quad Axle Groups:** Increase to **21.0 tonnes** (aligned with tri-axle limits).
- **Gross Mass Caps:** Increases are capped at +1 tonne for vehicles with a GVM \leq 55t, and +2 tonnes for vehicles $>$ 55t.¹

3.1.1 Analysis of Impact

For standard semi-trailers and B-doubles operating in the cement and general supply sectors, this is a distinct positive. It removes the administrative friction of maintaining NHVAS Mass Management accreditation for standard operations, effectively reducing the cost of compliance while securing a higher baseline payload. For a 6-axle cement tanker, this solidifies a Gross Combination Mass (GCM) of approximately 43.5 tonnes (up from 42.5 tonnes), offering a productivity dividend of roughly 2.3%.

3.1.2 The Critical Risk: Removal of the 1-Tonne Tri-Axle Mass Transfer Allowance (1TMTA)

The consultation document explicitly states that the "one tonne tri-axle mass transfer allowance" will be removed as part of this reform.¹ The 1TMTA currently allows a tri-axle group to exceed its general limit by up to 1 tonne (i.e., operating up to 21t in a GML environment) provided the total mass of the vehicle does not exceed the allowable GVM. It is a flexibility mechanism designed to account for imperfect load distribution.

The NTC's logic appears to be that since the new base limit for tri-axles is increasing to 21t (matching the CML limit), the 1TMTA - which effectively allowed 21t - is no longer needed.

This logic is flawed when applied to dynamic loads.

In the construction materials sector, the 1TMTA serves as a compliance buffer, not just a capacity booster. When a tipper loads aggregates, the loader operator cannot distribute the material with kilogram-perfect precision across the bin. Similarly, a concrete agitator's load shifts as it discharges or travels up gradients. Under the current regime (GML 20t + 1TMTA), an operator has a "soft cap" where an axle reading of 20.8t is compliant (provided steer/drive axles are lighter and GVM is under 42.5t). Under the proposed regime (New GML 21t), 21.0t becomes a hard limit. If a load shifts and the axle reads 21.2t, the operator is in breach.

Operational Implication: To avoid the risk of accidental non-compliance, operators will be forced to under-load their vehicles, effectively creating their own safety margin of 0.5t to 1.0t. This behavioural response would negate the theoretical productivity gain of the mass limit

increase. The removal of the 1TMTA transforms a flexible compliance environment into a rigid one, disproportionately penalizing sectors with shifting loads.

3.2 Pillar 2: Prescriptive Vehicle Length Increase (19m to 20m)

The draft regulation proposes increasing the general access length limit for rigid truck and trailer combinations (pig, dog, and tag trailers) from 19 metres to 20 metres.¹

3.2.1 The "Truck and Dog" Revolution

The 19-metre length limit has historically been the primary constraint for truck and dog combinations, limiting them to shorter wheelbases and drawbars which, counter-intuitively, increases bridge loading concentrations. To bypass this, the industry has heavily utilised the PBS scheme to access 20-metre lengths, which allow for "Tier 1" bridge formula compliance and a GCM of **50.5 tonnes**.

By moving the 20-metre length into the prescriptive regulation ("As-of-Right"), the NTC is effectively deregulating the PBS Level 1 truck and dog fleet. This will save operators significant costs in vehicle certification and access permits.

3.2.2 The Mass-Dimension Disconnect

A critical ambiguity in the consultation document is the relationship between this new 20m length and the associated mass limits. Length alone provides only volumetric capacity ("air space"), which is of zero value to density-constrained aggregate haulers. The productivity gain of the 20m combination lies entirely in its ability to access the **50.5-tonne** mass tier permitted under the current *National Class 3 20m Long 3-axle Truck and 4-axle Dog Trailer Mass and Dimension Exemption Notice 2024 (No. 1)*.²

If the amended Regulation increases length to 20m but retains the standard GML mass calculation (Sum of Axles capped at ~43-44t), the reform will fail to deliver its intended productivity boost. Operators would still require a Notice or Permit to access the 50.5t mass, maintaining the administrative burden. The Regulation must explicitly codify the bridge formula mass limits associated with the 20m length to ensure that 50.5t becomes the standard, permit-free limit for 7-axle combinations.

3.3 Pillar 3: Euro VI Concessions

The proposal extends the 0.5-tonne steer axle mass concession (currently for single vehicles) to road trains and twin-steer vehicles.¹

3.3.1 Twin Steer Reform

The proposal allows Euro VI twin-steer prime movers and rigid trucks to operate at **11.5 tonnes** on the steer group (up from the standard 11.0t load-sharing limit).³ This is a necessary correction. Modern Euro VI twin-steer cabs are heavier due to cooling packages

and safety structures. Without this allowance, an 8x4 concrete agitator would sacrifice payload to run a cleaner truck.

