

Received via email**Pacific National Submission – Harmonisation of Rolling Stock Testing Requirements and Test Locations****Introduction**

Pacific National (PN) welcomes this opportunity to comment on the National Transport Commission's discussion paper *"Options to harmonise rolling stock testing and test locations"*.

Pacific National (PN) is Australia's largest privately owned rail freight operator and operates over 400 weekly services across all mainland states of Australia. PN's services include

- **Containerised freight** including
 - A wide range of industrial freight for removalists, freight forwarders, major retailers.
 - Perishable food and drink for major supermarkets, as well as pharmaceuticals and medical supplies
 - Components and materials for automotive, transport, and appliance industries.
 - High-tech pipes for the international oil industry.
 - We safely move hazardous materials in compliance with strict regulatory requirements.
 - We transport construction and demolition waste, non-recyclable waste and spoil from large construction projects.
- **Bulk freight** including
 - A wide range of products, including grain and sugar, construction materials (limestone, clinker, cement and aggregates),
 - Minerals (concentrates and mineral sands) and
 - Waste.
- **Coal** including
 - Metallurgical and thermal coal from Queensland and NSW mines to metropolitan ports and power stations.

PN's rolling stock fleet includes more than 500 locomotives and 10,000 wagons. To keep such a large fleet up to date and efficient, PN frequently orders, and registers, new locomotives and wagons. PN is well acquainted with the difficulties of registering the same rolling stock across multiple jurisdictions, including in NSW where rolling stock needs to be registered with three different Rail Infrastructure Managers (RIMs) (ARTC, Sydney Trains and UGL-RL), despite the Sydney Trains' and UGL-RL networks being owned by the same owner (Transport Asset Manager).

PN believes that some fundamental principles need to underpin the harmonisation of rail registration and operations. For example, all harmonisation initiatives should promote the safe and efficient operation of the rail industry, promote above-rail and below-rail investment, and facilitate competition between freight operators and freight customers.

Without these principles in place to test every initiative, the rail industry is likely to remain captive to the interests of Rail Infrastructure Managers (RIMs) that have conflicting interest in increasing rail freight without further contribution.

The current registration requirements across all Australian networks means that it takes rolling stock several months from delivery to finally being able to operate revenue services across Australia. This leads to rail operators ordering rolling stock that is like old designs, and least likely to be held up by more conservative RIMs. This has led to a stifling of innovation in rolling stock design and reduced the incentive for rail operators to offer more innovative services to rail freight customers.

In addition, many RIMs are not likely to have the budget to change their networks or registration requirements. Where appropriate, PN recommends that RIMs and network owners be funded by the Commonwealth to streamline their networks and approval processes, in recognition of the benefits of transporting freight by rail.

In a recent example, a series of wagon class RHJF, which had been operating in the ARTC and Sydney Trains' networks without incident for 30 years could not automatically be registered with the UGL-RL RIM. Eventually, Pacific National abandoned attempts to register this wagon class with UGL-RL because the difficulties were insurmountable.

PN is concerned that the safe and efficient operation rail freight is likely to remain constrained by different registration requirement across Australia.

Pacific National's experience with both the RRHY wagon registration and testing programme and the introduction of the 94 Class locomotive fleet demonstrates that the greatest barriers are often not the engineering tests themselves, but the duplication of reviews, differing requirements, operational approvals and inconsistent acceptance of evidence between networks.

Overarching Industry Observation

Pacific National considers the current testing framework has progressively evolved beyond its original purpose.

Historically, testing was undertaken to validate specific design changes and confirm that modified vehicles remained safe for operation. Testing requirements were generally targeted toward the elements of the design that had changed.

Today, extensive suites of static and dynamic testing are frequently required even where rolling stock is substantially similar to previously approved designs. The result is a process that often focuses on reproducing evidence for rolling stock that is essentially the same as existing rolling stock rather than a fact-based assessment of risk.

