

Harmonising Rail Signage Across Jurisdictions

Trackside Across

ARISO
Horizons 7.0
June 2026

Trackside Solution

Reece Blaschek
Sanyuka Koyande
Justin Wood
Florent Hutin
Danielle Heatly



Contents

Executive Summary.....	3
1. Introduction	5
2. Purpose – Problem Statement	5
3. Current Inconsistencies in Trackside Signage	6
3.1 Examples of Inconsistent Trackside Signage.....	7
4. Key Risks and Challenges in Rail Signage Harmonisation.....	7
5. Benefits of Standardising Trackside Signs.....	10
5.1 Enhanced Safety and Reduced Human Error	10
5.2 Workforce Mobility and Training.....	11
5.3 Maintenance and Manufacturing Efficiency.....	12
6. Recommended implementation approach	13
6.1 Establish National Governance and Regulatory Alignment	15
6.2 Define the Harmonised Signage Scope and Principles	17
6.3 Baseline Current State Across Jurisdictions	18
6.4 Develop the Harmonised Design and Standard Package	19
6.5 Develop a Nation-wide Phased and Risk-Based Implementation Strategy	20
6.6 Manage Configuration, Change and Interfaces	21
6.7 Workforce Training and Change Management.....	21
6.8 Funding, Cost Control and Benefits Realisation.....	22
6.9 Monitor, Assure and Continuously Improve	23
7. Core Trackside Signs Proposed for Harmonisation	23
7.1 Operational Control Signs (High Safety and Productivity Impact)	24
7.2 Speed Control Signs (Strong Early Harmonisation Candidate)	25
7.3 Warning and Operational Awareness Signs	25
7.4 Location and Infrastructure Identification (Early “Easy Wins”)	25
7.5 Electrification and System Interface Signs	25
8. Conclusion	26
Appendix 1: Examples of Inconsistent Trackside Signage Across Rail Networks	28
Appendix 2: Lessons learned and challenges of road signage harmonisation.....	31
Appendix 3: Protection Officer Challenges to Benefits of Signage Standardisation	33
Appendix 4: Rail Safety Worker Feedback on Trackside Signage Harmonisation	35
References	36

Executive Summary

Trackside signs are one of the main ways railways keep people safe. They tell train drivers and rail workers when to stop, slow down, or take special care. Because these signs are closely linked to safety, they must be easy to see and quick to understand, especially when drivers are working at speed, in bad weather, or in stressful situations.

Across Australia, many trackside signs mean the same thing but look different depending on the rail network or state. Differences in colours, shapes, symbols, and layouts mean that drivers and rail workers often have to learn several versions of the same sign. Some drivers need to know three to five different rule books to work across networks. This makes the job harder, increases training time, and raises the chance of mistakes.

Making trackside signs the same across the country, known as harmonisation, is not unusual. Other safety critical areas, such as road transport and workplace safety, already use standard signs nationwide. Drivers expect a stop sign to look the same wherever they go, and safety workers rely on standard hazard signs wherever they work. These systems show that standardisation helps people recognise dangers quickly and work safely in different locations.

This report looks at how Australia can harmonise core trackside signs using AS 7632 Railway Infrastructure Signage. The goal is not to remove all local differences, but to agree on a common set of core signs that always mean the same thing and look the same wherever they are used. Local signs would only be allowed in rare situations where they are genuinely needed.

The report found that inconsistent signage increases mental effort for drivers and contributes to human error, which is a major factor in serious rail incidents such as drivers passing signals or limits they should not pass. Using clear and consistent signs reduces confusion, helps drivers react faster, and supports safer rail operations.

Standardised signage also brings strong productivity benefits. Training becomes simpler, workers can move between rail networks more easily, and rail organisations spend less time and money teaching different versions of the same information. This supports a more flexible national workforce and better cooperation between rail networks.

Because changing all signs at once would create risk, the report recommends a careful and staged approach. It suggests starting with the signs that provide the biggest safety and productivity benefits, such as stop signs, speed signs, warning signs, and key location markers. These signs are used often, understood by many workers, and are good early candidates for harmonisation.

Clear rules are recommended so that all new or replacement signs, new railways including major new projects, and future systems such as digital signalling use the

national standard from the start. This prevents new differences from being created while older signs are gradually removed.

In summary, harmonising trackside signage across Australia is practical, achievable, and worthwhile. By working together, using proven human factors design, and introducing changes carefully, the rail industry can improve safety, reduce complexity, support its workforce, and build a more connected and reliable national rail system for the future.

1. Introduction

Trackside signs play a critical role in keeping railways safe. They provide train drivers and rail workers with clear instructions, warnings, and information needed to operate trains and carry out work safely. Because these signs are often safety-critical, they need to be easy to see, quick to recognise, and clearly understood especially when people are under pressure or working in unfamiliar environments.

Across Australia, many trackside signs communicate the same message but appear different depending on the rail network. Differences in colour, shape, symbols, wording, or layout mean rail workers may see multiple versions of a sign that all mean the same thing. For workers who move between networks or operate across state borders, this adds unnecessary complexity and increases the chance of hesitation or misunderstanding.

Harmonising trackside signage is not a new or unusual idea, nor is it unique to rail. In many other safety-critical environments, standardised signs are used nationwide to ensure consistent understanding. Road signs are a clear example drivers expect a stop sign, warning sign, or speed sign to look and mean the same thing no matter where they travel in Australia. Similarly, workplace health and safety signage, such as hazard warnings, emergency exits, and personal protective equipment symbols, use consistent designs across industries and locations. These standards allow workers to apply their skills safely wherever they go, without needing to relearn basic safety information.

In this context, harmonisation does not mean removing all local flexibility or ignoring specific operational needs. It means agreeing on a common national set of core signs that have the same meaning and appearance wherever they are used, while allowing limited local signs only where genuinely required. This approach reduces confusion, supports workforce mobility, and reinforces safe behaviour through familiarity.

2. Purpose – Problem Statement

Australia's rail system grew separately in each state, so different states use different trackside signs and rules. Today, trains often travel across state borders, and drivers may work on more than one rail network. On a single journey, a train driver can see many signs that look different or mean different things depending on where they are. A driver may need to remember hundreds of signs and rules, even though many of them are conveying the same message albeit in a different format.

Because the signs are not consistent, drivers may require longer processing time to interpret what each sign means instead of recognising them quickly. This makes the job harder, increases cognitive load and increases the likelihood of mistakes, especially during long trips, bad weather, or unusual situations. As more trains and workers move between networks, having different signs in each area makes the rail system more complicated, harder to learn, and may contribute to incidents.

Protection Officers work over multiple rail networks to ensure track works are performed safely. To ensure works on track are conducted safely, trackside signage like Stop boards, speed restrictions signs are used to warn approaching rail traffic. This requires Protection Officers to procure and transport trackside signs related to each network that work is being carried out on.

