HVSI Project 824 progress report: Learning from Near Misses

Abstract

Final report for the National Heavy Vehicle Regulator's (NHVR) Heavy Vehicle Safety Initiative (HVSI) Project 824: Learning from Near Misses: using EBS data to improve safety.

May 2025 Final Version 1.0

Prepared for the NHVR by the
National Bulk Tanker Association Inc.

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Progress report for HVSI Project 824 Learning from Near Misses: using EBS data to improve safety.

May 2025

Final v1.0

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Executive summary

The *Learning from Near Misses* project (HVSI Project 824), led by the National Bulk Tanker Association (NBTA), aimed to enhance safety outcomes across the bulk tanker industry by using data from Roll Stability Systems (RSS) to proactively identify and prevent rollover incidents. The project focused on increasing awareness of RSS benefits, promoting data sharing, and developing a practical online tool to visualise near miss data.

Project Overview

The project set out to leverage RSS technology already fitted to many bulk tanker fleets, creating a data-sharing ecosystem that could reveal near miss events in real time. Its goal was to enable drivers, fleet managers, and road agencies to access actionable data through an interactive online web map and dashboard. These tools were designed to support driver training, safety talks, and targeted route risk assessments, ultimately contributing to a measurable reduction in rollover and loss-of-control incidents.

Key Achievements

- Successful development and launch of the *Rollscope* platform, featuring a public-facing web map and a secure data dashboard for participating fleets.
- Engagement of 8 transport operators, covering 280 tracked trailers and generating over 32,000 near miss events and nearly 200,000 alarms over 531 days of recorded operation.
- Creation of safety report templates and toolbox talk materials, which have been adopted by fleet managers to enhance driver safety briefings.
- Delivery of multiple national presentations and workshops to promote awareness, foster participation, and disseminate findings across the industry.

Key Findings

The project confirmed that RSS technology is highly effective for identifying near miss rollover incidents, offering early warnings of safety hazards that operators can act on. An unexpected but significant finding was that many systems reported frequent faults or persistent alarms, indicating that some RSS units were not functioning correctly. This highlighted the dual need for both near miss data analysis and ongoing maintenance checks to ensure the proper functioning of safety systems.

The platform’s visual, user-friendly design proved valuable in fostering engagement across technical and non-technical users. Feedback from operators indicated that *Rollscope* had strengthened internal safety conversations and provided new insights into high-risk routes and driver behaviour patterns.

Challenges and Lessons Learned

While the project successfully met its objectives, some challenges emerged. Initial onboarding

of operators took longer than expected, due to internal approval processes and varied levels of technical readiness. Integrating data from different telematics systems also presented technical complexities that required tailored solutions. Engagement with smaller operators was more difficult, reflecting capacity constraints and differing levels of technological maturity.

The project underscored the importance of early, collaborative engagement with stakeholders, the need for flexible and dedicated technical resources, and the value of clear, ongoing communication throughout the project lifecycle.

Sustainability and Next Steps

To ensure the lasting impact of this initiative, the NBTA has committed to maintaining the *RollScope* platform and continuing data collection for at least another 24 months beyond the grant period. Planned enhancements include the integration of Tyre Pressure Monitoring System (TPMS) alerts, providing a more comprehensive view of vehicle safety performance.

The NBTA is also seeking additional funding to develop tailored training and information materials that highlight the importance of maintaining trailer EBS and RSS health, further bridging the gap between data insights and day-to-day safety practices. Future steps include broader operator engagement, deeper collaboration with road authorities, and exploration of national scaling opportunities to embed near miss data analysis into wider road safety strategies.

Conclusion

The *Learning from Near Misses* project has delivered a powerful foundation for proactive safety management in the bulk tanker industry. It demonstrates that near miss data can—and should—play a critical role in preventing rollover incidents, shifting the industry's focus from reactive to preventative safety measures. By sustaining and building on this work, the NBTA and its partners are contributing meaningfully to the ongoing improvement of heavy vehicle safety at both local and national levels.

1 Introduction

The National Bulk Tanker Association (NBTA) comprises member companies and organisations involved in the manufacture, storage and distribution of liquid bulk products, including a strong membership base involved in the dangerous and hazardous goods sector. The NBTA serves its members by sharing learnings and leading the discussion and development of new solutions to improve outcomes in the following areas:

- safety in the industry
- accreditation programs
- emergency response
- safety issues concerning vehicles and personnel
- national audits, rehabilitation, and other OH&S issues.

1.1 Project description

Project 824, Learning from Near Misses, was developed under the National Heavy Vehicle Regulator's Heavy Vehicle Safety Initiative to increase industry uptake and awareness of the benefits of Roll Stability Systems (RSS) and to promote the sharing of near miss data. The project's goal was to create a practical, accessible system—including a web map and dashboard report—that allows industry participants to easily share and access near miss data. By highlighting findings and trends, the project aims to support drivers, fleet managers, and government road agencies in improving safety practices, including through toolbox talks, safety reports, and training resources. The funding supported industry engagement, data collection, and the development of technical tools to enhance safety outcomes across the bulk tanker industry.

1.2 Project objectives

The aim of this project was to leverage existing Roll Stability System (RSS) technology already fitted to bulk tanker fleets to identify near miss events and ultimately use this data to improve safety and eliminate rollover incidents. The project objectives are:

- Increase industry awareness and understanding of the benefits of Roll Stability Systems (RSS).
- Facilitate the collection and sharing of near miss incident data across the bulk tanker sector.
- Develop an accessible online system (web map and dashboard report) to share near miss data with industry stakeholders.
- Provide practical tools and templates (such as safety reports) that can be used by drivers, fleet managers, and government agencies to identify near misses and measure safety performance.
- Support the use of shared data to enhance driver training, toolbox talks, and safety initiatives aimed at reducing rollover and loss-of-control incidents.

1.3 Expected outcomes

The expected outcomes of this project were to increase awareness of the benefits of Roll Stability Systems (RSS) and the value of the data generated by these systems across the bulk tanker industry. The long-term goal is to achieve a measurable reduction in rollover and loss-of-control incidents. By developing and launching a user-friendly online platform (web map and dashboard), the project aimed to make near miss data accessible and actionable for drivers, fleet managers, and government agencies.

Therefore, the project was expected to foster a stronger safety culture by:

- Enabling industry-wide sharing of near miss events and trends.
- Improving understanding of rollover risk factors through real-world data.
- Making it easier for operators to interpret large datasets and identify key events that require action.
- Increasing interaction between fleet managers and drivers to discuss safe driving practices, supported by data and an evidence base for safety performance.

1.4 Scope of work

The project comprises the following key tasks:

- Engagement with operators to increase awareness of benefits of reviewing near miss data
- Activation of RSS data sharing with participating transport operators
- Develop an interactive web map to receive and display near misses
- Prepare safety action plans, for roads, drivers and vehicles, based on analysis of near misses
- Share and promotion of action plans with road managers, operators and drivers.

1.5 Project milestones and delivery schedule

Table 1 lists the project milestones and completion dates.

Table 1: Milestones and delivery schedule

ITEM	MILESTONE	DATE FOR COMPLETION
Milestone 1	Execute Agreement.	February 2024
Milestone 2	Complete Stage 1 - Planning	March 2024
Milestone 3	Complete Stage 2 - Industry Engagement	May 2024
Milestone 4	Complete Stage 3 - Data Collection	July 2024
Milestone 5	Complete Stage 4 - Development of Web Map and Safety Reports	December 2024
Milestone 6	Complete Stage 5 - Presentation of Findings	February 2025
Milestone 7	Complete project evaluation	May 2025
Final Report	Deliver Final Report	May 2025

1.6 Report layout

The layout of this report is as follows:

- **Background**: the context for the project, relating to safety and the use of EBS and RSS technology applicable to the transport of bulk dangerous goods.
- **Stage 1 – Planning**: a description of the activity and tasks completed during stage 1 of this project.
- **Stage 2 – Industry engagement**: a description of the engagement with industry including meetings, events and workshops completed as part of stage 2 of this project.
- **Stage 3 – Data collection**: a description of the data collection method, participating fleets, data fields and analysis completed as part of stage 3 of this project.
- **Stage 4 – Development of web map and safety reports**: a description of the technology stack, the interactive web map and the template for safety reports.
- **Conclusion and findings**: a summary of key findings, project outcomes and next steps for the continual improvement of safety and the data requirements, metrics and system requirements for measuring trends over time.
- **Evaluation**: an evaluation of the project including what was done well and what could be improved.

2 Background

Heavy vehicle rollovers remain a major safety issue. Despite the advancements in technology, rollovers continue to cost lives and we are unable to provide a current national picture of the heavy vehicle rollover problem. We do not currently have the data nor the mechanism to understand the effects of rollovers on road trauma and related cost.

For too long the approach to solving the rollover problem has been reactionary - after a rollover event there is an investigation into why it happened - this is too late, and we can do better.

The Electronic Braking Systems (EBS) and Roll Stability Systems (RSS) technology provides an opportunity to collect near miss data, which will be the foundation of this safety project. If near miss data is used correctly it will allow us to put in place solutions to stop rollovers before they happen. The sharing of this near miss data gives drivers, operators and road managers visibility on the number of near miss events that occur and where on the road network they are occurring.

This information will allow for targeted solutions to make both our vehicles and roads safer and inform drivers, all working to prevent rollovers from occurring.

2.1 Continual improvement at a national level

This project draws upon data collected from national fleets and is scalable on a national level. The scope is national, but the learnings are specific to local and specific freight tasks. i.e. the solutions for a milk tanker operating on rural roads. The benefits include:

- Increased awareness of RSS and the benefits of data sharing
- Detailed information on near misses to Identify causality for immediate improvement and targeted solutions
- Immediate feedback on driver behaviours and risks to prevent crashes before they occur
- Identification of high-risk areas in roads, loads and vehicles.

The sharing of information is relevant to tanker operators but also applicable to all road freight transport.

2.2 Industry need

Rollovers remain a major safety issue for the heavy vehicle industry.

A study by the NBTA showed that rollovers accounted for 48% of bulk tanker incidents between 2016-2019. The 2015 NHTSA study found that approximately 36% of heavy vehicle rollover crashes are fatal to the truck driver and approximately 41% of rollover crashes result in incapacitating injury.

Milk tankers are over-represented in heavy vehicle rollovers

NTI data shows that milk tankers are 2.4 times more likely to be involved in a major crash than other freight transport. The freight task is such that it makes rollover indicators difficult for even an experienced driver to predict. This project will inform drivers and fleet managers of the risks and allow for preventative measures to be put in place.

Learning from crashes is too late and the sample size is too small.

Using crash data to measure the safety of your heavy vehicle fleet, is too late and reactionary. A national map of near miss data, will be invaluable to a fleet operator, informing the risk associated with different routes and freight tasks, the learnings could become a standard part of their regular safety toolbox talks.

The timing is right.

