

NATIONAL SAFETY DATA INITIATIVE

What the Data Is Telling Us About Roadworker Risk

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4,010

Incident records in
national dataset

197

High or Extreme
risk incidents

15

Lost time
injuries recorded

15%

High/Extreme rate
overnight vs 4% midday

In November 2024, practitioners gathered at the AfPA-TMAA Safety Forum in Queensland were asked a direct question: what do you believe is the greatest risk to workers at your sites from external traffic? The top answer, by a significant margin, was driver distraction; followed closely by TMP set-up issues and speeding. When asked how the industry could best use incident data to prevent accidents, the overwhelming response was unambiguous: share it.

That answer reflects both a frustration and a hope. The frustration is that for too long, incident data in the Australian road construction sector has lived inside individual organisations, useful for internal learning, invisible to everyone else. The hope is that pooled data, properly analysed, could reveal patterns that no single company's dataset could surface. Patterns that shift the conversation from anecdote to evidence, and from sentiment to advocacy.

AfPA's National Health and Safety Committee took that call seriously. Beginning in July 2024, four of Australia's major flexible pavement contractors; Boral, Colas, Downer and Fulton Hogan, began contributing de-identified incident data quarterly to a shared national dataset, standardised under the AfPA Safety Risk Matrix. Eighteen months and 4,010 records later, the picture that is emerging is striking, and in some respects, surprising.

Finding One: The Public Is the Dominant Hazard

The most significant finding from the dataset is also the most counterintuitive to anyone who assumes workplace safety is primarily about what industry does wrong. When incident types are examined across the full dataset, the dominant patterns are not equipment failures, procedural breaches or inadequate training. They are public behaviour.

Public disregard for traffic control is the third most frequently recorded incident type in the dataset, with 231 records. Traffic incidents involving public vehicles account for a further 187. Aggravated motorist incidents, where road users have directed hostility at workers, appear 78 times. Work zone and closure breaches total 77 records. Public speeding in work zones accounts for another 75.

Top Traffic and Public Behaviour Incident Types – 18 months of national data

Public disregard for TC: 231 Traffic Incident - Public: 187 Traffic Other: 146 TC Signs & Devices: 115 Aggravated motorists: 78 Work Zone/Closure Breach: 77 Public speeding: 75 TC communication failure: 74

These are not isolated incidents. They are a consistent, recurring pattern across four different organisations, multiple states, and six consecutive quarters of data. The public's relationship with the road construction work zone, characterised by distraction, impatience, disregard and occasionally outright aggression, is the defining safety challenge for workers in this sector.

"The data is telling us something the industry has long suspected but never been able to prove at scale: the greatest risk to our workers comes from outside the site boundary, not within it." – AfPA National Health & Safety Committee

This finding has important implications for how safety investment is prioritised. If public behaviour is the primary driver of risk, then internal process improvements, while necessary, are not sufficient. The most effective interventions are those that physically separate workers from the public: full lane closures, continuous barriers, traffic management approaches that remove the human judgement of passing motorists from the safety equation entirely.

Finding Two: Night Work Carries Disproportionate Risk

The second major finding concerns when incidents occur, and specifically, when serious incidents occur. While overall incident volumes are highest during daylight hours (as would be expected, given that most work occurs then), the proportion of incidents rated High or Extreme under the AfPA Safety Risk Matrix is markedly higher overnight.

High/Extreme Risk Incidents as a Proportion of All Incidents – by Time of Day

Midnight–3am: 13.1%	3am–6am: 14.9%	6am–9am: 12.2%	9am–Noon: 8.0%
Noon–3pm: 3.7%	3pm–6pm: 5.0%	6pm–9pm: 2.4%	9pm–Midnight: 4.1%

Between midnight and 6am, High or Extreme risk incidents account for approximately 13-15% of all recorded incidents during those hours. During the middle of the day, noon to 3pm, that proportion drops to under 4%. The pattern is consistent and stark: when the sun goes down and traffic volumes fall, the incidents that do occur are significantly more likely to be serious ones.

This is consistent with what practitioners already know intuitively. Night work is often undertaken precisely because lower traffic volumes make it appear safer, but the vehicles that are present at 2am are more likely to be travelling at higher speeds, with drivers who are fatigued, impaired, or less alert to changing road conditions. The combination of higher vehicle speeds, reduced visibility, and potentially compromised driver attention creates a risk environment that the data now quantifies.

What This Means for Risk Planning

Work scheduled at night should not be assessed as lower risk simply because traffic volumes are lower. The severity distribution of the dataset suggests that night work warrants higher-order controls by default, not the same controls as day work, adjusted for lower volumes. Physical separation and barrier systems are more critical, not less, when fewer but faster vehicles are involved.

Finding Three: People Are the Root Cause – But the Picture Is Incomplete

Where root cause has been recorded in the dataset, the dominant category is clear: "People" accounts for 969 records, nearly four times the next category, "Environment" at 453, and more than three times "Equipment" at 257. This aligns with the public behaviour finding, when incidents involving road users are attributed to a root cause, that cause is almost invariably human behaviour rather than equipment failure or environmental conditions.