Sourcing and transporting different signs for different networks is a financial burden on Protection Officers and increases the likelihood of arriving at worksites with the wrong signs, thus delaying or cancelling works, which leads to reduced productivity. Harmonised signs will reduce the likelihood of the wrong signs being erected and misinterpretation of the signs from track workers

Harmonised trackside signs will provide streamlined consistent training and deliver improved training results for all rail safety workers and rail organisations.

The aim of bringing together AS 7632 – Railway Infrastructure: Signage is to create one clear national standard for the main trackside signs used by rail organisations across Australia. This helps make sure that Rail Infrastructure Managers (RIMs) and Rolling Stock Operators (RSOs) are using signs that look and mean the same thing, no matter where they are.

Making trackside signs consistent supports the goals of the National Network for Interoperability and shows that the rail industry can work together to improve safety through good planning and coordinated action.

Having the same core trackside signs across Australia may bring the following benefits:

- Improve safety
- Make rail operations simpler
- Help workers move between different rail networks more easily
- Allow different rail networks to work better together

While some rail networks may still need special signs for certain locations or situations, standardising the main trackside signs will bring clear benefits to the whole rail system.

This report focuses on how signs are designed, including their words, shapes, sizes, and colours. The placement of signs, such as where they are located along the track and how far away, they are from hazards, will not be looked at in this report.

3. Current Inconsistencies in Trackside Signage

Australia's railways were originally built separately by each state, starting in the 1800s. Because of this, each state created its own rules, colours, symbols, and ways of doing things. Over time, this led to many different types of trackside signs across the country. Today, these differences can make it harder for rail systems to work together, for workers to move between networks, and for safety messages to stay consistent.

As trains, freight services, and digital control systems become more connected across Australia, these old differences show why careful planning and cooperation are needed. Any effort to make signs the same nationwide must respect how local rail networks operate and avoid disrupting systems that have worked for a long time, while still moving toward a more unified national approach.

Even though many trackside signs across Australia give the same instructions, they often look different depending on the rail network. These differences can include:

- Colours
- Symbols
- Shape and layout
- Letters and fonts
- Where and how the signs are mounted

Although these signs all serve the same purpose, the visual differences can make rail workers think harder to understand them. This extra effort can increase the chance of confusion or mistakes.

3.1 Examples of Inconsistent Trackside Signage

This small sample demonstrate the inconsistencies that exist within current trackside signage systems. Please refer to **Appendix 1** for illustrations.

Sign Type	Jurisdictions Variations
TSR Signs • TSR ahead • TSR Start • TRS End	Aurizon, Adelaide Metro, ARTC, Sydney trains
Yard Limits/Station Limits	ARTC, Adelaide Metro, PTA WA, ARC
Location Board	ARTC, NSW trains
Attend to Derail	ARTC, Adelaide Metro
Predictor Sign	ARTC, ARC
Block Post Sign	NSW trains, Adelaide Metro, Aurizon

4. Key Risks and Challenges in Rail Signage Harmonisation

Looking ahead, successfully making trackside signs the same across Australia means finding the right balance between having one national approach and dealing with the real-world differences between rail networks. Different states, rail operators, and types of equipment all create challenges. These challenges include changes to rules and standards, safety risks during the changeover period, managing old and new signs at the same time, costs, and the impact on workers. Things like training staff, updating

procedures, working around track access limits, and making sure systems still work together can make the process more complex.

To manage these challenges safely, strong leadership and clear planning are needed. Rolling the changes out in stages, involving rail workers and organisations early, and clearly showing how risks are being reduced are all important. By taking a careful, step-by-step approach that focuses on safety, human factors, and best practice, Australia can move toward more consistent trackside signs without disrupting day-to-day rail operations.

Another important challenge is deciding who is responsible for managing the risk during a national harmonisation program. Currently, Rail Infrastructure Managers (RIMs) are mainly responsible for signage risks because signs are a key safety control. However, making signs the same across the country means that responsibility is shared between government bodies, RIMs, rail operators, and national standards groups. Standardising signs does not remove risk, it changes how risk is shared, monitored, and managed. Regulators are especially interested in understanding how responsibility works when national standards set specific design or operating rules.

As the program moves forward, the main risks are expected to change. Early on, the biggest challenges are uncertainty around rules, planning, and approval. Over time, the biggest risk is likely to become change management making sure workers are trained, understand the new signs, and are ready to work safely with them. This includes retraining, changing habits, and working closely with staff and unions. Because of this, managing people and change becomes more important as the program progresses. Ongoing communication, strong planning, and regular review of risks will be critical to make sure safety is maintained and risks are managed so far as is reasonably practicable (SFAIRP).

The following risk categories outlines the main considerations that need to be identified and managed to support a safe and effective transition to standardised driver facing trackside signage.

Risk Category	Key Considerations	Risk Rating	Proposed Controls Considerations
1. Strategic / Regulatory L4 / C5	Historic differences between state systems; evolving national standards; regulatory approval dependencies; risk of misalignment with interoperability requirements.	A	Strengthen national coordination; align program timing with standards updates; maintain early engagement with ONRSR and other regulators; establish clear cross jurisdiction governance.
2. Safety / Human Factors L4 / C5	Transitional periods may increase cognitive load; inconsistent signage formats affect driver interpretation; visibility and detectability challenges; interactions with digital train control systems.	A	Apply human factors led design and testing; ensure consistent meaning and placement of signs; manage transition environments; improve visibility standards; coordinate lineside and cab signalling interfaces.

3. Operational / Asset L4 / C3	Large scale asset updates require strong configuration control; risk of partially converted corridors; dependencies with other corridor works; road rail interface complexity.	B	Maintain accurate asset inventory; enforce configuration and change control; coordinate installation with other projects; pilot implementation in select corridors before wider rollout.
4. Cost, Funding & Benefits L2 / C4	Significant investment required across design, installation, training and maintenance; risk of stranded investment if standards evolve; need for clear benefit realisation.	C	Use staged delivery and procurement efficiencies; align investment with national standards roadmap; baseline safety and performance metrics; incorporate whole-of-life costing.
5. Change Management & Workforce L4 / C4	Training impacts, change fatigue, industrial considerations, and public awareness needs particularly at level crossings.	B	Develop a national training approach; engage workforce and unions early; provide targeted communication and support materials; run public awareness campaigns for crossing changes.