There is now enough data from vehicles fitted to map our network for risk. RSS technology makes it possible to record near miss data, the long-standing mandatory requirement (in NSW) for bulk DG tankers to be fitted with RSS and the more recent requirement for all new trailers to be fitted means there is a number of fleets that can share information on where rollover intervention events (near misses) are occurring.

3 Summary of completed activities

The project followed a structured sequence of 5 key activities:

1. **Planning** – Formation of the project working group, establishment of timelines, and development of consent forms and governance structures to guide project delivery.
2. **Engage** – Worked closely with operators to increase awareness of the benefits of reviewing near miss data, fostering early buy-in and commitment to the project.
3. **Activate** – Enabled RSS data sharing with participating transport operators, setting up the technical infrastructure to collect and process near miss data.
4. **Develop** – Built an interactive web map and dashboard to receive, display, and analyse near miss data, providing a live tool to inform safety improvements.
5. **Share and promote** – Disseminated key findings widely to road managers, operators, and drivers through presentations, workshops, and reports, supporting sector-wide learning and safety culture enhancement.

Each activity was aligned with the broader timeline and milestones and delivery of the project objectives.

The key tasks, deliverables and milestones associated with each of the 5 key activities are summarised in the following sections.

4 Stage 1 – Planning

Stage 1 of the project included the following tasks:

- Engage with key stakeholders, suppliers and industry to form:
- ***Project Steering Committee*** – this group will set the direction of the project and will include those who will receive the outputs (i.e. operators).
- ***Project Working Group*** – this group will focus on project delivery and technical requirements and comprise suppliers and subject matter experts.
- Develop a ***Stakeholder Engagement Strategy*** and Implementation Plan.
- Develop ***Data Collection Plan*** including the data sharing consent forms.
- Develop Evaluation Plan.

4.1 Objective of stage 1

To engage key stakeholders in the bulk tanker sector to support the project aimed at reducing the number of rollovers involving milk tankers by leveraging data and insights from EBS/RSS systems, telematics, and other relevant sources.

4.2 Key stakeholders

At project inception the following broad groups with some examples of each group were listed, as shown below.

6. Transport operators (bulk tanker sector) e.g. Toll, FBT West, McColls, Booth.
7. EBS and RSS Suppliers e.g. WABCO, Knorr-Bremse, Air Brake Systems.
8. Telematics Service Providers e.g. MTData, V-DAQ, Mix Telematics.
9. Manufacturers and suppliers e.g. Byford Tankers, Tieman Tankers, SAF Holland.
10. Industry associations and service providers e.g. NTI, HVIA, ALRTA

4.3 Project steering committee

A project steering committee was formed. The members included Anthony Germanchev, Justin Keast, Cameron Dunn, Mark Anderson, Tony Miller, Les Bruzsa.

The role of this committee is to provide guidance and direction relating to the scope of the project, milestone delivery and value to participating operators.

4.4 Project working group

In addition to the project steering committee a project working group was also formed. The role of the project working group was to focus on the project delivery and the tasks required to complete each project milestone. These tasks were more technical, compared with the strategic direction provided by the steering committee. The project working group required expert knowledge and industry experience. In addition to the project delivery the working group members included representatives from EBS suppliers: Glenn Hambleton (Air Brake Systems), Wayne Durrant (WABCO), Christian Sarafiloski (ZF), Rachel Michaud (Knorr-Bremse), Alex Biviano (Knorr-Bremse), Kelvin Nicholson (LSM Technologies).

4.5 Stakeholder engagement strategy

The Stakeholder Engagement Strategy was prepared by the NBTA and aims to identify and involve all relevant parties, including industry representatives ensuring their active participation throughout the project.

The Stakeholder engagement strategy focuses on:

- Identifying and involving key stakeholders: Ensuring all relevant parties, including industry representatives, fleet managers, drivers, safety regulators, and technology providers, are identified and actively involved throughout the project.
- Effective communication: Establishing clear and consistent communication channels to keep stakeholders informed about project progress, developments, and outcomes, fostering transparency and trust.
- Collaboration and partnership: Encouraging collaborative efforts among stakeholders to share knowledge, experiences, and best practices, enhancing the overall effectiveness of the project.
- Feedback and improvement: Creating mechanisms for stakeholders to provide feedback, which will be used to continuously improve the project's processes and outcomes.
- Education and awareness: Promoting education and awareness activities to highlight the benefits of RSS and data sharing, thereby driving increased adoption and utilization within the industry.

The Stakeholder Engagement Strategy includes a list of actions and timeline for completion.

The completion of this strategy document aligns with the deliverable for Milestone Stage 1 – Planning.

See attachment: ***NBTA-HVSI-824 Stakeholder Engagement Strategy.pdf***.

4.5.1 Data collection plan

The Data Collection Plan was prepared by the NBTA. The aim of the plan is to collect and analyse Electronic Braking Systems (EBS) data to enhance the safety of vehicles transporting bulk liquids, including both dangerous goods (DG) and non-dangerous goods, and achieve the key objectives of the project.

Key objectives for the Data Collection Plan are:

Data Collection:

Ensure the systematic and comprehensive collection of Electronic Braking Systems (EBS) data, including vehicle operational metrics, incident reports, and environmental conditions, to support detailed analysis and insights.

Data Quality and Integrity:

Ensure the data received is fit for purpose by maintaining its data quality and integrity, and ensuring that the collected data is accurate, complete, and reliable for analysis and decision-making.

Accessible and Usable:

Develop an intuitive and user-friendly online system comprising a dashboard, web map, and reporting tools, making data easily accessible and usable for all stakeholders, including fleet managers, drivers, and road managers.

Actionable Insights and Reporting:

Analyse the collected data to generate actionable insights via the online dashboard or in the form of safety reports on near misses and other safety-related incidents, providing valuable information for improving safety practices (within a fleet) and informing decision-making processes for transport operators and road managers.

The Data Collection Plan includes a list of actions and timeline for completion.

The completion of this strategy document aligns with the deliverable for Milestone Stage 1 – Planning.

See attachment: ***NBTA-HVSI-824 Data Collection Plan.pdf***.

4.5.2 Evaluation plan

The Project Evaluation Plan was prepared by the NBTA. The aim of the evaluation plan is to provide a framework to complete a comprehensive evaluation of the achievements, challenges, and lessons learned at the completion of the project.

The evaluation method combines quantitative data analysis and qualitative feedback from stakeholders. Data sources included system usage statistics, survey responses from industry participants, feedback from workshops and focus groups, and industry-wide safety performance data.

The completion of this evaluation plan aligns with the deliverable for Milestone Stage 1 – Planning.

See attachment: ***NBTA-HVSI-824 Project Evaluation Plan.pdf***.

5 Stage 2 – Industry engagement

The NBTA has undertaken extensive industry engagement. The industry engagement activities were completed in line with the Stakeholder Engagement Plan and are listed below.

Engagement actions undertaken:

1. Stakeholders Identification
2. Outreach
3. Creation of Project Steering Committee
4. Creation of Project Working Group
5. Engagement, Collaboration and Involvement

5.1 Identification, outreach and working groups

1. Stakeholders Identification		
Item	Activities	Comments
Listed potential stakeholders, categorizing them by their roles		
1.1	Transport operators (bulk tanker sector) • Toll • FBT Transwest • McColl's Transport • Select/Elgas • Coogee Chemicals • Booth • Campbell Petroleum • Keast Tankers • Linfox • Ron Finnemore Transport • Centurion • Emerald Carrying Company • Monaro Fuels. EBS and RSS Suppliers • WABCO • ZF • Knorr-Bremse • Air Brake Systems • LSM Technologies. Telematics service providers • MTData • V-DAQ • M2X • Mix Telematics.	Operators were contacted via email and direct phone calls and invited to participate and attend information sessions to learn more about the project.
Engage with Industry Associations		
1.2	The NBTA engaged with the following associations to increase awareness: • Heavy Vehicle Industry Australia (HVIA) • Queensland Trucking Association (QTA) • Australian Livestock and Rural Transporters' Association (ALRTA) • Livestock and Rural Transporters Association of Queensland (LRTAQ).	

2. Outreach		
Item	Activities	Comments
Create information materials		
2.1	The NBTA prepared a PowerPoint presentation that provided an executive summary of the project. Variations of the presentation material have been created to cater for presentations and information meetings. The material includes demonstrations and screen captures of the beta version of the online web map and dashboard.	See attachment: *NBTA HVSI 824 exec summary.pdf*
Send introductory emails and letters to identify stakeholders		
2.2	The NBTA included information about the HVSI project and invited stakeholders via email communication directly with identified operators and via the NBTA Newsletter in the February and March editions of 'Tanker Talk'.	
Schedule initial meetings or calls to discuss the project		
2.3	The NBTA held regular meetings with operators and suppliers in person and via teams and followed up with email and phone calls to promote participation.	

3. Creation of Project Steering Committee		
Activities		Comments
3.1	The Project Steering Committee was formed within the first month of the project commencing. Members included Anthony Germanchev, Justin Keast, Cameron Dunn, Mark Anderson, Tony Miller, Les Bruzsa.	

4. Creation of Project Working Group		
Activities		Comments
4.1	The Project Working Group was formed within 2 months of the project commencing. Members included: project delivery staff and representatives from EBS suppliers: Glenn Hambleton (Air Brake Systems), Wayne Durrant (WABCO), Christian Sarafiloski (ZF), Rachel Michaud (Knorr-Bremse), Alex Biviano (Knorr-Bremse), Kelvin Nicholson (LSM Technologies).	

5.2 Engagement, collaboration and involvement

The NBTA held meetings via Teams and phone to identify participants within the NBTA membership. The project was also promoted to a wider audience outside of the NBTA membership by presenting at the following meetings/events.

- 20 February 2024 – NBTA General Meeting, Sydney, VIC.
- 15 March 2024 – HVIA meeting, Port Melbourne, VIC.
- 22 March 2024 – LRTAQ/ALRTA Conference, Toowoomba, NSW.
- 28 March 2024 – NHVR/Knorr-Bremse meeting, Anglesea, VIC.
- 30 April 2024 – AAA road safety workshop Brisbane, QLD.

5.2.1 Engagement with bulk tanker industry

Figure 5.1 shows the NBTA General Meeting in Sydney, at which the project was announced and open to NBTA members and non-members in attendance to participate.

Figure 5.1 NBTA General Meeting held in Sydney, February 2024

5.2.2 Collaboration with the broader industry

The NBTA and Australian Livestock and Rural Transporters' Association (ALRTA) worked in collaboration to increase awareness of the benefits of RSS systems and the value of sharing data available from these systems. This collaboration was highlighted at the ALRTA Annual Conference at which the NBTA was invited to present an update on the Learning from Near Misses project.

Figure 5.2 shows Anthony Germanchev, Athol Carter and Adam Gibson at the ‘braking habits’ panel session at the ALRTA Annual Conference.

Figure 5.2 LRTAQ/ALRTA Conference, Toowoomba, NSW.