The proposal mandates load-sharing suspension and minimum 275mm tyres for this concession.¹ Most modern agitators already meet this, making it a viable transition path for the diesel fleet.

3.3.2 Road Train Inclusion

Previously, Euro VI prime movers were penalised in road train configurations (A-doubles) used extensively for remote cement delivery in WA and QLD. The 0.5t allowance for road trains removes a barrier to fleet renewal, allowing operators to deploy safer, cleaner prime movers on remote networks without a payload penalty.

3.4 Pillar 4: Tag Trailer Tow Mass Ratio

The proposal replaces the restrictive 1:1 tow mass ratio with a **1:1.3 ratio**, subject to steer axle mass requirements (Steer \geq 20% of GVM).¹

3.4.1 Analysis

The previous 1:1 ratio⁴ was a regulatory overreach that ignored engineering realities, effectively crippling the utility of tag trailers for moving plant equipment. For example, a 10-tonne rigid truck was legally restricted to towing a 10-tonne trailer, despite having the engine and braking capacity for more. The move to 1:1.3 aligns with sound mechanical principles and allows CCAA members to efficiently transport earthmoving plant (loaders, bobcats) between quarry sites using standard rigid tippers, reducing the need for separate low-loader float movements.

4. Product Category Lens Analysis

The implications of these reforms vary significantly across the CCAA's diverse membership base. The following analysis isolates the impacts for each product category.

4.1 The Concrete Lens: Agitators

Vehicle Profile: 6x4, 8x4 (Twin Steer), and 10x4 Rigid Trucks.

Current Challenge:

Concrete agitators are the most geometrically constrained vehicles in the fleet. The high center of gravity of the rotating bowl, combined with the need to navigate dense urban environments, places immense pressure on axle weight compliance, particularly on the steer axles.

Impact of Reforms:

The proposed increase of the twin-steer limit to 11.5 tonnes (for Euro VI vehicles) effectively neutralizes the weight penalty of the Euro VI emission system. However, it does not provide a net productivity gain. A standard 8x4 diesel agitator currently carries approximately 7.6m³ of concrete. The new regulations will allow a Euro VI diesel agitator to carry roughly the same amount.

Missed Opportunity:

The major missed opportunity lies in the failure to leverage the 20-metre length rule for articulated agitators. While rigid agitators dominate the market, "semi-trailer" mixers (Prime Mover + Mixer Trailer) offer significantly higher payloads (up to 10-11m³). Historically, these have been restricted by length and access issues. If the 20m length rule allows general access for semi-trailers (as implied for "Prime mover and semitrailer" combinations), this could unlock a new class of high-capacity urban agitators, reducing the total number of trucks required for large pours. We seek clarification that 20m articulated agitators will enjoy the same general access rights as 20m supply trucks.

4.2 The Aggregates Lens: Tippers and Dog Trailers

Vehicle Profile: Rigid Truck + 3, 4, or 5-Axle Dog Trailers.

Current Challenge:

The aggregate sector is currently divided into two separate directions or categories between general access vehicles (19m, ~42.5t) and PBS vehicles (20m+, 50.5t+). The administrative friction of PBS - design approvals, vehicle certifications, and network permits - adds cost and delay to fleet deployment.

Impact of Reforms:

The 20-metre prescriptive length is a game-changer. It effectively moves the "PBS Level 1" Truck & Dog into the standard fleet.

- **Operational Benefit:** Operators can purchase standard, mass-produced 20m combinations without bespoke PBS engineering fees.
- **Network Access:** By moving to "General Access," these vehicles will theoretically have access to the entire road network (subject to bridge posting), eliminating the "last mile" permit headaches often caused by local councils restricting PBS access.

Cost Analysis (Aggregates):

Assuming the regulation successfully links 20m length to the 50.5t mass limit:

- **Current Standard (19m GML):** 42.5t GCM. Tare ~14.5t. **Payload 28.0t**
- **New Standard (20m Regulated):** 50.5t GCM. Tare ~15.0t. **Payload 35.5t.**

Equals a productivity uplift of +7.5 tonnes per trip (+27%).