Table 4: Risk Matrix

Likelihood	Consequence				
	C1 Insignificant	C2 Minor	C3 Moderate	C4 Major	C5 Severe
L5 Almost Certain	C	B	B	A	A
L4 Likely	C	C	B	B	A
L3 Possible	D	C	C	B	B
L2 Unlikely	D	D	C	C	B
L1 Rare	D	D	D	C	C

- **Strategic / Regulatory** risk is rated A because delays or differences in rules between states could seriously affect how well the program can be delivered. This risk is quite likely because national standards are still changing and different states need to work together.
- **Safety / Human Factors** risk is rated A because mistakes made by people during the changeover period could lead to serious safety issues. This is likely due to extra mental effort, mixed old and new signs, and problems with visibility while signs are being updated.
- **Operational / Asset** risk is rated B because updating signs along shared rail corridors and keeping track of changes is complex and could cause moderate problems for the project.
- **Cost / Funding** risk is rated C because while the costs are high, they can be planned for and managed if there is strong leadership and good financial control.
- **Change Management and Workforce** risk is rated B because changes to signs affect training, how workers adapt, and relationships with unions. These issues could cause major disruption and are expected to become more important as the program moves forward.

To make sure national signage standardisation is introduced safely and successfully, each of these risks must be carefully managed. This needs to be done in partnership with rail operators, regulators, standards organisations, and frontline workers. By working together, clearly understanding who is responsible for each risk, and putting the right controls in place, the program can show that all reasonable steps have been taken to manage safety risks SFAIRP. Keeping this careful and structured approach is essential to protecting rail workers, passengers, and the wider community, while supporting a smooth and safe move to standardised trackside signage.

5. Benefits of Standardising Trackside Signs

Safety data from the Office of the National Rail Safety Regulator (ONRSR) shows that human error plays a big role in serious rail incidents, especially when trains pass signals or limits, they shouldn't, known as SPADs or PAEs. For example, ONRSR recorded 301 Proceed Authorities Exceeded (PAEs) in just one three-month period between October and December 2025, and these events are widely understood to be mainly caused by human factors such as decision-making mistakes, loss of attention, or misinterpreting information (ONRSR, 2025).

Although signage problems are not listed as a separate cause in safety statistics, Australian rail investigations and human factors research show that unclear or inconsistent visual information makes people think harder, slows how quickly they recognise what to do, and increases the chance of mistakes. A major Australian study that reviewed 40 rail accidents and incidents found that almost all involved human-factor issues, and that poor or inconsistent information design contributed to errors, especially when people were under pressure or tired (Baysari, McIntosh and Wilson, 2008). ONRSR human factors work also highlights that inconsistent and unclear visual information makes errors more likely, particularly in low-visibility or high-workload situations (ONRSR, 2016; ONRSR, 2024).

Together, this evidence helps explain why standardising trackside signs is important: clear, consistent signs can reduce confusion, lower mental effort, and help rail workers recognise and respond to information more quickly and safely.

Standardising these signs provides three primary layers of benefits: Safety, Workforce Mobility, and Economic Efficiency.

5.1 Enhanced Safety and Reduced Human Error

- Reducing mental effort (Cognitive Load): ONRSR data shows that human error often happens when people have too much to think about at once. When drivers cross state borders or move between different rail networks (such as from ARTC tracks to Sydney Trains), they currently have to adjust to different sign colours and shapes. This extra thinking increases mental workload and the chance of

mistakes. Using the same signs everywhere reduces this load and helps drivers recognise information more quickly.

- Preventing mistakes under pressure: Many serious incidents, like PAEs and SPADs, happen during stressful or time-critical situations. In these moments, drivers tend to rely on what they learned first. If a “Stop” or “Caution” sign looks different from their training, it can slow their reaction or cause confusion. Standardised signs support faster, more reliable reactions when it matters most.
- Improving visibility in difficult conditions: ONRSR human-factors research shows that mistakes are more likely in low visibility or high-workload situations. Using common colours, reflective materials, and mounting heights makes signs easier to see at speed, especially at night or in bad weather, supporting earlier and clearer recognition.
- Safer transitions between networks: Human-factor errors often occur when people have to switch between different systems. When trains move between networks, such as freight entering city rail systems, inconsistent signage forces drivers to mentally “switch context.” Consistent sign designs reduce hesitation at these boundaries and help maintain focus and situational awareness.

5.2 Workforce Mobility and Training

Standardising trackside signs doesn’t just improve safety, it also makes it easier to train and move workers across Australia’s rail networks.

Frontline perspective (Refer to Appendix 4)

“Making core safety trackside signs consistent will help when training and when providing route knowledge to trainee drivers. It will help avoid confusion and provide better understanding when reading the signs, which will assist in preventing safeworking incidents.”

Driver Trainer, multi-network operator

“Consistency is everything and will make our job easier and help reduce any misinterpretation of reading the signs and applying the incorrect procedure. It will make things much easier when moving between networks.”

Mentor Driver, metropolitan passenger network

- Transferable skills (“passporting”): Currently, a train driver trained in one state, such as Queensland, may need a lot of extra training just to understand different trackside signs in another state like Victoria. With one national set of signs, drivers can use the same skills anywhere, supporting a future national rail driver licence system.
- More efficient track work: Track maintenance and on-track work become easier when signs are consistent. Protection Officers do not need to carry or source

different types of signs for different networks when setting up worksites, making mobilisation efficient. Refer to the Table at **Appendix 3** around the benefits for Protection Officers of Signage Standardisation.

- Lower training costs: Rail operators currently spend large amounts of money creating different training programs for each network. If signs are the same everywhere, training materials only need to be developed once and can be used across the country.
- Simpler refresher training: With one main signage standard, refresher training can focus on real-life operating situations instead of re-teaching different colours and shapes. This helps workers remember what they've learned and makes training easier to review and audit.
- Faster onboarding and redeployment: Standardised signage would allow new drivers, contractors, and redeployed staff to move between locations and states more quickly. This improves workforce flexibility and helps operators respond more effectively to operational demands.

A key challenge will be determining how training costs are shared between jurisdictions and operators during the transition. However, over time, national standardisation is expected to significantly reduce total industry training costs and improve workforce mobility.

5.3 Maintenance and Manufacturing Efficiency

Standardising trackside signs also brings clear benefits for maintaining the rail network and making signs more efficiently.

- Lower costs through mass production: Instead of manufacturers making many different versions of the same sign for different networks, one standard design can be produced in large numbers, reducing the cost of each sign.
- Clearer asset management: When all signs follow the same rules, it is easier to check their condition, measure performance, and compare results across networks, supporting better oversight and continuous improvement.
- Ready for the future: Consistent physical signage also makes it easier to introduce new digital systems, such as advanced train protection technologies. This supports smoother upgrades and safer operation while old and new systems operate together.
- Further exploration Required - Despite these potential efficiencies, each jurisdiction currently designs and procures signs independently, and it remains unclear whether standardisation would lead to coordinated procurement, a supplier panel, or a single manufacturer. As a result, the scale and certainty of manufacturing cost savings remain uncertain and require further analysis.
- By contrast, the benefits related to improved safety and workforce mobility are stronger and higher confidence. Consistent signage reduces misinterpretation,

simplifies training, and enables more flexible workforce deployment across networks, delivering clearer and more tangible long-term value.