Figure 5.3 shows the NBTA participating in the Automobile Association Australia (AAA) workshop held in Brisbane on 30 April, 2024. The NBTA was inited to atteand and share the early learnings from using near miss data

Figure 5.3 AAA Safety Research Program workshop, Brisbane.

6 Stage 3 – Data collection

Data collection commenced in April 2024 with two operators: FBT Transwest and Kel Campbell Petroleum.

The data collection was conducted in line with the data collection plan which outlined two steps prior to receiving data:

1. Define data requirements
2. Define scope of data collection
3. Review of data sources.

6.1 Define data requirements and scope of data

The data requirements were reviewed, and the following datasets were listed as the minimum requirements to meet the project objectives.

1. RSS events
2. EBS alarms and alerts
3. Vehicle ID
4. Location and time
5. Base map for displaying data.

The following datasets were listed as optional:

- Vehicle operational data (speed, braking events, etc.)
- Environmental data (road conditions, weather).

6.2 Review of data sources:

A review of the following data sources was conducted:

- On-board vehicle sensors and EBS systems
- Vehicle telematics
- Fleet management systems
- Driver reports and logs
- Road geometry information
- Road crashes and external sources for environmental data.

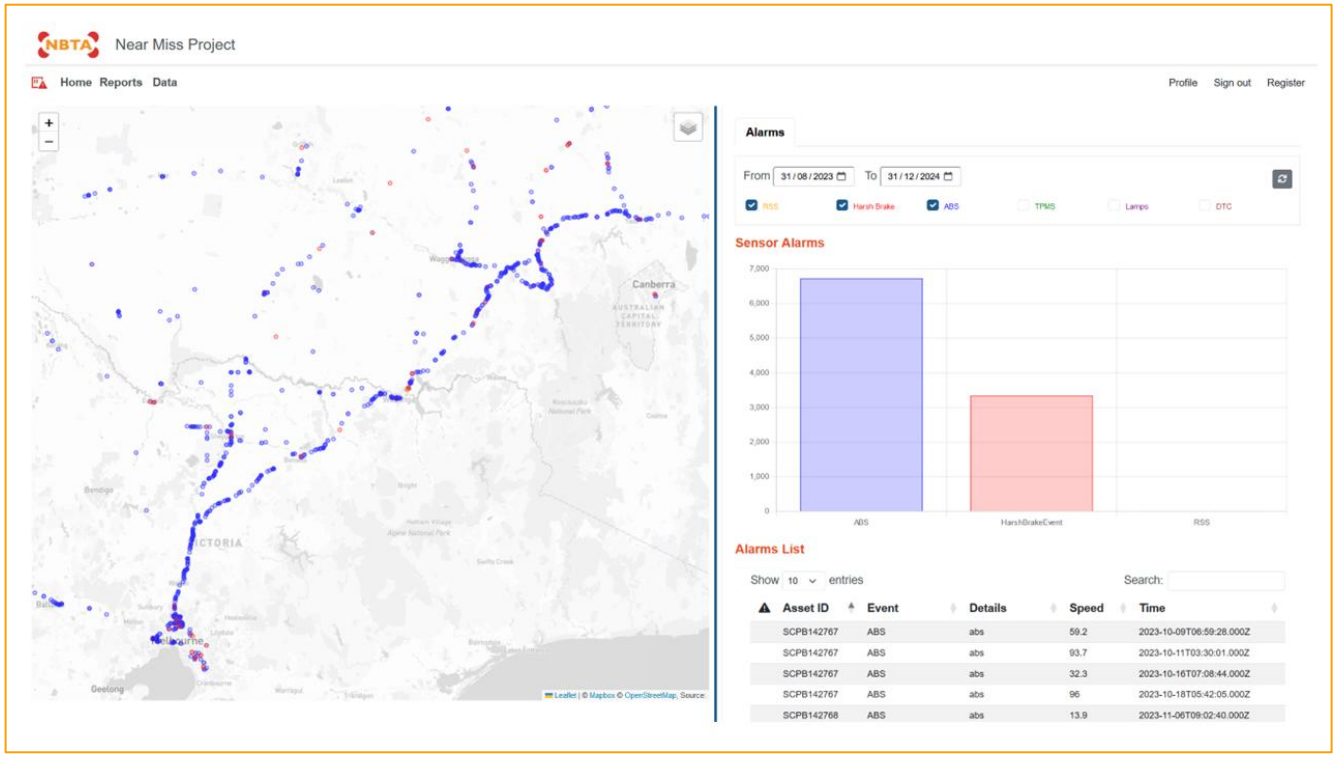
The review concluded that the required data (RSS events, EBS alarms, Vehicle ID and location and time) could all be sourced from on-board vehicle sensors and accessed directly via the EBS module. The data could be accessed via an API, physical data download or via the telematics service provider.

The base map required for displaying the data was accessible as an open dataset via OpenStreetMap.

7 Stage 4 – Development of web map

A beta version of the web map and online dashboard was developed in the early stages of the project for the purpose of checking and validating the data. This was presented at the "Learning from Near Misses" session at the NBTA annual conference in Melbourne in May, 2024. A screen capture of the Beta version of NBTA web map and online dashboard is shown in Figure 7.1.

Figure 7.1 Beta version of NBTA web map and online dashboard



7.1 Official launch and promotion

On 29 November, the Learning from Near Misses website was launched at the NBTA general meeting in Melbourne. On 4 March in Sydney an updated version of the website was presented.

The website landing page is shown in Figure 7.2

Figure 7.2 The NBTA website for learning from near misses

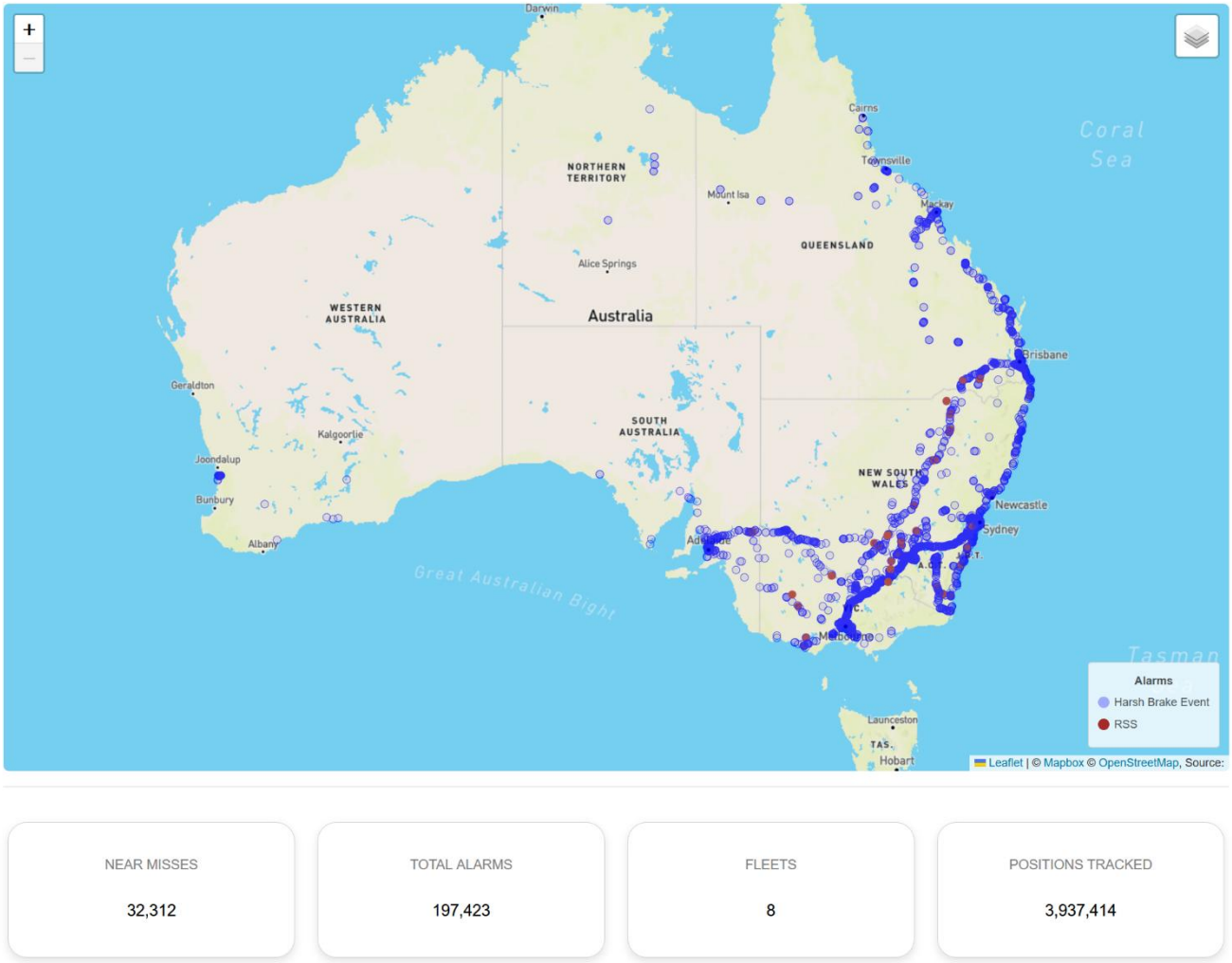
The website offers the following features:

- Public access safety map
- Online data dashboard
- Fleet specific web map
- Alarms summary
- Asset summary
- Safety Reports

7.2 Public access safety map

The web map accessible to the public via the *Rollscope* website is shown in Figure 7.3.