The commercial consequence is that operators are increasingly incentivised to purchase rolling stock that closely replicates previously approved designs because registration pathways are more predictable. This discourages innovation, constrains productivity

improvements and ultimately limits opportunities to improve the capacity and competitiveness of Australia's rail networks.

A future harmonised framework should therefore be explicitly risk-based, proportionate to the magnitude of change, and recognise previous approvals wherever possible. This approach aligns with international practices such as the AAR categorisation framework used in North America, where testing requirements vary according to how significantly a new design differs from previously accepted rolling stock.

Question 1

Part 1 - To what extent do current rolling stock testing requirements and practices contribute to inefficiency and delay in certification and registration?

Current testing requirements contribute significantly to delays and inefficiency; however, the largest delays are often not caused by completion of the engineering tests themselves.

Pacific National's RRHY wagon programme provides a practical example. Significant delays were created by:

- differing RIM interpretations of requirements;
- possession approvals;
- changing access conditions;
- review and acceptance of testing plans;
- approval of alternative loading arrangements;
- dynamic performance compliance discussions;
- operational pathing constraints;
- changing lead-time requirements; and
- prolonged review of test reports.

Pacific National believes there is a significant opportunity to reduce duplication through mutual recognition of testing outcomes and the establishment of nationally accepted testing methodologies.

94 Class Experience

Additional Signalling and Axle Counter Testing Identified Late

What occurred

During the 94 Class registration process, Pacific National completed the testing and approvals normally required for locomotive registration. After substantial progress had been made, Transport for NSW advised that additional testing of axle counters and signalling interaction was required.

This resulted in:

- engagement of additional specialist consultants;
- additional testing programmes;
- increased costs;
- programme delays.

Relevance to submission

Supports:

- nationally harmonised testing requirements;
- certainty of requirements upfront;
- reduced late-stage scope changes;
- standardised registration pathways.

Inconsistent and Emerging RIM Requirements

What occurred

The Registration workshop identified that some RIMs require additional information progressively rather than defining all requirements at commencement. We often provided the information requested and then the RIMs would review and ask for more. Some questions exploring risk would result in more requests for information.

Relevance to submission

Supports:

- standardised application processes;
- mutual recognition;
- clearer registration requirements;
- reduced discretionary reviews.

This aligns directly with concerns raised in the submission regarding inconsistent processes and onerous information requests.

Reciprocal Acceptance Was Incomplete

What occurred

Some testing completed for one network was accepted elsewhere.

For example, discussion noted that certain haulage and performance testing was recognised by multiple RIMs.

However other requirements were not mutually recognised and additional testing was still mandated.

Relevance to submission

This is one of the strongest examples supporting:

- mutual recognition of testing;
- reduction in duplicated testing;
- national acceptance criteria.

Registration Approval Delays Were Not Driven by Physical Testing

What occurred

The workshop reinforced that delays were not simply due to performing tests.

The bigger impacts were:

- identifying additional requirements;
- obtaining acceptance from multiple parties;
- coordinating consultants;
- satisfying differing RIM expectations.

This mirrors the theme in the current harmonisation submission that engineering testing is often not the critical path.

Relevance to submission

Supports:

- streamlining approval processes;
- reducing duplicated reviews;
- clarifying certification versus registration responsibilities.

Requirement for Better "Grandfathering" Principles

What occurred

The discussion highlighted broader concerns that networks increasingly seek evidence for equipment that has operated safely for many years.

Participants noted difficulties where original design documentation no longer exists but networks still seek contemporary evidence.

Relevance to 94 Class Experience

The underlying issue is similar to the 94 Class programme:

- approved technologies were already in use;

- known systems still required extensive reassessment;
- previous evidence was not always accepted.

This supports your submission's call for reliance on prior approvals and risk-based testing.

Network-Specific Exceptions After Main Registration Activities

What occurred

Although ARTC registration was achieved relatively early, additional issues arose later concerning:

- Sydney Trains requirements;
- signalling interaction;
- infrastructure-specific concerns.