6. Recommended implementation approach

Bringing trackside signs together into one national standard needs to be done carefully and step by step. Australia's rail networks are complex, and many signs have been used safely for a long time. Changing too much, too quickly could confuse workers or increase safety risks. For this reason, the recommended approach is to focus first on making core safety-critical signs the same across all networks, while allowing local signs to remain where they are truly needed.

The approach below was developed by considering ways to control the key risks identified in Section 4, reviewing previous harmonisation work, learning from industry experience, and listening to frontline workers who use these signs every day. It balances the benefits of national consistency with the practical realities of different rail networks. By adopting a staged approach, methodically testing changes and actively seeking feedback from frontline teams from the start, the rail industry can improve safety and consistency without disrupting day-to-day operations. Over time, this steady approach allows Australia to move confidently toward a safer, more connected rail system with signs that everyone can recognise and understand.

The 9 Key steps identified below can be grouped into 2 main phases

1 – Planning and standardisation

Steps 1 to 4 focus on establishing a national governance framework, design principles and engaging all key stakeholders. All efforts will be made to align all parties on what changes should be implemented to achieve the project intent and practically address the problem statement.

2 – Implementation and assurance

This second main phase - Steps 5 to 9 – will put in motion the national staged roll out, effectively controlling the risks while ensuring benefits can be realised.

The diagram on the following page, outlines the National Framework's 9 key steps, providing a clear and consistent pathway from design to national rollout.

 THE 9 STEPS OF THE NATIONAL FRAMEWORK	 OBJECTIVES	 RISKS ADDRESSED
 1. Establish National Governance and Regulatory Alignment	 Create clear authority, decision-making, and regulatory confidence.	 Strategic / Regulatory (High)
 2. Define the Harmonised Signage Scope and Principles	 Define clear scope and harmonisation design principles.	 Safety / Human Factors (High)
 3. Baseline Current State Across Jurisdictions	 Build a reliable evidence base before design and investment.	 Operational / Asset (Medium-High)
 4. Develop the Harmonised Design and Standard Package	 Produce a technically sound, safety-justified National Signage book.	 Safety / Human Factors (High)
 5. Develop a Nation-wide Phased and Risk-Based Implementation Strategy	 Avoid large-scale disruption and uncontrolled safety exposure.	 Operational / Asset (Medium-High)
 6. Manage Configuration, Change and Interfaces	 Maintain asset integrity during large-scale change.	 Operational / Asset (Medium-High)
 7. Workforce Training and Change Management	 Ensure safe adoption and minimize change fatigue.	 Change Management & Workforce (Medium-High)
 8. Funding, Cost Control and Benefits Realisation	 Demonstrate value and avoid stranded investment.	 Cost, Funding & Benefits (Medium)
 9. Monitor, Assure and Continuously Improve	 Prove SFAIRP and adapt as standards evolve.	 All categories (Safety and Regulatory)

6.1 Establish National Governance and Regulatory Alignment

Objective

Create clear authority, decision-making and regulatory confidence before design or rollout.

Key actions

- Establish a national steering group (ARISO-led or similar) with representation from state infrastructure managers, freight and passenger operators, ONRSR, and relevant standards bodies and human factors specialists. Consider existing forums and framework established by ARISO would be suitable, before establishing a new structure.
- Define a single accountable sponsor for harmonisation decisions. Agree how harmonised signage aligns with existing and evolving national standards, interoperability obligations, and SFAIRP requirements under Rail Safety Law.
- Develop an agreed regulatory engagement plan with ONRSR and state regulators early, before any physical change occurs.
- Lead compliance effort towards a National Standard, while ensuring interoperability and consistency.

Risk addressed

Strategic / Regulatory (High), including misalignment with evolving standards and regulatory timing.

National Standard Compliance

To ensure the long-term success of standardised trackside signage, clear and consistent adoption rules are required across all Australian rail networks. These rules help lock in safety benefits, prevent new inconsistencies from emerging, and make sure the significant effort involved in harmonisation delivers lasting value. A nationally consistent approach to signage also supports safer operations, reduces duplication and costs over time, and strengthens the case for national investment by clearly demonstrating benefits to interoperability and workforce mobility.

Under this approach, all new or replacement driver-facing trackside signs must comply with AS 7632 – Railway Infrastructure: Signage (or any later revision). Existing legacy signs should be replaced progressively through normal maintenance, renewal, and upgrade programs. This allows change to occur safely and efficiently, without unnecessary disruption to rail operations or placing additional risk on the workforce. Over time, this steady replacement approach will naturally transition networks toward full consistency.

However, a critical lesson from past rail standardisation efforts is that harmonisation only succeeds if new differences are not introduced while old ones are being removed. For this reason, new signage introduced during or after harmonisation must be nationally consistent from the outset.

GET IT RIGHT FROM THE START

Any new driver-facing trackside sign introduced after adoption of AS 7632 must be nationally standard from day one.

This means no new local variations for signs already covered by the standard, no temporary or “unique” designs that require future correction, and no parallel signage systems that increase confusion for drivers. Getting new signs right the first time improves safety immediately, avoids costly redesign and retraining, and demonstrates that national harmonisation works in practice.

This principle is especially important for new railways and major infrastructure projects, including new freight corridors, greenfield metropolitan lines, high-speed rail, and newly established networks. These projects present the best opportunity to achieve full harmonisation because there are no legacy signs to manage. Any new railway built with non-standard signage would lock in future safety risk, increase training complexity, and undermine national consistency from the beginning.

The same approach applies to future operating systems and emerging technologies, such as digital signalling, ETCS, and hybrid signalling environments. Any new physical trackside signs created to support these systems must also align with AS 7632 from the outset, ensuring that advancements in technology do not create another generation of incompatible signage.

By gradually replacing existing signs while requiring all new signage, new railways, and new systems to be harmonised from the start, Australia can achieve a durable, practical, and future-proof national approach to trackside safety communication.

Interoperability and National Consistency

New trackside signs must be designed to support trains and crews operating seamlessly across state borders and different rail networks. Where a national standard exists, network-specific variations are to be avoided and treated as exceptions rather than normal practice.

Differences should only be considered where genuine local conditions make the standard sign unsuitable, and only in very limited and clearly defined circumstances, such as:

- Unusual physical constraints (e.g. restricted clearances in tunnels or heritage structures)

- Unique operational environments (e.g. specialised yard arrangements not found elsewhere)
- Temporary transitional arrangements during approved staged implementation

In these rare cases, any deviation from the national standard must:

- Convey exactly the same meaning as the standard sign
- Match the standard design as closely as possible in colour, shape, symbols, and layout
- Be formally justified, documented, and nationally approved through an agreed governance process

Local differences must not be introduced for operational preference, historical practice, or convenience. The intent of harmonisation is to reduce variation, not legitimise it. By keeping exceptions tightly controlled and transparent, this approach supports interoperability and driver recognition while still allowing safe operation in genuinely unique local conditions.