Figure 7.3 Learning from near misses web map accessible to public

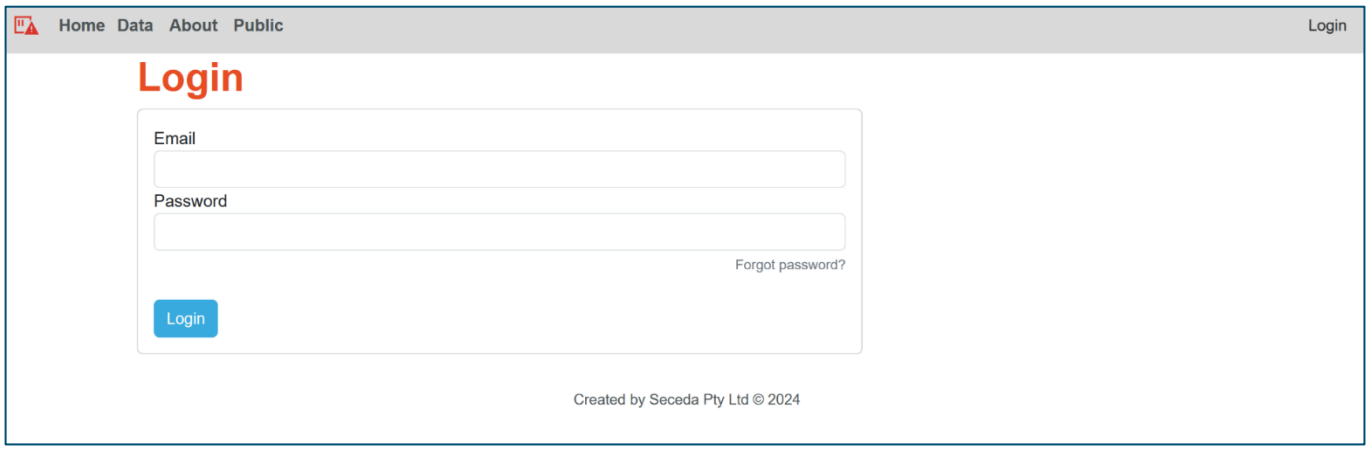


The publicly accessible map on the Rollscope platform provides a visual overview of near miss events and harsh braking incidents captured by Roll Stability Systems (RSS) across participating fleets. To ensure privacy and data security, the map includes only aggregated and de-identified data, displaying RSS activations and harsh braking events without revealing fleet-specific details. The map's zoom capability is deliberately limited to prevent identifying precise locations, offering further protection for operators and drivers. In addition to the interactive map, the page provides a real-time summary of key statistics—including total alarms, near misses, fleets involved, and trailers tracked—offering users a snapshot of the scale and reach of the safety initiative. The page also includes information about the project's goals and the broader industry commitment to improving rollover prevention and road safety

7.3 Secure online data dashboard

The website includes a secure data dashboard. All participants were provided with their unique login credentials to access a user specific dashboard as shown in Figure 7.4

Figure 7.4 User specific dashboard via secure login



The website includes a secure **data dashboard** that offers participating operators detailed insights into their fleet's safety performance. Each participant was provided with unique login credentials to ensure secure and confidential access. Once logged in, users are directed to a customised dashboard tailored to display data specific to their fleet alone.

The dashboard presents a range of interactive features, including:

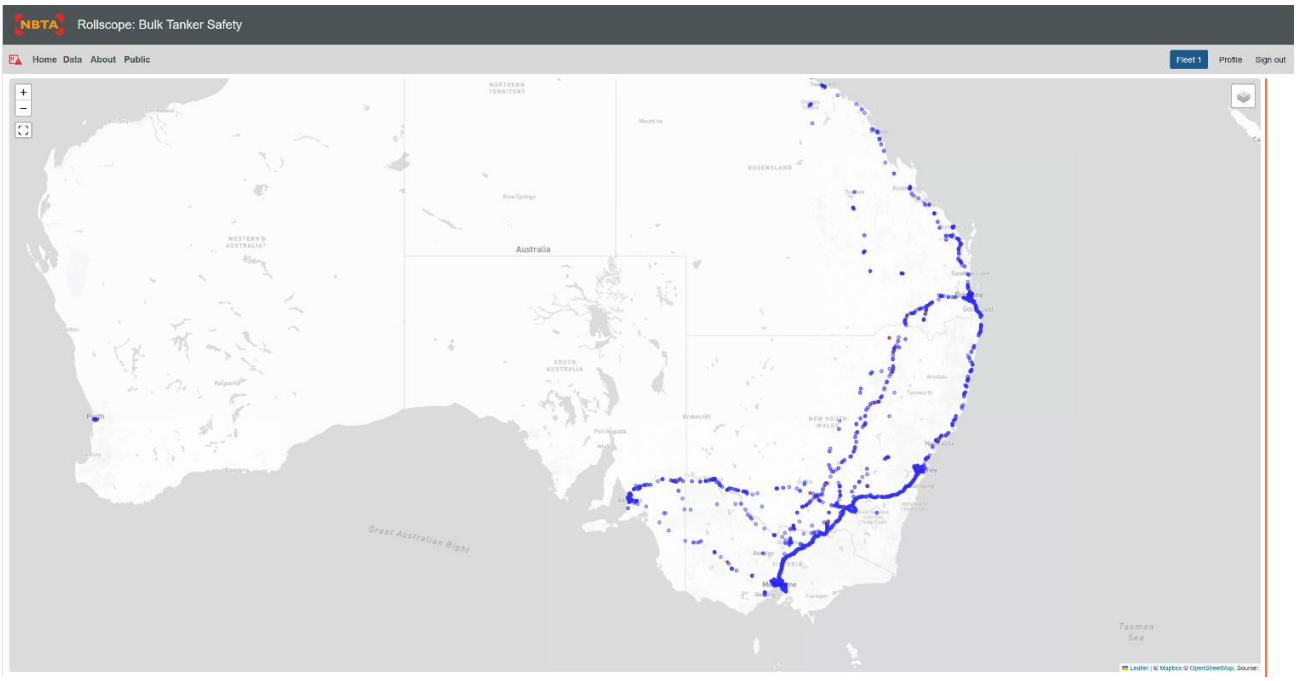
- A **fleet-specific map view** showing near miss events, RSS activations, and harsh braking incidents, allowing operators to identify risk patterns on their regular routes.
- **Trend analysis charts** that track alarm frequencies over time, helping users monitor improvements or emerging issues.
- **Asset summaries** detailing the performance of individual trailers and vehicles, including incident counts and system health indicators.
- **Alarm summaries** that categorise incidents by type, location, and severity, supporting targeted interventions.
- **Downloadable safety reports** that can be used in toolbox talks, internal reviews, and compliance audits.

This secure dashboard empowers operators to move beyond aggregated public data and take meaningful, data-driven action within their own operations, driving continuous safety improvements.

7.3.1 Fleet specific map view

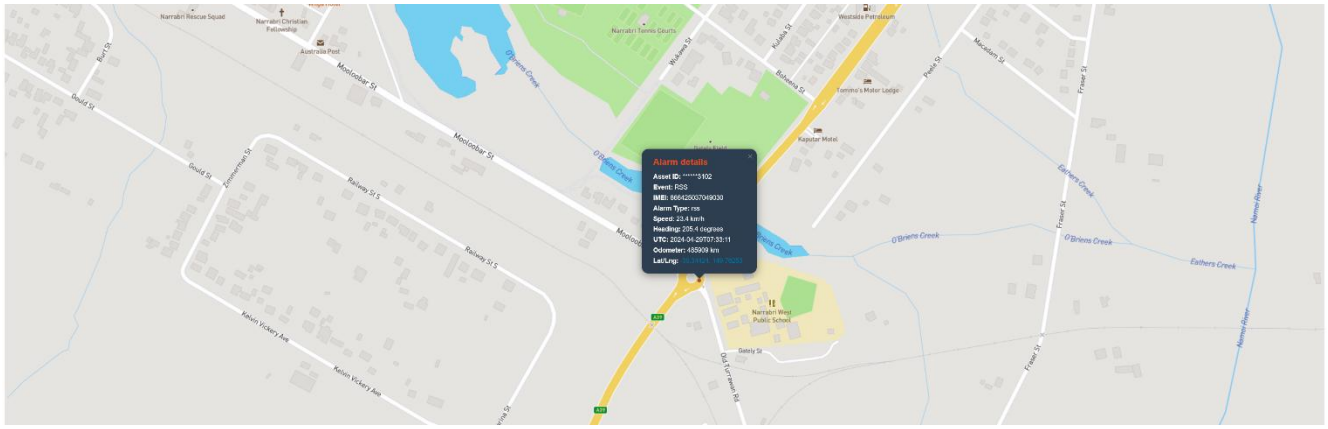
Figure 7.5 shows the fleet-specific detailed map available within the secure dashboard.

Figure 7.5 Fleet specific map view



Unlike the public-facing map, which displays only aggregated and de-identified data with limited zoom capability, this map provides full access to granular event data for participating operators. Users can zoom in fully to examine specific locations and select individual near miss or alarm events directly on the map. Clicking on an event reveals detailed information, as shown in Figure 7.6, such as the type of alarm, timestamp, asset ID, and precise location data. This level of detail allows fleet managers to identify exact locations of near misses or safety-critical events and cross-reference incidents with route characteristics (e.g., road geometry, tight curves and roundabouts).

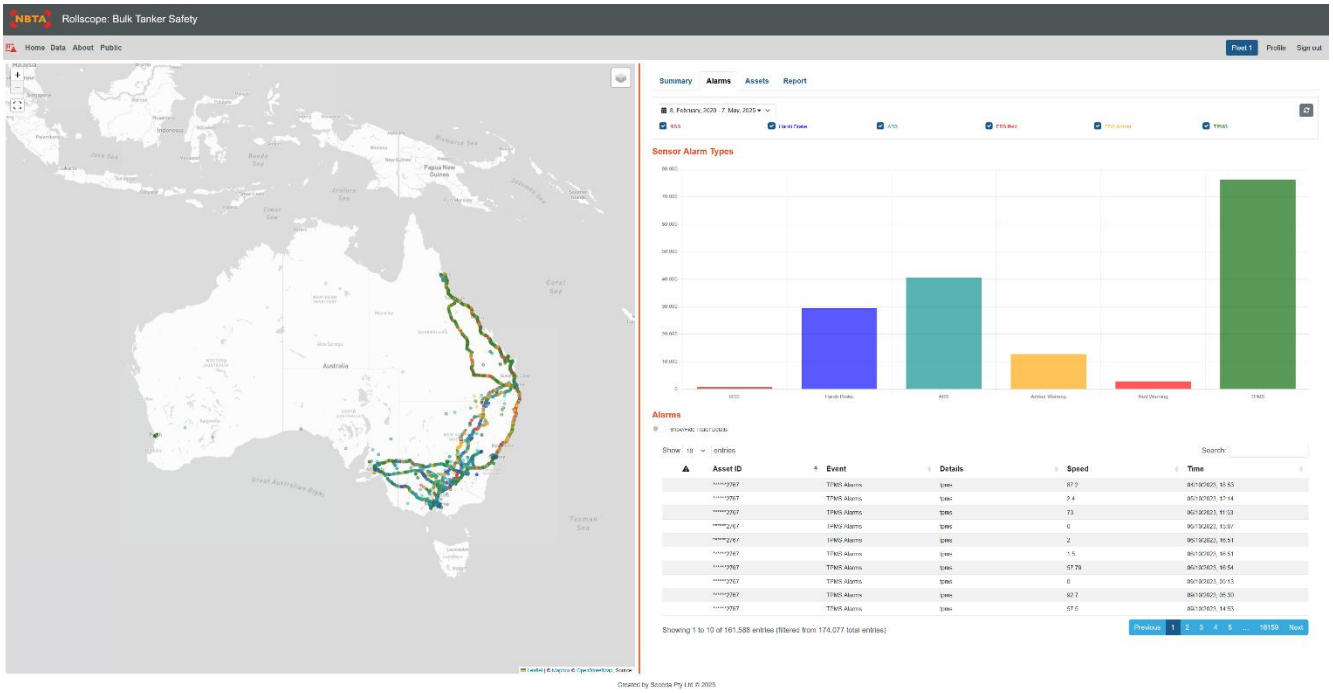
Figure 7.6 Details included in near miss event



7.3.2 Alarms summary

Figure 7.7 displays the alarms summary view within the fleet-specific dashboard. This section provides operators with a comprehensive overview of alarm activity across their fleet. The map on the left shows the geographical distribution of alarm events, while the right-hand side features a detailed bar chart breaking down the types of alarms recorded—such as RSS activations, harsh braking, and other sensor alerts.