- **Cost to Serve:** With a base cost of \$0.15/t/km for the baseline vehicle, the trip cost for 100km is \$420 (28t * \$15).
 - New Cost per Tonne: \$420 / 35.5t / 100km = **\$0.118 per t/km.**
 - **Savings: 21.3% reduction in transport costs.**

4.2.1 Resolving the Tri-Drive Ambiguity

Resolving the Tri-Drive Ambiguity A critical barrier to the adoption of safer, high-traction vehicles in the quarrying sector has been the regulatory confusion regarding tri-drive (tridem drive) rigid trucks. While the National Class 2 PBS Level 1 & 2A Truck and Dog Trailer Authorisation Notice 2024 (No.2) legally defines an eligible vehicle as a "3 or 4 axle rigid truck" —a definition that technically includes 4-axle tri-drive units—the associated NHVR Information Sheet explicitly excludes them.

This contradiction forces operators who invest in high-traction tri-drive vehicles (essential for safety in steep quarry environments) to bypass the efficient Notice system and apply for individual PBS permits, adding unnecessary cost and delay.

Implication for Reform: With the proposal to increase GML limits for tri-axle groups to 21.0 tonnes and move 20m combinations into prescriptive regulation, the NTC has the opportunity to resolve this. The new prescriptive definition for a 20m Rigid Truck and Dog must explicitly enable tri-axle drive groups on the rigid truck, aligning them with the new GML mass limits and acknowledging their bridge-loading friendliness (distributing mass over more axles).

4.3 The Cement Lens: Pneumatic Tankers

Vehicle Profile: 19m B-Doubles ("Pocket B-Doubles"), 26m B-Doubles, A-Double Road Trains.

Current Challenge:

Cement is a high-density powder. Tankers always "weigh out" before they "cube out." Maximizing mass within fixed dimension envelopes is the sole driver of efficiency.

Impact of Reforms:

- **Road Trains:** The 0.5t steer axle concession is critical for A-double road trains servicing remote batch plants. It allows the use of modern, heavier prime movers without sacrificing 500kg of cement payload.

- **B-Doubles:** The alignment of GML to CML provides a payload boost for B-doubles. A 9-axle B-double currently at 62.5t (GML) moves to a potential ~64.5t (capped increase).
- **Payload Gain:** ~2.0 tonnes.
- **Cost Analysis (Cement):**
 - Base Cost: \$0.30/t/km. Trip Cost (200km, 40t load) = \$2,400.
 - New Payload: 42t.
 - New Cost: \$2,400 / 42t / 200km = **\$0.285 per t/km.**
 - **Savings: 5.0% reduction in transport costs.**

It is noted that major cement producers already operating under NHVAS Mass Management and CML settings will not realise a material payload or cost benefit from this change. For these operators, the principal benefit is regulatory simplification and the potential reduction in audit and administrative costs associated with maintaining mass accreditation, while continuing participation in NHVAS Maintenance and Fatigue modules

Missed Opportunity:

The consultation document notes that increasing the length of "short" B-doubles from 19m to 20m is not in this package but is "Further amendments... to be developed".¹ This is a disappointment for the cement sector, where "Pocket B-Doubles" are heavily used for urban distribution. Increasing their length to 20m would allow for better axle spacing (bridge formula compliance) and potentially higher mass limits like the truck and dog reform.

5. Critical Gap Analysis: The Decarbonisation Disconnect

The most significant failure of the proposed regulation is its inability to support the transition to low-emission vehicles – with the current draft regulations actively discouraging it.

5.1 The "Green Weight Penalty"

Battery Electric Vehicles (BEVs) are significantly heavier than diesel trucks due to the low energy density of lithium-ion batteries compared to diesel fuel, per:

- **Diesel 8x4 Agitator Tare: ~11.5 tonnes.**
- **Electric 8x4 Agitator Tare: ~14.2 - 14.5 tonnes.⁵**
Equals a weight penalty of ~2.7 - 3.0 tonnes.

and

- **Diesel 6x4 Prime Mover Tare: ~8.2 tonnes**
- **Battery-Electric 6x4 Prime Mover Tare: ~12.2 tonnes**
Equals a weight penalty of ~4.0 tonnes.

5.2 Why the Proposal Fails

The proposed concession for Euro VI/Low Emission vehicles is **0.5 tonnes** on the steer axle (6.5t -> 7.0t) or twin steer group (11.0t -> 11.5t) ¹ is inadequate because:

- **The Math:** An electric agitator gains +0.5t in legal allowance but loses ~3.0t in payload capacity due to battery weight.
- **Net Payload Loss: -2.5 tonnes.**
- **Concrete Equivalence:** 2.5 tonnes is approximately **1.0 m³** of concrete.
- **Commercial Impact:** A standard diesel agitator delivers ~7.6 m³. An electric agitator under the proposed rules would be legally restricted to ~6.6 m³. This represents a **13% loss in revenue per trip.**

In an industry with thin margins, a 13% productivity penalty is an insurmountable barrier to adoption. Operators cannot charge 13% more for "green concrete" to cover the transport inefficiency, nor can they simply run 13% more trips (which would increase congestion and non-tailpipe emissions like brake dust).