6.2 Define the Harmonised Signage Scope and Principles

Objective

Define clear scope and harmonisation design principles. Prevent scope creep and inconsistent interpretations across jurisdictions.

Key actions

- Clearly define what is in-scope (for example, driver-facing signs only, not public or maintenance signage).
- Agree core harmonisation principles, including consistent meaning and intent (even if legacy form differs initially), human-factors-led design, and compatibility with digital or cab signalling interfaces.
- Identify non-negotiable national elements versus permissible local variations.
- Document transition principles describing how legacy and new signage can coexist safely.

Risk addressed

Safety / Human Factors (High), and strategic inconsistency across states.

Human Factors Design Principles

All future trackside signage designs must be based on human-factors (HF) principles, so signs are easy to see, understand, and respond to correctly. This is essential in rail operations, where drivers and workers must interpret information quickly often at speed, in poor weather, at night, or under pressure. Human-factors-led design ensures signage works with normal human perception and decision-making, rather than relying on memory or unnecessary mental effort.

Using human-factors principles to support harmonisation is not unique to rail. Other safety-critical sectors, particularly road transport, have successfully applied harmonised signage based on how people see and react in real-world conditions. Research into European road signage harmonisation (refer **Appendix 2**) shows that consistent colours, shapes, and symbols reduce confusion, improve recognition, and support safer operation across different regions. Although this research focuses on road signs, the lessons are directly relevant to rail, as both environments require fast, accurate interpretation of visual information.

All harmonised rail signage should therefore include:

- Standard colours and shapes for quick recognition
- Clear lettering and pictograms, with symbols preferred where appropriate
- Consistent placement in predictable locations
- High visibility in daylight, darkness, and adverse weather

A human-factors assessment must be completed before any new sign type is introduced. This helps reduce driver workload, lowers the risk of error, and avoids the need for costly redesign or retraining later.

Why Human Factors Matter

- People recognise familiar shapes and colours faster than they read words
- Consistent signs reduce mental workload, especially during stressful situations
- Standardisation supports workers moving between networks without relearning basics
- Evidence from European road networks shows that harmonised, HF-led signage improves safety and reliability

Designing signs around how people actually see and think helps ensure that harmonisation delivers real safety benefits, not just visual consistency.

6.3 Baseline Current State Across Jurisdictions

Objective

Build a reliable evidence base to drive design and investment decisions.

Key actions

- Initially develop a national asset and signage inventory that captures sign types, meanings, placement, and visibility, with attention to corridors that have mixed traffic or cross-border operations. This will assist in understanding costs and implementation time.
- Identify high-risk interfaces, including cross-border corridors and mixed legacy and modern signalling environments.

- Capture current training and competency impacts for drivers. Establish a baseline for safety performance, incident and near-miss data, and maintenance and lifecycle costs.

Risk addressed

Operational / Asset (Medium-High), including poor configuration control and partial corridor conversions.

6.4 Develop the Harmonised Design and Standard Package

Objective

Produce a technically sound, safety-justified signage solution collected into a National Signage book, led by the established national steering group (ARISO Led).

Key actions

- Design harmonised signage using human factors engineering, covering visibility, legibility and detectability, and managing cognitive load during transition phases.
- Test designs through simulator trials, driver workshops across jurisdictions, and a controlled field trial before implementing a pilot corridor.
- Ensure alignment with lineside and cab signalling systems, and with existing route knowledge principles.
- Document standard drawings, specifications and application rules.

Risk addressed

Safety / Human Factors (High), including transitional cognitive overload and misinterpretation.

Formal Endorsement of Harmonised Signage Standards

Once the harmonised design package and governance structure have been developed, the proposed signage standards should be formally endorsed by relevant national bodies such as:

- ARISO and national interoperability working groups
- Rail Infrastructure Managers (RIMs)
- Rolling Stock Operators (RSOs)
- Standards Australia committees responsible for AS 7632
- Office of the National Rail Safety Regulator (ONRSR)

Formal endorsement provides regulatory confidence and establishes the harmonised signage framework as the recognised national reference.

Development of National Technical Standards

Following endorsement, a detailed technical standard should be produced to support implementation. This standard should include:

- Standardised sign design specifications
- Colour, font, symbol and retro reflectivity requirements
- Placement and visibility requirements
- Installation guidelines and tolerances
- Maintenance and inspection requirements

These specifications should be incorporated into updates of AS 7632 – Railway Infrastructure: Signage, ensuring alignment with existing national rail standards.

Pilot Corridor Implementation

Before large-scale rollout, harmonised signage should be trialled in selected corridors that provide operational diversity and cross-jurisdictional relevance.

Pilot locations may include:

- Interstate freight corridors
- Shared metropolitan and freight networks
- Corridors with multiple operators

Pilot deployments allow the industry to validate:

- Driver recognition and comprehension
- Installation practices
- Transition procedures
- Training effectiveness
- Operational impacts

Feedback gathered during these pilots can inform refinements to the national standard before wider deployment. This report does not look at where signs are placed, because sign placement is a separate piece of work that needs to be considered on its own.

6.5 Develop a Nation-wide Phased and Risk-Based Implementation Strategy

Objective

Avoid large-scale disruption and uncontrolled safety exposure.

Key actions

- Prioritise corridors based on safety risk, interoperability benefits, and asset condition and upcoming works across all states and territories.
- Use pilot corridors to validate installation methods, transition controls, and training effectiveness.

- Avoid partial conversions within a corridor where possible.
- Align rollout with planned possessions and major renewal or upgrade projects.

Risk addressed

Operational / Asset (Medium-High), including transitional safety risks and corridor inconsistency.

Progressive Network Rollout

Following successful pilot validation, signage should be progressively implemented across networks using a staged rollout strategy.

Rollout priorities should consider:

- High-traffic interstate corridors
- Shared network interfaces
- Asset renewal programs
- Corridors with upcoming infrastructure upgrades

Aligning signage replacement with existing maintenance and renewal programs will minimise operational disruption and reduce implementation costs.

6.6 Manage Configuration, Change and Interfaces

Objective

Maintain asset integrity during large-scale change.

Key actions

- Implement strong configuration management and change control processes.
- Maintain a single source of truth for signage status by corridor.
- Define clear rules for mixed legacy and harmonised environments, and for temporary signage during works.
- Coordinate with road-rail interface changes and public warning systems.

Risk addressed

Operational / Asset (Medium-High), including interface failures and partial implementation errors.

6.7 Workforce Training and Change Management

Objective

Ensure safe adoption and minimise change fatigue.

Key actions

- Develop a national training framework aligned to harmonised signage.

- Update driver route knowledge, competency assessments and refresher cycles.
- Engage early with workforce representatives, unions and safety committees.
- Provide clear, practical transition guidance that explains what changes and what stays the same.
- Run targeted public awareness where signage affects level crossings.