Figure 7.7 An example of the alarms tab summary provided in the fleet specific dashboard



Below the chart, a sortable table lists individual alarms with key details including asset ID, event type, specific alarm details, vehicle speed at the time of the event, and exact timestamps.

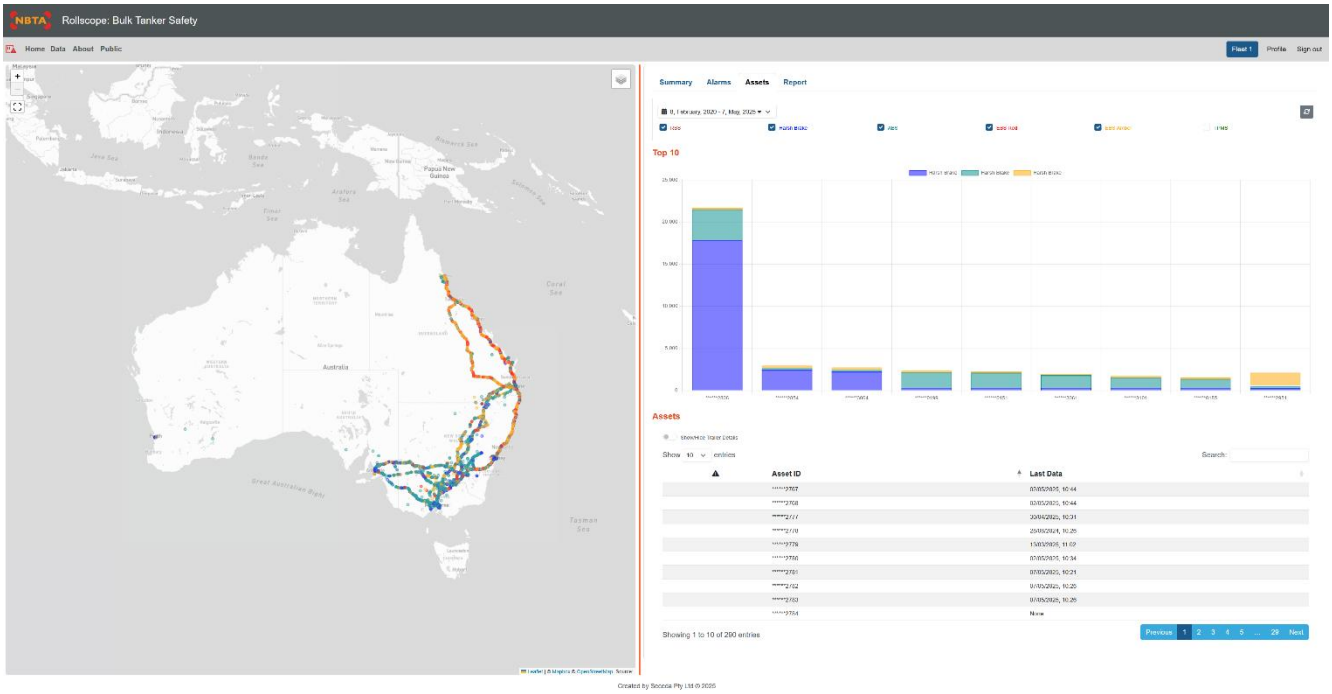
This feature allows fleet managers to:

- Quickly assess the most common types of alarms occurring within their fleet.
- Identify patterns in alarm activity across different routes and vehicle types.
- Drill down into individual alarm records to investigate specific incidents in detail.
- Track alarm trends over time to evaluate the effectiveness of safety interventions or identify emerging risks.

7.3.3 Assets summary

Figure 7.8 shows an example of the asset summary view provided in the fleet-specific dashboard.

Figure 7.8 An example of the asset summary provided in the fleet specific dashboard



This interface combines a fleet map with data visualisations. On the left, the map displays the routes where monitored trailers have travelled, with near miss events and alarm types colour-coded for easy interpretation. On the right, the dashboard presents a bar chart summarising the top assets by alarm frequency, alongside a detailed table listing each asset's ID and key metrics such as the last date of recorded alarms.

For fleet managers, this tool offers significant value by making it easy to identify which assets are most frequently triggering alarms, helping to prioritise maintenance or training interventions.

7.3.4 Safety report

Figure 7.9 An example safety report showing comparison of Fleet 3 with industry averages

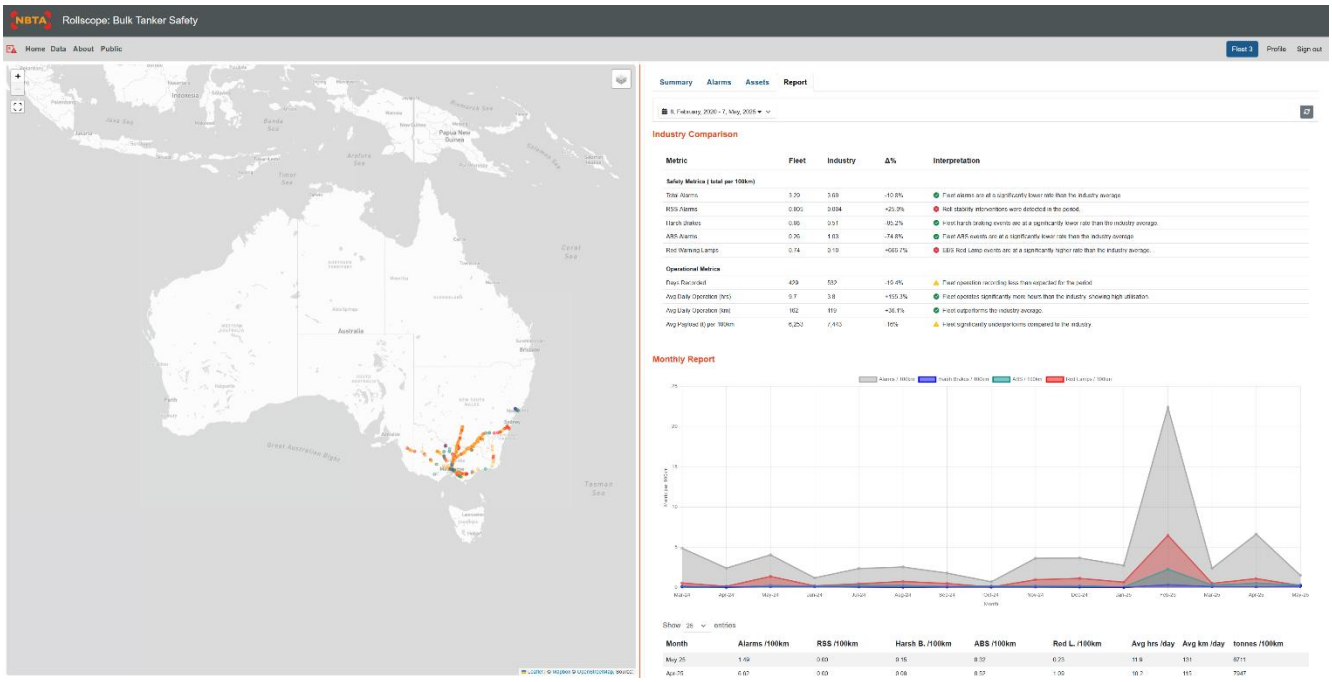


Figure 7.10 shows an example report which allows operators to view normalised high-level safety and operational metrics for their specific fleet as well as in comparison to the wider industry (all fleets). The metrics include:

- Total alarms and warnings per 100km travelled by type
- Average daily operation time, distance and payload carrier per 100km

A graph and table at the bottom of the report compares monthly performance.

7.4 Resources available to industry

The website landing page is available at rollscope.seceda.au. The *Rollscope* website provides an interactive online platform that visualises near miss events captured by Roll Stability Systems (RSS) across participating bulk tanker fleets. The site offers a live web map where users can explore de-identified incident data, showing where rollover intervention events have occurred nationally. It presents key safety insights and trends that help operators, fleet managers, and road authorities identify high-risk locations, vehicle types, and driving conditions.

The platform is designed to support safer operations by making it easy to interpret near miss data, promote proactive safety measures, and guide discussions between drivers and managers on safe driving practices. *Rollscope* is a practical resource that can be used in safety briefings, toolbox talks, and ongoing driver education.

7.5 Project timeline

The project was delivered over a 16-month period from February 2024 to May 2025, structured around five key stages:

1. **Planning (Q1 2024):** Formation of working groups, development of strategy documents, and preparation of consent forms.
2. **Industry engagement (Q2 2024):** Development of presentation materials, direct engagement with operators and suppliers, and collection of feedback to refine the project approach.
3. **Data collection (Q3 2024):** Commencement of near miss data collection from participating operators, alongside system testing and validation.
4. **Software development (Q4 2024):** Development and testing of the interactive web map, dashboard, and safety report templates.
5. **Presentation of findings (Q1–Q2 2025):** Launch of the web map, delivery of workshops, and preparation of the final report.

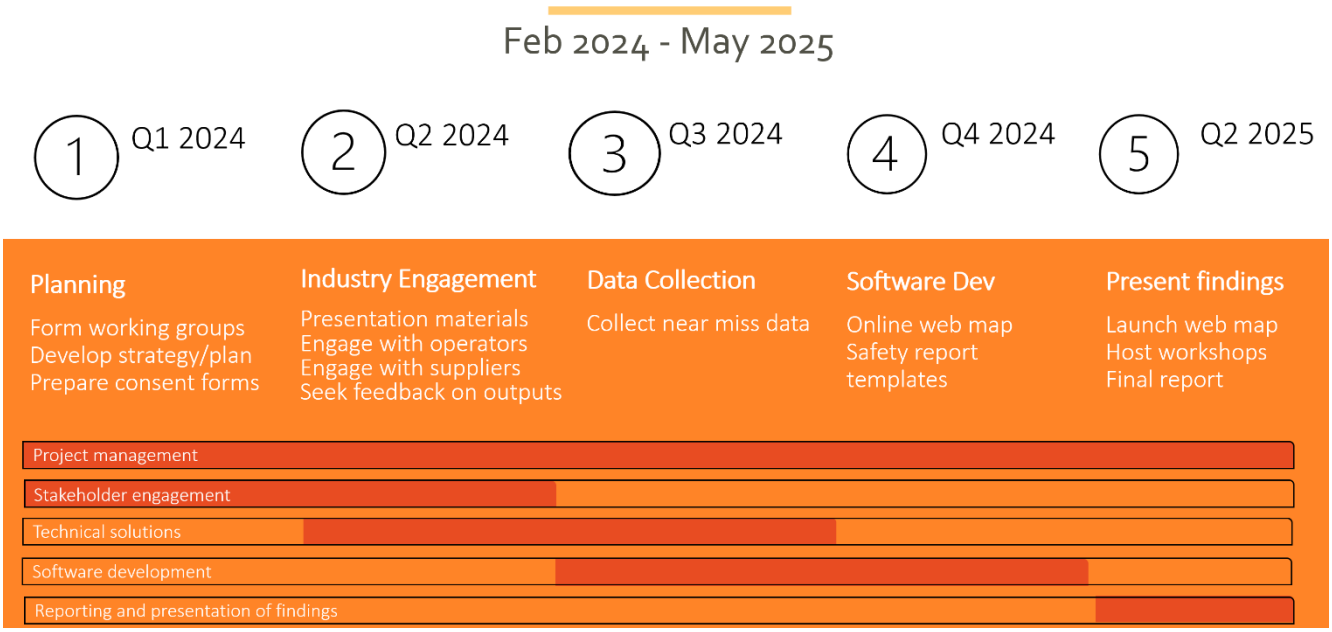
While the project generally progressed according to the planned schedule, there was a minor delay of approximately four weeks during the early engagement phase, primarily due to longer-than-expected onboarding and consent processes with some operators. Additionally, there were delays in establishing API connections with certain operators, which affected data collection from those fleets; however, data collection from other operators continued uninterrupted, and the broader project milestones remained on schedule.