The workshop specifically noted that ARTC approval was achieved before Sydney Trains approval and that further network-specific requirements emerged afterwards.

Relevance to submission

Supports:

- separation of certification from network approval;
- limiting RIM reviews to genuine interface risks;
- national consistency in testing acceptance.

Part 2 - How should efforts to address testing requirements be prioritised relative to other rolling stock approval elements of the National Pathway?

Pacific National recommends the following priority order:

1. Clarification of certification, registration and network approval accountabilities.
2. Development of nationally harmonised testing logic and methodologies.
3. Mutual recognition of testing outcomes and approvals.
4. Standardised documentation and reporting formats.
5. National testing location register.
6. National rolling stock registration database.
7. Single registration application process.

Question 2

Are there particular types of tests or approvals where harmonisation would be most effective?

The greatest opportunities exist in dynamic testing, interoperability testing and acceptance of existing evidence.

Specific areas include:

Static Testing

- Weighing.
- Twist testing.
- Static outlines.
- Wheel load distribution.
- Brake testing.
- Vehicle-to-vehicle swing.
- Vehicle-to-bogie swing.

Dynamic Testing

- Ride performance.
- Hunting stability.
- Dynamic braking.
- Kinematic outline testing.
- Noise testing.

Question 3

Certification, Registration and Network Approval

In rolling stock approvals, there are three stages: certification, registration and network approval. For Table 1 – on pages 21-22, could the various tests be identified as either belonging to certification, registration and network approval? For example, ‘Inspection based compliance checks’ that are largely visual are related to certification.

Pacific National strongly supports clearer separation between these activities.

Stage	Primary Responsibility
Certification	OEM / Builder / Designer supported by ICP
Registration	RSO submits evidence of compliance
Network Approval	RIM assesses network-specific risks only

The current framework often creates overlap whereby RIMs repeat detailed technical reviews that have already been conducted during certification by designers, manufacturers, RSOs and ICPs.

The Rail Safety National Law already places accountability for design, construction, testing and operation on the relevant duty holders. Certification should therefore remain the primary mechanism through which compliance is demonstrated.

Pacific National believes some RIM behaviours have evolved from a desire to demonstrate due diligence during ONRSR audits. However, this has unintentionally shifted cost, schedule risk and administrative burden onto RSOs and ultimately rail customers.

While RIMs appropriately retain responsibility for network-specific interface risks, duplication of certification activities should be minimised wherever possible.

This is consistent with PN's earlier submission that designers and builders should hold primary responsibility for vehicle certification and technical assurance, supported by accredited ICPs.

Where a design has already been certified and demonstrated compliance, retesting should only be required where modifications materially affect safety-critical characteristics.

Category	Typical Examples	Indicative Harmonisation Difficulty	Rationale (High-Level)	PN Comments
Static geometric and mass tests	Static outline, weigh, twist	Medium	Test intent and methods are broadly consistent, but differences exist in acceptance limits, calculation approaches or reference envelopes.	All
Clearance and swing assessments	Vehicle–bogie swing, vehicle–vehicle swing	Low	Methodologies are similar across networks and commonly supported by physical testing or simulation; differences are largely parameter based.	All
Basic brake function (static)	Static brake tests, SCAT	Low	Tests are widely required and undertaken using comparable methods; variation primarily relates to nominated gradients or thresholds.	Certification
Dynamic ride quality and stability	Ride performance, pitch and bounce	High	Greater sensitivity to track condition and location; some networks specify	Certification