Root Cause Analysis – where recorded

People: 969 records – The dominant root cause across the dataset. Encompasses both public behaviour and worker-side human factors – distraction, judgement, communication breakdown.

Environment: 453 records – Weather, visibility, road surface conditions and site environment. The second most common root cause – and one that frequently amplifies the impact of human behaviour.

Equipment: 257 records – Plant, tools, devices and infrastructure failure. Significant, but substantially less prevalent than people or environment as a primary driver of incidents.

Data Quality: 1,615 records with no root cause entered – A substantial portion of records have no root cause attributed. This is a known data quality gap – and one that, when addressed, is likely to reinforce rather than undermine the existing pattern.

The data quality observation deserves direct acknowledgment rather than being quietly footnoted. Forty percent of records in the dataset currently have no root cause entered. This reflects a real limitation of early-stage data collection across multiple organisations using different internal systems and reporting cultures. It does not invalidate the patterns identified, those patterns are based on the 60% of records where root cause is recorded, and they are consistent and directional. But it does mean the picture will sharpen as data quality improves over time.

This is, in fact, one of the most important arguments for continuing and expanding the initiative. The dataset as it stands is already revealing systemic patterns. A more complete dataset, with higher root cause completion rates, broader contributor participation, and additional years of comparable data, will be even more powerful as an advocacy tool.

Finding Four: Serious Injuries Are Occurring

The dataset records 15 lost time injuries across the 18-month period covered, along with 28 medical treatment injuries. No fatalities are recorded, a fact that reflects the genuine commitment to safety across contributing organisations, and which should be acknowledged. But the LTI figure, drawn from only four organisations and representing de-identified aggregate data, is a sobering reminder that the risk is real and consequential.

The nature of some recorded incidents is striking. The dataset includes tanker rollovers, crush injuries, surgical interventions following traffic-related contact, and injuries requiring hospitalisation. These are not minor events. They represent moments where the risk environment that the broader dataset describes translated into serious harm to real people.

No industry can claim to be managing safety well if it cannot describe, in quantitative terms, what is happening to its workers. This dataset is the beginning of that description.

What the Data Is Asking Of Us

Taken together, these four findings, the dominance of public behaviour as a hazard, the disproportionate severity of night-time incidents, the primacy of "People" as root cause, and the presence of serious injuries in the record, point toward a consistent set of priorities for the industry and for regulators.

Physical separation between workers and live traffic needs to be the default, not a premium option. Full lane closures, continuous portable barriers, and traffic management approaches that eliminate reliance on public compliance should be the starting point for risk planning on any significant road construction or maintenance activity. The data shows that when the public is in a position to make a bad decision, they regularly do.

Night work risk must be explicitly planned for at a higher tier of control. The severity concentration revealed in the time-of-day analysis is a clear signal that lower traffic volume is not a proxy for lower risk during overnight operations.

Data quality must improve. The 1,615 records with no root cause entered represent an opportunity as much as a gap. Addressing this, through better template design, clearer guidance to contributors, and stronger reporting culture, will make the dataset significantly more powerful.

And the dataset needs to grow. Four organisations representing a substantial portion of Tier 1 pavement contracting activity in Australia have contributed 18 months of data. The picture is already meaningful. With broader participation, more contractors, more traffic management companies, more of the supply chain, it becomes something more: a genuinely national evidence base for policy advocacy and systemic change.

The Broader Significance

This dataset is the first of its kind in Australian road construction. It was made possible by the willingness of competing organisations to set aside commercial interests in the service of a shared goal: keeping workers safe. The findings it is producing are beginning to shift conversations with road authorities and regulators from the anecdotal to the quantifiable. That shift, from sentiment to evidence, is what changes policy.

AfPA's National Health and Safety Committee will continue to publish insights from the dataset as it grows. The next phase of the initiative focuses on expanding contributor participation, improving data completeness, and deepening the analysis of incident patterns by state, time of year, and traffic management configuration. The data will also be presented at the QLD TMR Engineering, Innovation and Technology Forum in August 2026, and at the 21st AfPA International Conference in 2027.

For organisations that want to contribute data, adopt the AfPA Safety Risk Matrix, or engage with the findings, contact details are below.

A Note on Data Interpretation

All figures in this article are drawn from de-identified incident records voluntarily supplied by AfPA member organisations for the period July 2024 to December 2025. Records are aggregated and no individual organisation's data is separately identifiable. Patterns described reflect the dataset as a whole. Root cause analysis is based on the 60% of records where root cause was recorded; the remaining 40% of records have no root cause attributed. Incident type classifications vary across contributing organisations and have been normalised to AfPA standard categories for reporting purposes.

To contribute data to the AfPA national roadworker safety initiative, adopt the AfPA Safety Risk Matrix, or register for the forthcoming Safety Intelligence webinar, contact the AfPA National Health & Safety Committee at enquiries@afpa.asn.au or visit afpa.asn.au.

This article draws on de-identified, aggregated incident data submitted quarterly by Boral, Colas, Downer and Fulton Hogan under the AfPA National Safety Data Initiative. The AfPA Safety Risk Matrix and supporting resources are available to all AfPA members via the member portal.