Risk addressed

Change Management & Workforce (Medium-High), including training burden, industrial risk and adoption failure.

National Training and Competency Updates

Implementation of harmonised signage will require updates to rail industry training programs.

Key actions include:

- Updating driver route knowledge materials
- Revising safe working training packages
- Integrating harmonised signage into competency frameworks
- Updating simulator training environments
- Developing standardised training modules for national use

A consistent training approach ensures rail traffic crew understand both legacy and harmonised signage during the transition period.

6.8 Funding, Cost Control and Benefits Realisation

Objective

Demonstrate value and avoid stranded investment.

Key actions

- Develop a whole-of-life cost model covering design, installation, training and maintenance.
- Stage investment to align with standards maturity.
- Track benefits such as reduced driver error risk, improved workforce mobility, and simplified training and maintenance.
- Establish clear funding responsibilities across jurisdictions.

Risk addressed

Cost, Funding & Benefits (Medium), including unclear value proposition or inefficient spend.

Funding

To support this transition, National Government funding and subsidies should be considered, particularly for projects that improve the National Network for Interoperability. Funding should focus on:

- Key freight corridors
- Areas where multiple rail networks connect
- Transitions that clearly improve safety and operational consistency

It is recommended that all major interstate and freight routes adopt the national signage standard by 2035, giving rail organisations time to plan, fund, and deliver the changes safely.

6.9 Monitor, Assure and Continuously Improve

Objective

Prove SFAIRP and adapt as standards evolve.

Key actions

- Define safety and performance KPIs for harmonised signage.
- Monitor incidents, near misses and driver feedback after implementation.
- Conduct periodic regulatory and safety assurance reviews.
- Build a mechanism to update signage as national standards mature.

Risk addressed

All categories, particularly Safety and Regulatory.

Monitoring and Safety Assurance

After implementation begins, ongoing monitoring and assurance activities are required to ensure the harmonised signage achieves the intended safety outcomes.

These activities should include:

- Monitoring operational incident and near-miss data
- Collecting driver feedback on sign recognition and usability
- Conducting safety assurance reviews
- Assessing compliance with the harmonised standard
- Evaluating operational efficiency improvements

Findings should be used to continuously improve the signage framework.

7. Core Trackside Signs Proposed for Harmonisation

Australia's rail networks currently require train drivers and other rail workers to be trained in multiple rule books and local variations, often across three to five different systems

depending on where they work. This creates a clear productivity impact through increased training time, restricted workforce mobility, and reduced flexibility in deploying crews and safety workers. While safety remains the primary driver for harmonisation, the ability to reduce duplication, simplify training, and support a more mobile workforce is also a key objective.

For this reason, this report does not propose harmonising all trackside signs at once. Instead, it identifies a set of core signs that deliver the highest combined safety and productivity benefit, while being reasonably achievable from a change-management perspective. These signs are commonly used across multiple Australian networks, are well understood by workers, and are frequently encountered during normal operations. Harmonising these first provides a strong foundation for national consistency and demonstrates early, tangible benefits.

The signs proposed represent driver-facing operational controls, along with a small number of signs used by safeworking staff and maintainers. While driver-facing signs attract the largest productivity gains because they affect every journey and every driver there are also opportunities for early “easy wins” by harmonising signs used by smaller user groups, such as Protection Officers and network maintainers, where training impact is lower and approval pathways are simpler.

In addition to driver-facing signs, this report identifies opportunities for early benefits by harmonising signage used by safeworking roles such as Protection Officers. These roles involve smaller user groups, lower retraining impact, and simpler approval pathways. A detailed summary of current Protection Officer challenges and the benefits of signage standardisation is provided in **Appendix 3**.

Feedback from drivers operating across jurisdictions consistently highlights training complexity and signage inconsistency as key challenges. Drivers report that consistency in trackside signs makes interpretation easier, reduces the risk of applying incorrect procedures, and significantly improves confidence when moving between networks. These views support the prioritisation of the core signs identified in this section. Further detail and verbatim driver feedback are provided in **Appendix 4**.

The following categories reflect this balanced approach.

7.1 Operational Control Signs (High Safety and Productivity Impact)

- Stop Ahead Signs
- Stop Signs
- Limit of Shunt Signs
- Yard Limit Signs
- Block Post Ahead Signs
- Block Post Signs

7.2 Speed Control Signs (Strong Early Harmonisation Candidate)

Speed control signs are widely used, safety-critical, and relatively well understood across networks. They are also simpler to harmonise and therefore well suited for early rollout.

- Temporary Speed Restriction (TSR) Signs
 - TSR Ahead
 - TSR Start
 - TSR End
- Permanent Speed Boards

7.3 Warning and Operational Awareness Signs

These signs support driver awareness and safe operation at known risk locations. Consistency in these signs improves recognition and reduces hesitation.

- Whistle Boards
- Gang Whistle Boards
- Predictor Boards

7.4 Location and Infrastructure Identification (Early “Easy Wins”)

These signs are used by a smaller cohort (drivers, Protection Officers, maintainers) and often have fewer procedural dependencies. Harmonising these can deliver quick benefits with lower change impact.

- Location Boards
- Fouling Point Signs
- Derail Signs
- Safe Refuge Identifiers (where applicable)

7.5 Electrification and System Interface Signs

While not present on all networks, these signs are safety-critical where used and often interact with rollingstock systems.

- Automatic Train Protection (ATP / ETCS) Signs
 - Start
 - End
- Neutral Section Signs
- Limited Clearance / Restricted Clearance Warning Signs

Why these signs were selected first

These categories were recommended because they:

- Are common across most Australian rail networks

- Deliver the greatest productivity and training benefit when harmonised
- Are safety-critical and frequently encountered
- Affect drivers, but also include signs used by safeworking staff and maintainers
- Are achievable through staged implementation without major operational disruption

While change management for driver-facing signage will be more complex, the benefits are proportionally higher. At the same time, harmonising selected safeworking and infrastructure identification signs provides early success, builds confidence, and reduces risk during the broader rollout.

This structured, benefits-led approach ensures harmonisation delivers measurable safety and productivity outcomes, while remaining practical and manageable for the industry.

It is important to note that the suggestions above are the results of limited research by a small project group across a few jurisdictions. The intent is to be able to use the above to initiate the conversation before confirming which sign shall be included in the scope and should be revisited during the early stages of engagement.

8. Conclusion

Using one standard set of trackside signs across Australia through AS 7632 – Railway Infrastructure: Signage would help make the rail system simpler and more consistent. When signs look the same everywhere, they are easier to recognise and understand.

The harmonisation of trackside signage represents a significant opportunity to improve safety, operational efficiency and interoperability across Australia's rail networks. While Australian railways have historically evolved as independent state-based systems, increasing levels of interconnection between state-based networks freight and passenger networks highlight the need for greater national consistency in safety-critical communication.