Category	Typical Examples	Indicative Harmonisation Difficulty	Rationale (High-Level)	PN Comments
			particular sites or methodologies, increasing complexity.	
Dynamic brake performance	Stopping distance, deceleration	High	Acceptance criteria and test conditions vary, and tests may be waived or required depending on vehicle type and network risk posture.	Certification
Acoustic and visibility tests	Horn performance, signal visibility	Medium	Safety objectives are common but test conditions (e.g. distances, layouts) and acceptance criteria differ between networks.	Certification
Electrical and signalling interaction	Signal compatibility, interference	High	Highly network specific due to signalling technologies and infrastructure, limiting mutual recognition without additional safeguards.	Certification
Inspection based compliance checks	Electrical safety markings, AEI tags, reflective delineators	Low	Largely visual or documentary checks with limited technical variability; strong candidates for standardisation.	Certification
Structural assessments	Jacking loads, end compression	Low	Commonly demonstrated via calculation or simulation against recognised standards; limited dependence on network characteristics.	Certification
Calculation based assessments	P2 force, P/D ratio	Medium	Calculation methods are consistent, but allowable limits are	Certification

Category	Typical Examples	Indicative Harmonisation Difficulty	Rationale (High-Level)	PN Comments
			often linked to network specific track classes or infrastructure limits.	
Environmental performance	Noise, vibration, emissions	High	Influenced by local environmental requirements, operating context and regulatory regimes outside rolling stock approval processes.	Registration / Network Compliance

Question 4

Are there additional learnings, or approaches from international jurisdictions that should be investigated to inform potential reforms to rolling stock testing requirements or locations in Australia?

Pacific National supports further investigation of:

Test Data Follows the Vehicle

The European and North American approach where testing and certification information remains associated with the vehicle design throughout its life should be adopted in Australia. This would significantly reduce repeated assessments when ownership changes or vehicles move between networks.

Risk-Based Categorisation

The AAR categorisation model should be examined in detail. Testing requirements should increase only where a design materially differs from previously accepted rolling stock.

Expanded Use of Simulation

Validated simulation should be accepted for:

- ride dynamics;
- wheel unloading;
- P2 force assessments;
- braking performance;
- pitch and bounce;
- structural assessments.

Physical testing should remain focused on validation of new or genuinely novel designs.

Question 5

To what extent is there a need for a national testing facility in Australia, and how could it deliver value to the industry?

Pacific National sees merit in a national testing facility; however, the greater shorter term opportunity lies in mutual recognition of approved testing locations.

The RRHY programme demonstrated that delays were driven largely by:

- possession approvals;
- access negotiations;
- operational pathing;
- stakeholder coordination;
- acceptance of results.

A dedicated test track would assist but would only solve the fundamental issue of duplicated approvals if there was mutual recognition of test results.

Pacific National therefore supports:

- National register of approved test locations.
- Mutual acceptance of results.
- Agreed instrumentation standards.
- Standardised methodologies.
- Central accreditation of approved testing locations.
- Dedicated test track.

Question 6

Are the options for harmonisation mentioned in section 4.3 better considered as standalone options, as a combination of options, or altogether?

Pacific National recommends implementation of all options as a coordinated package.

Priority order:

1. Test requirements matrix.
2. Standardised methodologies.
3. Harmonised acceptance criteria.
4. National testing location register.
5. National registration database.

These reforms are interdependent and collectively support mutual recognition.

Question 7

Are there specific acceptance criteria or documentation requirements that could be quickly harmonised to delivery immediate benefits ('quick wins')?

Immediate benefits could be achieved through harmonisation of:

- Static outline definitions.
- Wheel unloading calculations.
- Twist test criteria.
- Ride performance report formats.
- Vehicle Information Pack structure.
- ICP certification requirements.
- Test report templates.
- Concession and derogation processes.
- Software change validation protocols.
- Interoperability testing acceptance criteria.

Question 8

Would allowing greater flexibility in where dynamic and static tests are conducted (for example, recognising results from a wider range of approved sites or simulators) help reduce costs and improve timing?

Pacific National strongly supports greater flexibility.

Provided methodologies, track characteristics and instrumentation are accredited, testing results should be accepted across participating networks.

Rolling stock should not require retesting solely because testing occurred on a different approved network.