It is also worth noting that some project delivery milestones coincided with key association events and activities, which caused minor delays when shared resources were required or when project approvals needed to be sought around those periods. Despite these overlaps, the project team effectively managed competing demands to maintain momentum and ensure that all critical deliverables were achieved within the overall timeframe.

Overall, the timeline was well-managed, with proactive adjustments made to keep key deliverables on track and maintain strong engagement across all stakeholder groups.

The project time is shown is shown in Figure 7.10

Figure 7.10 Project timeline



8 Conclusion and findings

The Learning from Near Misses project successfully demonstrated the value of leveraging Roll Stability System (RSS) data to enhance safety across the bulk tanker industry. The project met its key objectives of raising awareness about the benefits of RSS, building a practical online system to share and visualise near miss data, and providing industry with tools to translate data into actionable safety improvements.

The web-based platform, RollScope, now offers operators a powerful tool to visualise where near miss events are occurring, identify trends, and engage drivers in meaningful discussions about safety risks. Early feedback indicates that the system has already improved awareness of high-risk routes and strengthened safety conversations between drivers and managers.

When the project was first proposed, it was envisaged that the main value would come from identifying high-risk areas and providing easily accessible information to detect near miss events and enable prompt action. While this aim was achieved, a significant additional insight emerged: by reviewing the data, it became evident that a number of systems were experiencing faults or alarms that were preventing the RSS from functioning as intended. This finding highlighted an unexpected but critical safety issue, underlining the importance of not only capturing near miss data but also monitoring system health and functionality as part of proactive safety management.

Key findings include:

- RSS technology is an effective tool for identifying near miss rollover incidents and provides early warnings of potential safety hazards.
- Participating operators are motivated to use the data proactively to address risk, improve safety and include as part of driver education and feedback.
- The visual nature of the web map has been particularly useful for sharing insights and engagement with users across different levels of an organisation.
- Consistency in data formatting and API integration remain critical to broadening participation and including data from other systems.
- Industry collaboration and early engagement were essential to building trust and achieving strong buy-in from stakeholders.
- Unexpectedly, the project uncovered operational issues where RSS systems were not functioning correctly due to faults or persistent alarms, reinforcing the need for regular maintenance checks and fault monitoring alongside data analysis.

While the project successfully delivered on its goals, opportunities for further development have been identified, and in particular, expanding participation to a broader range of operators and systems.

Overall, the project has laid a strong foundation for continual improvement in rollover prevention, demonstrating that sharing and learning from near miss data and monitoring the operational health of safety systems are critical components of proactive safety management.

9 Evaluation

9.1 Project success:

9.1.1 Did you meet your expected outcomes/objectives?

Yes, the project met its primary objectives. Awareness of the benefits of Roll Stability Systems (RSS) and near miss data sharing increased significantly across participating operators and industry stakeholders. The *Rollscope* online platform was successfully developed and launched, making near miss data easily accessible through a web map and dashboard. Practical tools, including safety report templates and toolbox talk materials, were created and shared, and workshops and conference presentations helped embed safety learnings across the sector. Early feedback shows that operators have already used the data to inform driver discussions, contributing to a stronger safety culture.

9.1.2 Lessons learned

What worked well

- Strong collaboration between industry partners, including transport operators, EBS suppliers, and telematics providers, enabled smooth data-sharing processes. This was attributed to the strong and trusted existing relationships between the association, operators and service providers
- The staged consultation process helped refine the platform's design and ensured it met user needs. The use of specialised and dedicated contractors with the skills and experience to develop software and technology solutions was critical to the success of the project.
- The online platform (*Rollscope*) proved effective at visualising complex data in a way that is accessible and meaningful for both technical and non-technical users.

What didn't work well

- Initial onboarding of operators took longer than anticipated, largely due to varied internal approvals and differing levels of readiness to share data.
- Some technical challenges arose in integrating API connections with different telematics platforms, which required additional troubleshooting and support.
- While feedback from participating operators was strong, engaging a broader pool of smaller operators proved more difficult, likely due to resource constraints and varying levels of technological maturity across the sector.

What could be improved in the future

- Build in more time and dedicated resources for onboarding new participants, particularly smaller operators who may need additional technical and administrative support.
- Develop a standardised API and data-sharing toolkit to streamline integration with a wider range of telematics systems.
- Enhance post-launch training and support, including short videos and guides to help operators make full use of the platform.
- Expand promotional efforts to increase awareness among road authorities and encourage their active participation in using the data to identify high-risk road sections.

Gaps and Areas for Further Work

- Future work could focus on integrating environmental data (e.g., weather, road conditions) to enrich analysis and provide deeper insights into causality.
- There is an opportunity to link near miss data with crash investigation reports for deeper learning and validation of risk models.
- Additional research is needed to explore the application of near miss data in different freight sectors beyond bulk tankers.
- A long-term goal is to work with regulators to explore how aggregated near miss data might inform national safety strategies and infrastructure improvements.

Feedback and Survey Results

Initial feedback from workshops and surveys indicated that participants found the web map and dashboard useful or very useful for identifying risks and informing safety conversations. Participants highlighted the value of having a visual tool to engage drivers and to pinpoint high-risk locations on their routes. A majority expressed interest in continued participation and ongoing updates to the platform.

10 Future steps

10.1 Sustainability

The outcomes of the Learning from Near Misses project are designed to have lasting benefits for the bulk tanker industry. The *Rollscope* platform provides an ongoing resource that enables fleet operators, drivers, and road authorities to access near miss data and safety insights in real time. To ensure the continued value of this initiative, the NBTA has committed to sustaining the data collection service and keeping the web-based resources available for at least another 24 months beyond the grant period. This commitment includes system maintenance, updates, and user support to keep the platform functional and relevant.

As part of its ongoing development, the NBTA will also integrate new data points into the platform and most notably, the addition of Tyre Pressure Monitoring System (TPMS) alerts into the dashboard and safety reports. This enhancement will provide users with a more comprehensive view of vehicle safety performance, supporting even deeper safety analysis and preventative measures.

10.2 Next steps

The NBTA is actively planning to build on the success of this project through several key follow-up actions. In the immediate term, work is underway to implement the TPMS alert functionality, with testing and rollout scheduled within the next phase of the platform's enhancement. In parallel, the NBTA is seeking additional funding to develop tailored information and training materials that leverage the insights generated by the platform. These materials will focus on educating operators and drivers about the critical importance of maintaining trailer EBS and RSS system health, helping to close the gap between data insights and operational safety improvements.

Further engagement with operators and road authorities is also planned to promote broader participation, expand the dataset, and encourage adoption of the *Rollscope* platform as a routine part of fleet safety management. In the longer term, the NBTA aims to explore opportunities for scaling the initiative nationally and embedding near miss data reporting into wider safety frameworks and standards across the industry.

Appendix A

Appendix A.1 – Stakeholder engagement strategy

Cover page only. See attachment *NBTA-HVSI-824 Stakeholder Engagement Strategy.pdf*