This report has identified the operational challenges created by inconsistent signage and demonstrated the benefits of establishing a harmonised national framework through AS 7632 – Railway Infrastructure: Signage. Standardising core trackside signs will reduce cognitive load for rail traffic crew, improve route knowledge transfer, and enhance workforce mobility between jurisdictions.

Successfully implementing signage harmonisation will require strong national governance, careful human-factors-led design, phased implementation strategies and close collaboration between regulators, infrastructure managers, operators and frontline workers. By adopting a structured approach that balances national alignment with local operational realities, the industry can transition safely from legacy systems toward a consistent national signage framework.

Over time, harmonised signage will contribute to a more interoperable and resilient rail system. Through ongoing monitoring, continuous improvement and alignment with evolving technologies, Australia can establish a modern, nationally consistent approach to trackside safety communication that supports both current operations and the future development of the rail network.

Once trackside signs harmonisation standard has been introduced, Jurisdictions must consult with industry when proposing a new trackside sign to be implemented. Industry should move away from operating as 'silos' and ensure new signs are harmonised and agreed on across jurisdictions.

The harmonisation of core trackside signage through AS 7632 – Railway Infrastructure: Signage represents a practical and achievable opportunity to improve safety and interoperability across Australia's rail networks.

Establishing a nationally consistent set of core trackside signs will:

- Reduce operational complexity
- Improve safety outcomes
- Enhance workforce mobility
- Support the National Network for Interoperability
- Demonstrate to the industry harmonisation works

Through collaboration between rail infrastructure managers, operators, and industry bodies, the harmonisation of trackside signage can deliver meaningful improvements to the safety and efficiency of the Australian rail system.

Appendix 1: Examples of Inconsistent Trackside Signage Across Rail Networks

The following examples demonstrate how trackside signs with the same operational meaning can differ across Australian rail networks.

Table 1 – Temporary Speed Restriction (TSR) Sign Variations

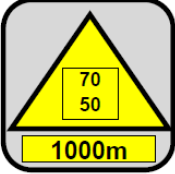
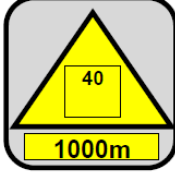
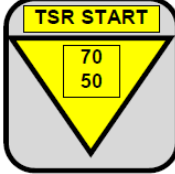
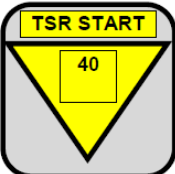
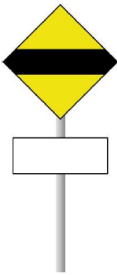
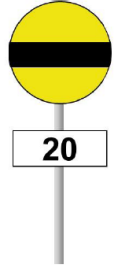
Aurizon TSR signs		Adelaide Metro TSR signs	
Temporary Speed Restriction Ahead Sign 		   	
Temporary Speed Restriction Start Sign 			
ARC TSR signs		Sydney Trains TSR signs	
Sign 	Name and Description Temporary Speed Restriction (TSR) Ahead sign. This sign is placed 2500 metres before the <i>Temporary Speed Restriction (TSR) Sign</i>. Placed below the <i>Temporary Speed Restriction (TSR) Ahead Sign</i> is a <i>Speed Restriction</i> sign displaying the maximum speed permitted for the restricted area.	 WARNING sign	 C Speed restriction WARNING sign
	Temporary Speed Restriction (TSR) Start sign. This sign is placed 50 metres before the area covered by the <i>Temporary Speed Restriction (TSR)</i>. Placed below the <i>Temporary Speed Restriction (TSR) Sign</i> is a <i>Speed Restriction</i> sign displaying the maximum speed permitted for the restricted area.	 CAUTION sign	 CAUTION signs

Table 2 – Yard Limit/Station Limit Sign Variations

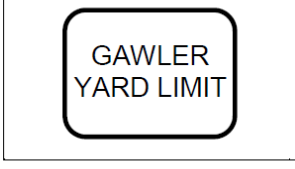
ARTC Yard Limit Signs (5 variants)	Adelaide Metro Yard Limit Sign
	
PTA WA Yard Limit/Station Sign	ARC WA Yard Limit/Station Sign
	

Table 3 – Location Board Variations

ARTC location board	NSW location board
	

Table 4 – Attend to Derail Sign Variations

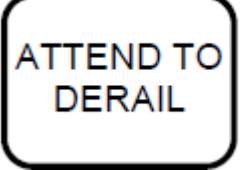
NSW attend to derail sign	AMPRN attend to Derail
	

Table 5 – Attend to Derail Sign Variations

NSW Block Post Sign	Aurizon Block Post Sign	AMPRN Block Post Sign
	Block Limit Board 	

Appendix 2: Lessons learned and challenges of road signage harmonisation

Even though this research looks at road signs, it is very useful for the rail industry as well. Both road and rail signs are important for safety and need to be understood quickly and clearly. Drivers on roads and trains on railways often must read signs at speed, in bad weather, or while under pressure, so clear and consistent signs are essential.

European experience with making road signs consistent shows that using the same colours, shapes, and symbols helps reduce confusion and mistakes. Many of the challenges faced on roads, such as too many signs, unclear designs, aging infrastructure, and the need to support both people and digital systems are similar to the challenges seen in rail. Because of this, lessons from road signage harmonisation can help the rail industry understand what works well, what problems to avoid, and how standardising trackside signs can improve safety and reliability.

Lessons Learned

- **Safety and Efficiency:** Harmonized signs (e.g., metric speed limits) create a safer, more efficient driving environment, reducing confusion, particularly for cross-border commuters.
- **Pictogram Reliance:** Relying on symbols rather than words reduces language barriers.
- **Color-Coding Matters:** Distinct color schemes (e.g., blue for mandatory actions, red circles for prohibition, red-bordered triangles for warnings) allow for quick, subconscious understanding.
- **Safety-Critical Standards:** Adoption of high-performance materials (Class 2 retroreflection) is necessary to meet the needs of older community members, particularly for nighttime visibility.
- **"Less is More" Approach:** A reduction in unnecessary signage improves safety by reducing visual clutter, as evidenced by studies where 36% of signs in construction zones were unnecessary.
- **Maintenance is Critical:** A high number of signs are older than 15 years or non-readable, necessitating strict maintenance protocols to ensure they remain functional.
- **Flexibility within Standards:** Member states require some flexibility to adjust signs for local needs, even while complying with overarching EU, UN, and UNECE standards.
- **Infrastructure Adaptation:** As population ages and traffic increases, signage must be clearer, more visible, and adaptable to new, smart mobility solutions. ERF – European Union Road Federation +5

Key Challenges

- **Implementation Disparities:** While the Vienna Convention sets standards, countries often retain local variations (e.g., "STOP" vs "ARRÊT", or different prohibition symbols) that cause confusion.