5.3 Benchmarking International Best Practice

Other jurisdictions have recognised this gap. The European Union's Weights and Dimensions Directive grants a **2.0-tonne** additional mass allowance for zero-emission heavy duty vehicles to ensure payload parity with diesel.⁶ Within Australia, the New South Wales and Queensland governments have initiated trials allowing **8.0 tonnes** on single steer axles and up to **18.5 tonnes** on drive axles for electric trucks.⁷

The NTC's proposal ignores these precedents, adhering to a conservative 0.5t increase derived from the weight of a Euro VI exhaust muffler, rather than the weight of a battery pack.

5.4 Recommendations for ZLEV Support

To align with National Net Zero targets, the MDL Regulation must include a specific schedule for Zero Emission Heavy Vehicles (ZEHVs) that provides:

1. **Steer Axle Mass: 8.0 tonnes** for single steer axles and **13.0 tonnes** for twin steer groups.
2. **Gross Vehicle Mass:** A **2.0-tonne** concession on GVM caps (e.g., allowing a 3-axle rigid EV to run at 24.5t instead of 22.5t).
3. **Width:** Full harmonization with the 2.55m width standard (without restrictive safety package conditions that might not yet be available on all EV models) to allow the importation of global EV truck platforms.

6. Economic and Community Benefit Quantification

The proposed reforms, if implemented with the recommended adjustments (specifically linking 20m length to 50.5t mass), will deliver substantial benefits to the wider Australian community.

6.1 Reduced Truck Journeys

By increasing the payload of the standard aggregate truck from 28t to 36t, the industry can move the same volume of material with significantly fewer trips.

- **Scenario:** Transporting 1 million tonnes of quarry products.
- **Current State (19m):** 35,714 truck trips.
- **Future State (20m):** 27,778 truck trips.
- **Result: 7,936 fewer truck trips** on public roads (-22%). This directly correlates to reduced congestion, lower road wear, and a reduction in crash exposure risk for light vehicle road users.

6.2 Reduced Greenhouse Gas Emissions

While individual heavier trucks burn marginally more fuel, the reduction in total trip numbers drives a net reduction in fleet emissions.

- **Assumptions:** Diesel consumption 55L/100km (Current) vs 60L/100km (Heavier Future).
- **Current Usage:** $35,714 \text{ trips} * 100\text{km} * 0.55 = 1,964,270 \text{ Litres}$.
- **Future Usage:** $27,778 \text{ trips} * 100\text{km} * 0.60 = 1,666,680 \text{ Litres}$.
- **Net Savings: 297,590 Litres of diesel.**
- **CO2 Avoided:** Approximately **800 tonnes of CO2** per million tonnes of freight moved.

6.3 Lower Construction Costs

Reducing the transport cost component of raw materials lowers the input costs for housing and infrastructure.

Aggregate Savings: Cost to serve drops from \$0.150 to \$0.117 per t/km. On a major highway project requiring 500,000 tonnes of base course hauled 50km, this represents a saving of **\$825,000** to the taxpayer.

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Attachment 1: Comparative Analysis of Productivity Gains by Sector

Sector	Configuration	Current Limit (GML)	Proposed Limit	Net Payload Impact	Cost to Serve Impact****
Aggregates	19m Truck & Dog	42.5t (28t Payload)	50.5t (36t Payload)*	+28.5%	-21.3%
Cement	26m B-Double	62.5t (40.5t Payload)	64.5t (42.5t Payload)	+4.9%	-5.0%***
Cement	6x4 Electric Prime Mover	N/A	62.5t (36.5t Payload)***	-9.9% (vs Diesel)	+11.0%
Concrete	8x4 Diesel Agitator	27.5t (16t Payload)	28.5t (17t Payload)	+6.2%	-5.8%
Concrete	8x4 Electric Agitator	N/A	28.5t (13.5t Payload)**	-15.6% (vs Diesel)	+18.5%

*Assuming 20m length is linked to 50.5t mass.

**Assuming 3.0t battery penalty and only 0.5t steer concession.

*** Assumes operators not currently operating under NHVAS Mass accreditation. Large accredited cement fleets will experience limited direct cost or payload change.