Appendix B

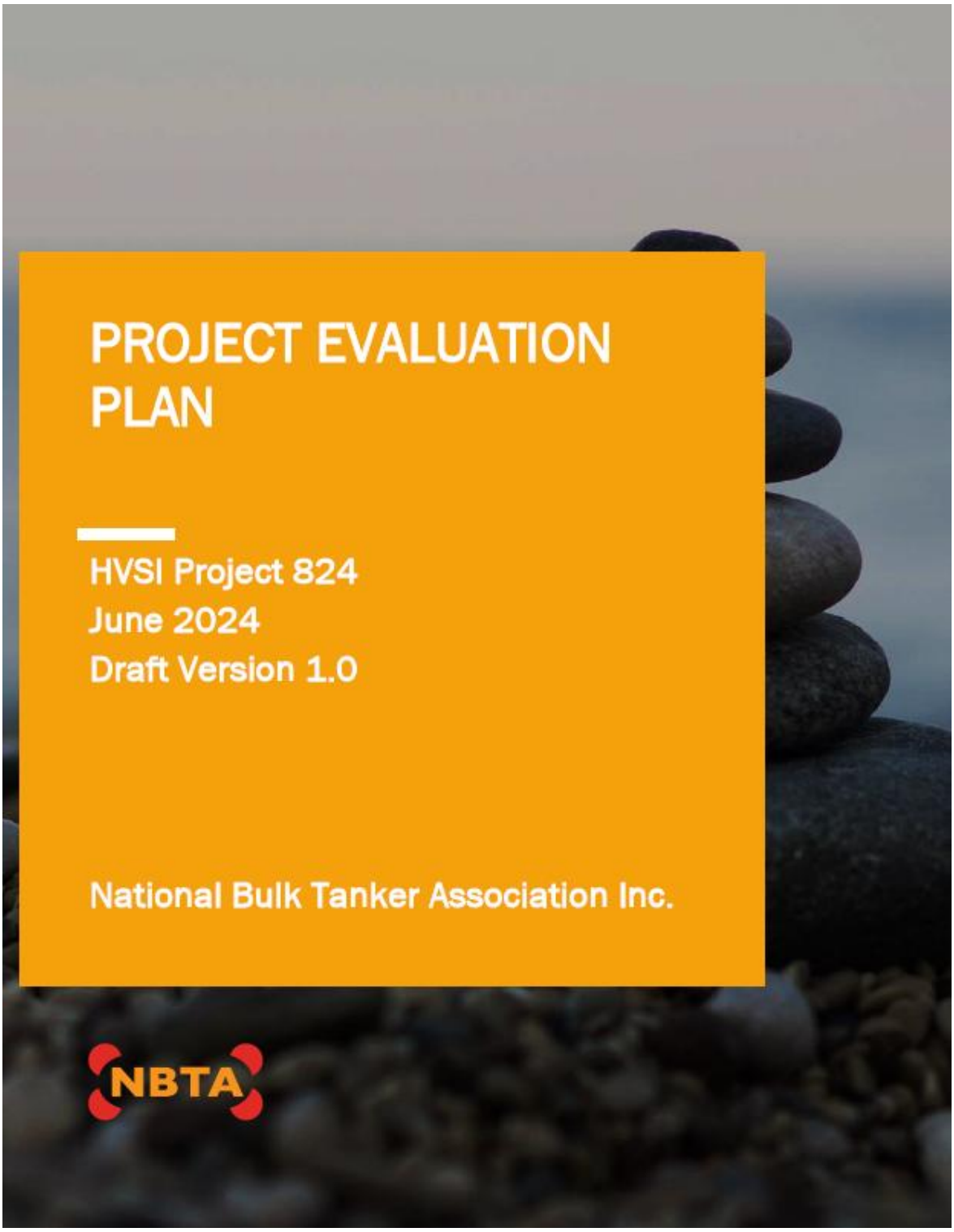
Appendix B.1 – Data collection plan

Cover page only. See attachment *NBTA-HVSI-824 Data Collection Plan.pdf*

Appendix C

Appendix C.1 – Project evaluation plan

Cover page only. See attachment *NBTA-HVSI-824 Project Evaluation Plan.pdf*

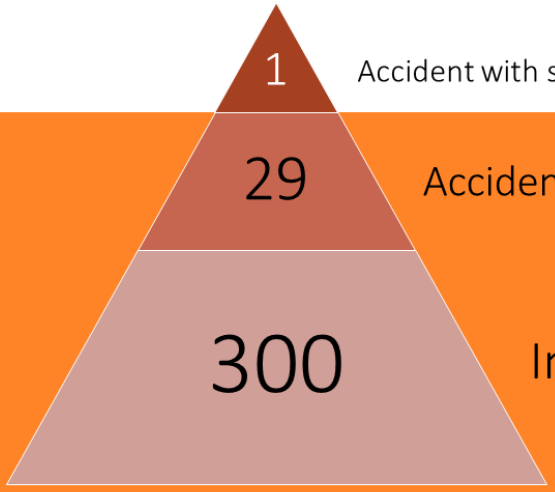


Appendix D

Appendix D.1 – Outreach presentation Feb 2024 (cover page only)

Appendix D.2 – Outreach presentation May 2024 (all slides)

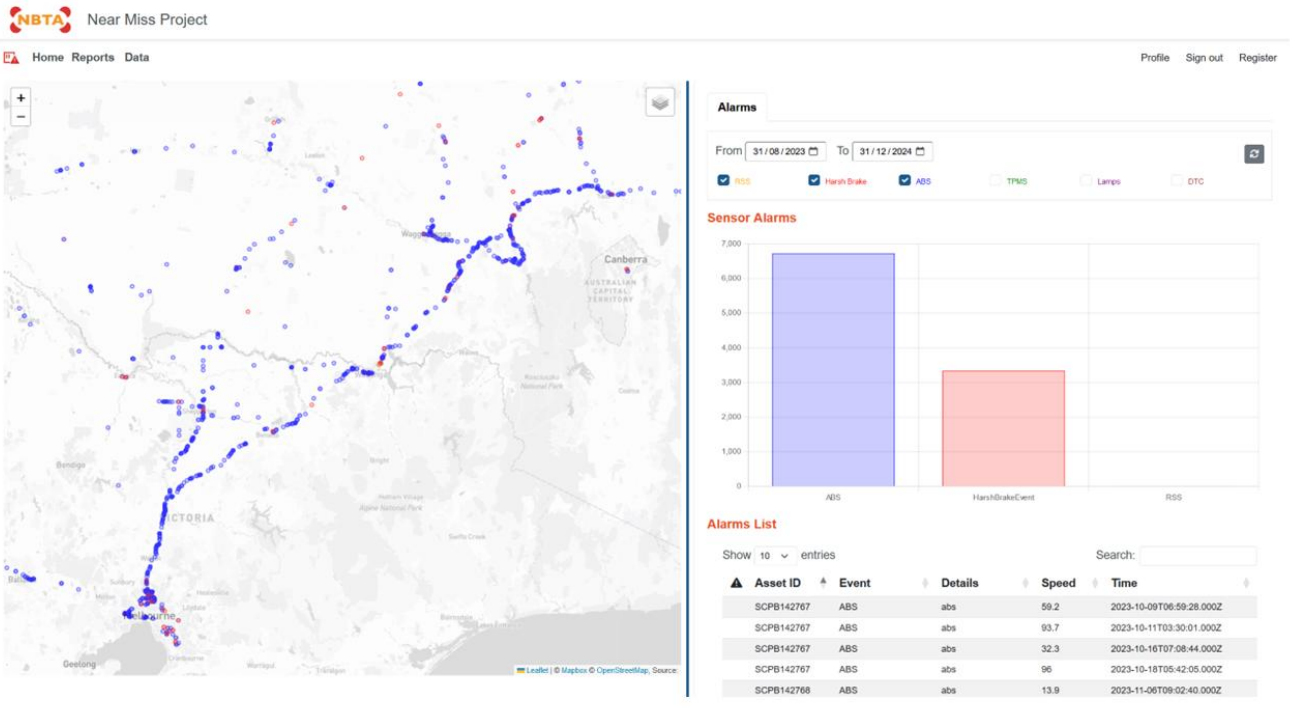
Near miss theory (Herbert Heinrich, 1931)

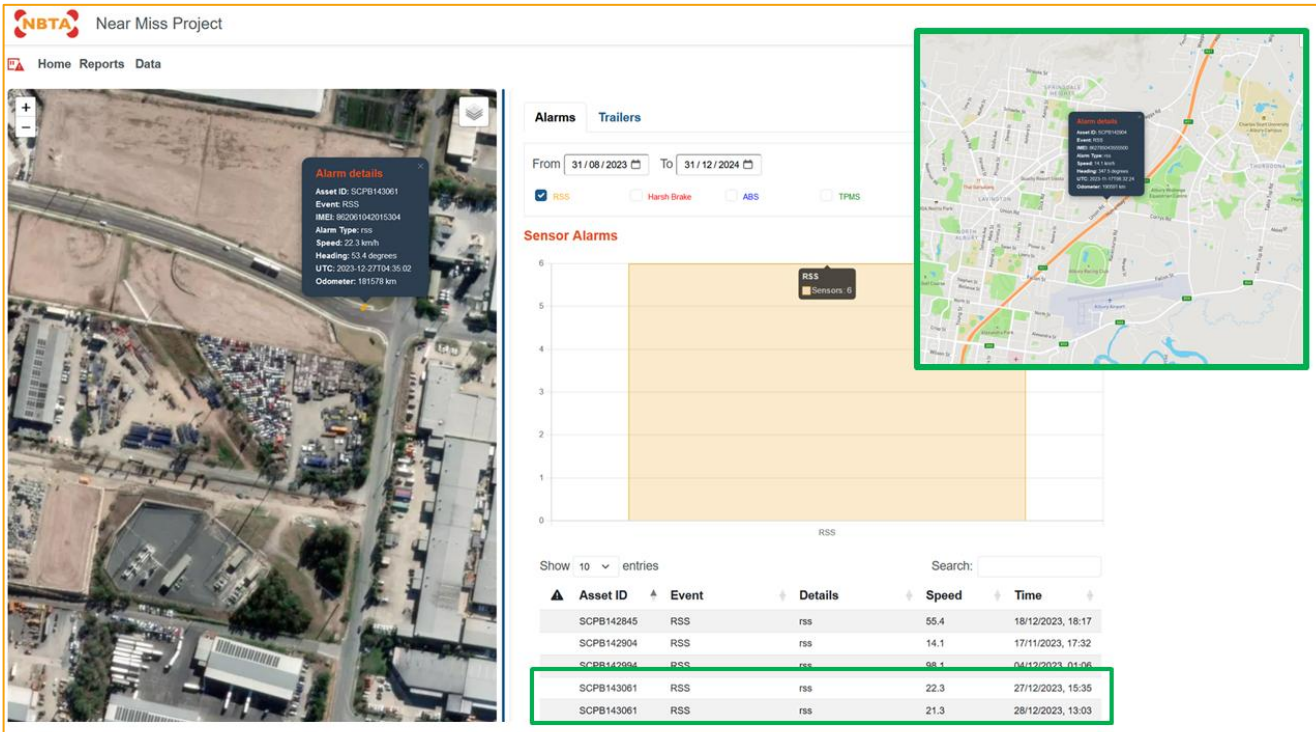


Accident with serious injury/fatality

Accidents with minor injury

Incidents (near misses)

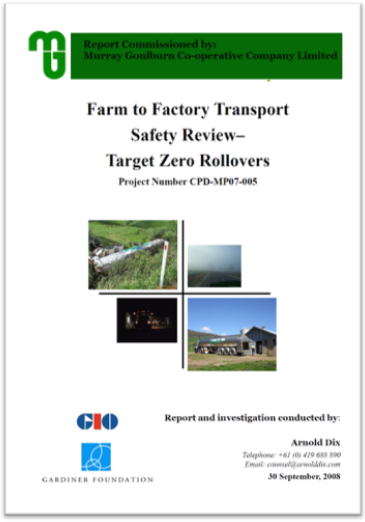




Project Outputs

- *Identify trends, high-risk areas, drivers at risk*
- *Generate local reports 'safety profiles'*
- *Share information with road managers*

Arnold Dix Report 2008



Report Commissioned by:
Murray Goulburn Co-operative Company Limited

Farm to Factory Transport Safety Review– Target Zero Rollovers

Project Number CPD-MP07-005

Report and investigation conducted by:

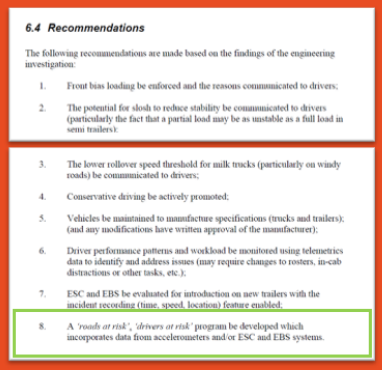
Arnold Dix

Telephone: +61 (0) 419 688 890
Email: counsel@arnolddix.com

30 September, 2008

GARDINER FOUNDATION

79 pages
8 recommendations



6.4 Recommendations

The following recommendations are made based on the findings of the engineering investigation:

1. Front bias loading be enforced and the reasons communicated to drivers;
2. The potential for slosh to reduce stability be communicated to drivers (particularly the fact that a partial load may be as unstable as a full load in semi trailers);
3. The lower rollover speed threshold for milk trucks (particularly on windy roads) be communicated to drivers;
4. Conservative driving be actively promoted;
5. Vehicles be maintained to manufacture specifications (trucks and trailers); (and any modifications have written approval of the manufacturer);
6. Driver performance patterns and workload be monitored using telemetrics data to identify and address issues (may require changes to rosters, in-cab distractions or other tasks, etc.);
7. ESC and EBS be evaluated for introduction on new trailers with the incident recording (time, speed, location) feature enabled;
8. A *'roads at risk', 'drivers at risk'* program be developed which incorporates data from accelerometers and/or ESC and EBS systems.