- **Implementation Divergence:** While many countries signed the Vienna Convention, variations in national legislation remain, leading to "local quirks". For example, the "end of speed limit" sign means different default limits depending on the country.
- **Conflicting Colour Schemes:** Despite EU efforts, directional signage colors are inconsistent; the UK uses blue for motorways, while France and Germany use green, creating confusion.
- **Maintenance Backlog:** Due to budget cuts, many countries struggle to maintain signage, with up to 33% of signs in some areas considered unreadable.
- **New Technology Integration:** Adapting traditional signage to be easily read by vehicle-based automated systems (Intelligent Speed Adaptation) while remaining clear for human drivers is an ongoing challenge.
- **Proliferation of Signs:** Too many signs can lead to information overload, reducing effectiveness and increasing hazards.
- **Aging Infrastructure:** Adapting existing infrastructure for elderly drivers and new traffic flows requires significant investment. ERF – European Union Road Federation.

Appendix 3: Protection Officer Challenges to Benefits of Signage Standardisation

Protection Officer Challenge	Description of the Challenge	Benefit of Signage Standardisation	How Standardisation Addresses the Challenge
Multiple signage systems across networks	Protection Officers must learn, remember, and correctly apply different signage types, colours, layouts, and placement rules for each rail network	Reduced cognitive load and error risk	A single national signage system removes the need to switch between visual languages, reducing mental workload and the likelihood of misinterpretation under pressure
Long and costly training pathways	Initial PO training and authorisation take weeks to months, with significant direct and indirect costs	Shorter training time and lower costs	Standardised signage allows core training to be developed once and reused nationally, reducing classroom time, assessments, and retraining effort
Re-training required when moving between networks	POs often need retraining or additional competencies to work on another network	Transferable competencies (“passporting”)	With consistent signage, core PO competencies can be recognised across networks, enabling faster cross-network deployment
Slow mobilisation to worksites	Different signage inventories must be sourced, transported, or checked based on network requirements	Faster mobilisation and setup	A single signage set allows Protection Officers to arrive on site with confidence that all required signs are compliant, reducing delays
Increased risk during dynamic site changes	When conditions change, POs must reassess protection while recalling network-specific rules	Improved situational awareness and decision-making	Familiar, consistent signs allow POs to focus on hazards and changes rather than recalling differing signage rules
Training fatigue and refresher burden	Regular re-certification requires re-learning	Simpler and more effective refresher training	Refresher training can focus on operational scenarios and risk

	network-specific signage differences		management instead of revisiting basic sign recognition
Workforce inflexibility	Limited pool of POs qualified for each network reduces resourcing options	Greater workforce flexibility	Standardised signage supports wider deployment of POs, improving resource availability during outages, projects, or emergencies
Higher likelihood of setup errors	Safety investigations often identify incorrect or inconsistent protection placement	Improved compliance and safety outcomes	Consistent signage reduces ambiguity in placement and interpretation, improving compliance with rules and procedures
Administrative and documentation burden	Network-specific requirements increase paperwork and verification effort	Streamlined compliance and auditing	National signage standards simplify documentation, audits, and assurance activities

Appendix 4: Rail Safety Worker Feedback on Trackside Signage Harmonisation

Research and industry reports from bodies like the National Transport Commission (NTC) and the Rail Industry Safety and Standards Board (RISSB) confirm that consultations on harmonisation are typically formal and multi-modal.

As part of the research for this report, informal discussions were conducted with rail traffic crews, Train Technician and a Rollingstock Operations Manager operating across multiple jurisdictions.

The following comments were provided by experienced rail operators on harmonising track signage:

“Making core safety trackside signs consistent will help when training and when providing route knowledge to trainee drivers. It will help avoid confusion and provide better understanding when reading the signs, which will assist in preventing safeworking incidents.”

Jase Dowsett – Driver Trainer, Qube Rail

“Consistency is everything and will make our job easier and help reduce any misinterpretation of reading the signs and applying the incorrect procedure. It will make things much easier when moving between networks.”

Phil Mason – Mentor Driver, Public Transport South Australia

“From a national rail safety perspective, standardisation of safe working systems and components throughout the jurisdictions would be a great step forward for the industry. Particularly when you consider the vast degree of opportunity now available for rail workers across the country”

Mark Porter – Regional Operations Manager, Aurizon

These comments highlight the operational importance of consistency from a frontline perspective.

References

Adelaide Metropolitan Passenger Rail Network (AMPRN) (2017). *Train rules and procedures: Volume 2 – Network Interface Rules and Procedures* (Version 1.3). Unpublished internal safeworking and operations rulebook.

Arc Infrastructure (2022). *Network safeworking rules and procedures: Signs* (Rule 6007, Version 2.02). Unpublished internal railway operating document.

Australasian Railway Industry Safety and Standards Organisation (ARISO) (2025). *National Code of Practice – Operations*. Canberra: ARISO.

Aurizon (2025). *Signals, indicators, boards and signs procedure* (Document HWD 21848). Unpublished internal safeworking procedure.

Baysari, M.T., McIntosh, A.S. and Wilson, J.R. (2008). Understanding the human factors contribution to railway accidents and incidents in Australia. *Accident Analysis & Prevention*, 40(5), pp. 1750–1757. Available at: <https://doi.org/10.1016/j.aap.2008.06.013> (accessed 7 April 2026).

National Transport Commission (NTC) (2026). *National Rail Action Plan: January 2026 Update*. Melbourne: National Transport Commission.

Office of the National Rail Safety Regulator (ONRSR) (2016). *Road Rail Vehicle National Project – Human Factors Observations*. Adelaide: ONRSR. Available at: <https://nraspricms01.blob.core.windows.net/assets/documents/Presentations/RRV-National-Project-Human-Factors-Observations.pdf> (accessed 7 April 2026).

Office of the National Rail Safety Regulator (ONRSR) (2024). *Rail Safety Report 2023–2024: Safe Railways for Australia*. Adelaide: ONRSR. Available at: <https://nraspricms01.blob.core.windows.net/assets/documents/24023-ONRSR-SafetyReport-2024.pdf> (accessed 7 April 2026).

Office of the National Rail Safety Regulator (ONRSR) (2025). *Quarterly Rail Industry Safety Snapshot: October–December 2025*. Adelaide: ONRSR. Available at: <https://www.onrsr.com.au/industry-and-regulation/rail-safety-data> (accessed 7 April 2026).

Rail Industry Safety and Standards Board (RISSB) (2024). *AS 7631: Railway Infrastructure – Sighting*. Kingston ACT: RISSB.

Rail Industry Safety and Standards Board (RISSB) (2025). *AS 7632: Railway Infrastructure – Signage*. Kingston ACT: RISSB.

Rail Safety National Law (South Australia) Act 2012, including 2026 Amendments. Australia.

Standards Australia (2023). *AS 1742: Manual of Uniform Traffic Control Devices*. Sydney: Standards Australia.