**** **Cost to serve** refers to the average transport cost per tonne of material delivered, taking into account vehicle operating costs and payload carried.

Attachment 2: Australian Road Freight Transport – National and Jurisdictional Metrics (All Commodities vs Construction-Materials Sector)

AUSTRALIAN ROAD FREIGHT TRANSPORT (ALL VS CCA INDUSTRY)									
	QLD	NSW	VIC	TAS	SA	NT	WA	TOTALS	
Total road freight transport (all commodities)	Annual trailers	5,055,681	6,042,728	4,645,434.48	709,414.53	1,425,384.64	203,814.61	4,770,479.32	22,852,936
	Annual tonnes	98,580,869	121,600,672	92,278,274	13,997,706	30,652,553	3,986,519	104,953,792	466,050,385
	Tonne kilometres (billion t kms)	25.55	24.75	14.51	2.71	6.54	1.50	30.75	106.3
	Tonnes/trailer (average)	16.3	16.9	16.5	16.7	16.9	14.8	16.9	16.4
	Avg Trip Distance (km) (average)	144.4	104.8	83.8	99.5	101.0	154.8	147.9	119.5
	Avg Trip Duration (hrs) (average)	1.6	1.2	1.0	1.1	1.2	2.2	1.6	1.4
	Cost per payload tonne (\$) (average)	\$ 54.54	\$ 36.76	\$ 26.30	\$ 39.82	\$ 30.66	\$ 82.49	\$ 41.32	\$ 44.55
	Cost per tonne km (\$) (average)	\$ 0.38	\$ 0.35	\$ 0.38	\$ 0.38	\$ 0.39	\$ 0.43	\$ 0.39	\$ 0.38
Total transport costs (\$)	\$ 2,698,907,482	\$ 2,525,813,332	\$ 1,456,155,721	\$ 297,111,881	\$ 593,587,827	\$ 105,670,530	\$ 3,300,406,952	\$ 10,977,653,725	
CCA sector only (clinker, cement, rock, sand, gravel & concrete commodities only)	Annual trailers	2,022,394	3,286,747	2,080,274.13	175,877	463,663.01	125,347.71	734,768.68	8,889,072
	Annual tonnes	41,517,152	67,572,576	42,535,712	3,835,877	9,738,726	2,568,172	15,140,055	182,908,270
	Tonne kilometres (billion t kms)	7.79	5.18	2.20	0.61	1.91	0.97	3.47	22.1
	Tonnes/trailer (average)	20.5	20.4	20.3	21.6	20.4	21.1	20.4	20.7
	Avg Trip Distance (km) (average)	91.7	76.6	49.4	79.5	97.9	185.1	110.2	98.6
	Avg Trip Duration (hrs) (average)	1.1	0.9	0.6	1.0	1.2	2.6	1.2	1.2
	Cost per payload tonne (\$) (average)	\$ 16.62	\$ 13.49	\$ 8.64	\$ 9.86	\$ 12.57	\$ 19.69	\$ 15.12	\$ 13.71
	Cost per tonne km (\$) (average)	\$ 0.23	\$ 0.24	\$ 0.27	\$ 0.25	\$ 0.22	\$ 0.17	\$ 0.20	\$ 0.23
Total transport costs (\$)	\$ 689,963,087	\$ 911,558,853	\$ 367,546,025	\$ 37,806,364	\$ 122,379,407	\$ 50,575,278	\$ 228,984,359	\$ 2,408,813,373	
CCA/Total	Annual trailers	40%	54%	45%	25%	33%	62%	15%	39%
	Annual tonnes	42%	56%	46%	27%	32%	64%	14%	39%
	Tonne kilometres (billion t kms)	30%	21%	15%	23%	29%	65%	11%	21%
	Total transport costs (\$)	26%	36%	25%	13%	21%	48%	7%	22%
CCA +/- % (compared to total averages)	Tonnes/trailer (average)	26%	20%	23%	29%	21%	42%	21%	26%
	Avg Trip Distance (km) (average)	-36%	-27%	-41%	-20%	-3%	20%	-25%	-19%
	Avg Trip Duration (hrs) (average)	-35%	-23%	-35%	-15%	2%	15%	-23%	-16%
	Cost per payload tonne (\$) (average)	-70%	-63%	-67%	-75%	-59%	-76%	-63%	-68%
Cost per tonne km (\$) (average)	-39%	-31%	-28%	-34%	-44%	-60%	-48%	-41%	

Source: CSIRO Transport Network Strategic Investment Tool (2025 data)