Question 9

Is simulation testing a viable alternative to physical trials and, if so, what protocols would need to be adopted to validate simulation models?

Simulation is a viable alternative for many assessments.

Potential applications include:

- vehicle dynamics;
- wheel unloading;
- ride quality;
- pitch and bounce;
- P2 forces;
- braking analyses;

- structural validation.

Physical testing should remain necessary for:

- validation of new designs;
- verification of simulation models;
- high-risk novel technologies.

Pacific National supports a nationally accepted protocol for simulation validation to avoid differing requirements between RIMs.

Question 10

Should harmonisation of testing requirements and locations be progressed as a separate, dedicated project, or could it be effectively managed by the Technical Working Group for a single registration application pilot during a future stage of the National Pathway?

Pacific National supports progression through the existing Technical Working Group structure.

The same subject matter experts involved in registration reform are those required to harmonise testing requirements and locations.

Question 11

Would a testing location register be useful?

Pacific National strongly supports creation of a national testing location register.

The register should include:

- approved locations;
- supported test types;
- track characteristics;
- maximum speed;
- instrumentation capabilities;
- previous accepted testing programmes;
- ICP requirements;
- participating RIM acceptance status.

Additional Pacific National Observation – Operational Delivery of Dynamic Testing

The Discussion Paper appropriately identifies logistical and operational barriers associated with testing locations. Pacific National's experience is that these barriers are often underestimated and can be as significant as the technical testing itself.

Where an RSO is responsible for operating the test train, successful execution requires coordinated management of:

- Vehicle Information Packs and certification evidence.
- Operational and maintenance instructions.
- Instrumentation and testing plans.
- Operational Test Plans.
- Risk assessments.
- Possession or path applications.
- Train crew allocation.
- Locomotive availability.
- Stabling arrangements.
- Network access approvals.
- Contingency planning.

The RRHY project showed that obtaining testing approval is only one component of the process. Significant time can be spent coordinating internal operational stakeholders, RIMs, testing contractors, OEMs and regulators before testing can occur. A harmonised national framework should therefore address not only the technical test requirements but also the operational approval pathways required to execute the tests efficiently and safely.

This would be one of the most valuable lessons learned from Pacific National's recent rolling stock registration and testing experience. A dedicated Test Track would be most beneficial for the purpose of a more efficient planning and execution of testing.

Additional Pacific National Observation – Mutual Recognition

One of the largest opportunities is mutual recognition.

RIMs currently expend considerable resources independently reviewing similar evidence and testing outcomes. A harmonised framework would allow technical review effort to be pooled and accepted by participating networks.

Benefits include:

- reduced duplication;
- improved consistency;
- reduced approval timeframes;
- better utilisation of specialist resources;
- lower industry costs.

Additional Pacific National Observation – Innovation and Network Capacity

Current registration timeframes create a strong commercial incentive to procure rolling stock that closely resembles previously approved designs.

Operators delivering large capital projects face significant contractual schedule commitments. Delays in registration can directly impact project economics and customer commitments. Consequently, the lowest-risk option is often to avoid innovation.

This outcome reduces incentives to:

- improve fleet productivity;
- increase payload capacity;
- introduce new technologies;
- improve energy efficiency;
- enhance rolling stock performance.

The National Pathway should explicitly support innovation through a proportionate, risk-based and mutually recognised approval framework.

Additional Pacific National Observation – Regulatory Accountability

Pacific National believes harmonisation must also address accountability.

The RSNL clearly establishes responsibilities for RSOs, OEMs, builders, maintainers and designers. Certification by competent designers, supported by accredited ICPs, should remain the primary mechanism for demonstrating compliance.

RIMs should focus on assessing genuine network-specific interface risks rather than reproducing technical assurance activities already completed during certification.

Greater reliance on accredited ICPs, AS7500-series standards, mutual recognition and a national registration framework would improve efficiency while maintaining safety outcomes.

Role Clarity and Avoidance of “Pseudo-Regulation”

A key issue that should be explicitly recognised is the increasing tendency for Rail Infrastructure Managers (RIMs) to perform functions that effectively extend beyond infrastructure interface management and into the role of de-facto regulators of Rolling Stock Operators (RSOs). While RIMs have a legitimate responsibility to ensure infrastructure compatibility and network safety, the current registration framework often results in individual RIMs imposing differing interpretations of requirements, differing testing regimes and differing evidentiary burdens for rolling stock that has already been designed, assessed and accepted elsewhere.

This creates a situation where RSOs are required to repeatedly demonstrate compliance for substantially the same rolling stock across multiple networks, despite operating under a nationally accredited safety management framework and being subject to oversight by ONRSR. The result is significant duplication of engineering effort, testing, documentation review and project management activity, with little corresponding safety benefit.

The lack of harmonisation has become a major cost burden for RSOs, railway customers, manufacturers and Australian industry more broadly. It delays the introduction of new rolling stock, discourages innovation, increases project delivery costs and ultimately reduces productivity across the national rail network. In many cases, equivalent assessments are undertaken multiple times by different organisations reviewing the same evidence and reaching substantially the same conclusions.

The consultation should therefore directly address the appropriate balance of responsibility between ONRSR, RSOs and RIMs. Registration processes should focus on demonstrating infrastructure compatibility and network-specific operational requirements, rather than re-assessing matters already addressed through established certification and assurance processes.

National Multi-Network Approval Model

Consideration should also be given to establishing a single national rolling stock approval and testing assessment body, or multi-network approval panel, responsible for assessing core rolling stock compliance and testing outcomes on behalf of participating networks.

Such a body would provide:

- A consistent interpretation of standards and testing requirements across Australia.
- Elimination of duplicate engineering reviews and repeated testing activities.
- Faster introduction of new rolling stock and technology.
- Reduced costs for both RSOs and RIMs.
- A central repository of approved test results, vehicle data and compliance evidence.
- Improved utilisation of scarce rail engineering and specialist assessment resources.

Importantly, this function should be independent of both individual RIMs and RSOs. An independent approval group would provide balanced oversight, avoid conflicts of interest and ensure that neither infrastructure managers nor rolling stock operators hold disproportionate influence over the approval process. RIMs would retain responsibility for network-specific infrastructure risks and operating conditions, while RSOs would retain responsibility for rolling stock safety assurance and compliance.

A nationally recognised approval pathway would allow a "test once, approve many" approach, where evidence accepted through a robust independent process could be recognised across multiple networks, subject only to clearly defined network-specific requirements. This would deliver significant productivity benefits to the rail industry while maintaining, and potentially improving, safety outcomes through greater consistency, transparency and technical rigour.

This reform has the potential to benefit not only RSOs and their customers, but also RIMs, by reducing duplicated workload, enabling resource pooling, improving assessment quality and significantly increasing the efficiency and timeliness of rolling stock registration across Australia.

Australia has one national rail safety regulator, yet effectively operates multiple independent rolling stock approval regimes. The industry should move toward a nationally harmonised approval framework where rolling stock compliance is assessed once through an independent

multi-network process, with RIMs focusing on genuine network-specific interface risks rather than re-performing assurance activities already undertaken elsewhere. This would reduce cost, improve safety consistency, accelerate investment and remove a significant barrier to rail productivity and competitiveness.

Conclusion

The combined experience of the RRHY wagon programme and the 94 Class locomotive programme demonstrates that Australia's current testing and approval framework is constrained more by fragmentation, duplication and inconsistent acceptance of evidence than by the engineering tests themselves.

Pacific National strongly supports a nationally harmonised, risk-based framework that incorporates mutual recognition, standardised methodologies, accredited testing locations, validated simulation, and clear accountability for certification and registration. Such a framework would reduce costs, improve safety assurance efficiency, accelerate fleet deployment and encourage investment, innovation and growth across the Australian rail industry.