1. Front bias loading
2. Reduce fluid slosh

3. Educate drivers of rollover risk
4. Promote conservative driving
5. Maintain and modify to OEM spec
6. Monitor performance
7. Fit EBS with ESC (RSS)

8. Use EBS data to develop
   - Roads at risk
   - Drivers at risk

CAMPBELL PETROLEUM DISTRIBUTORS

FBT TRANSWEST

McColl's

TOLL

CoogeeChemicals

Project partners

BOOTH

ELGAS

Appendix E

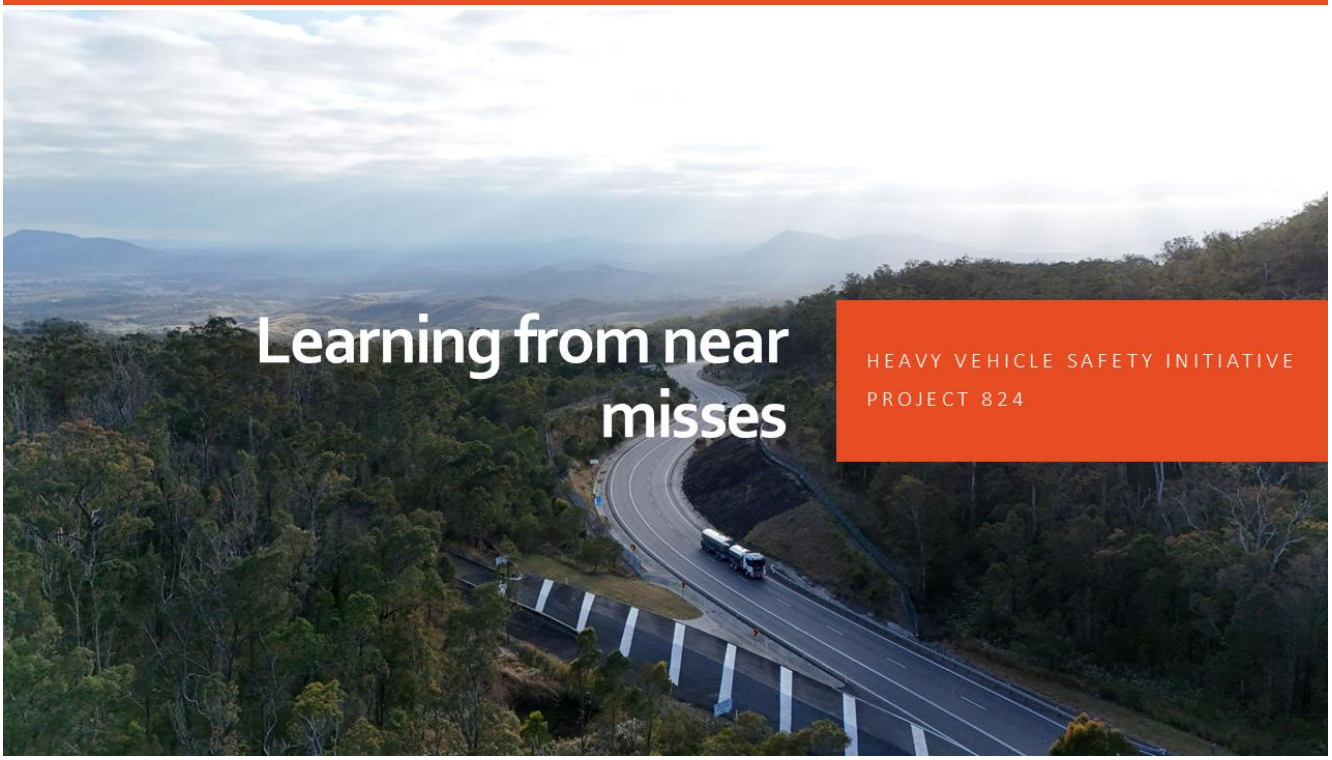
Appendix E.1 – Findings Presentation Nov 2024 (relevant slides only)

NBTA

Project 824

National Bulk Tanker Association

Anthony Germanchev– 4 March 2025



Learning from near misses

HVSI Project 824

Project objectives

1. Increased uptake and awareness of the benefits of Roll Stability Systems and sharing near miss data
2. Create a system (web map and dashboard report) easily accessible to industry that makes sharing data
3. Share findings on near misses that be used by drivers and fleet managers and government road agencies e.g. in toolbox talks, safety reports

Project timeline

Feb 2024 - May 2025

1 Q1 2024	2 Q2 2024	3 Q3 2024	4 Q4 2024	5 Q2 2025
Planning Form working groups Develop strategy/plan Prepare consent forms	**Industry Engagement** Presentation materials Engage with operators Engage with suppliers Seek feedback on outputs	**Data Collection** Collect near miss data	**Software Dev** Online web map Safety report templates	**Present findings** Launch web map Host workshops Final report

Project partners

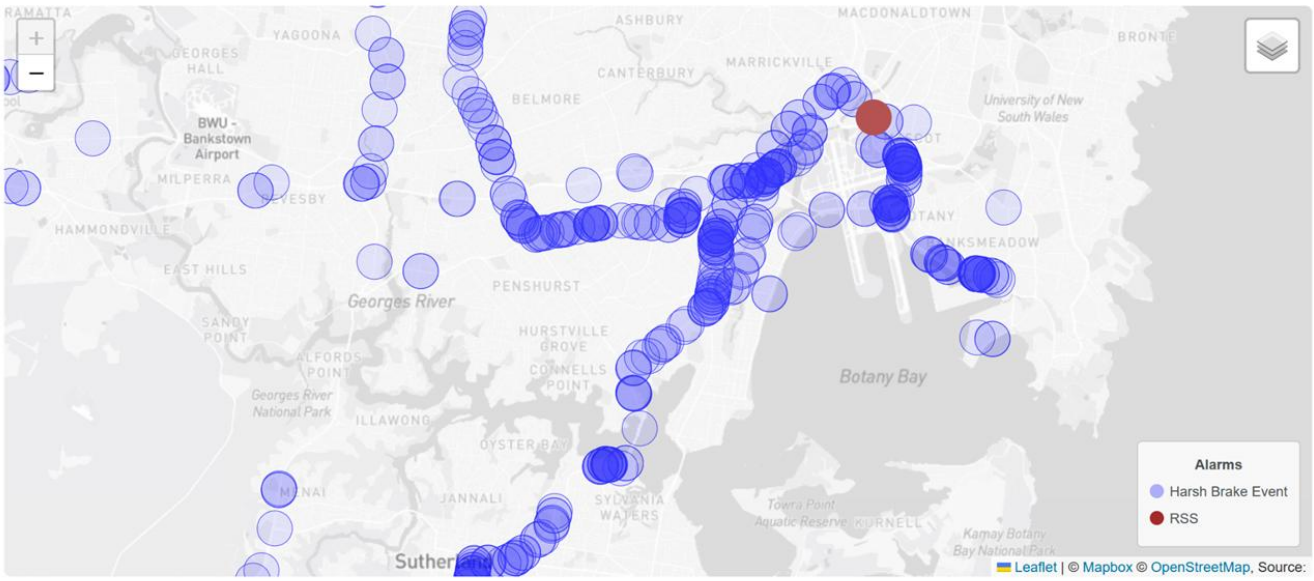
FBT TRANSWEST
BOOTH
CAMPBELL PETROLEUM DISTRIBUTORS
TOLL
ELGAS
CoogeeChemicals
endeavour helping you on your way
EMERALD CARRYING COMPANY
UTH
McColl's
TL

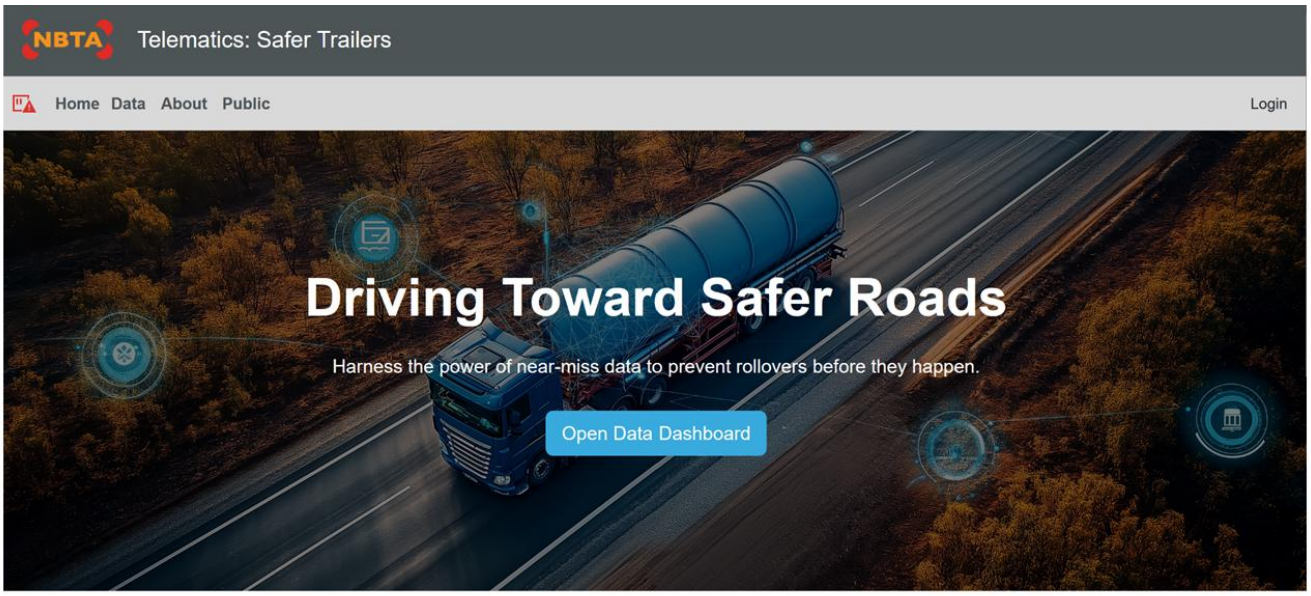
NBTA Telematics: Safer Trailers

This Heavy Vehicle Safety Initiative is proudly led by the **National Bulk Tanker Association (NBTA)** and its participating members. Supported by the **National Heavy Vehicle Regulator's (NHVR)** Heavy Vehicle Safety Initiative (HVSI) program and funded by the Australian Government, this project reflects a shared commitment to creating safer roads for the heavy vehicle industry and all road users.

The map and dashboard below show the ongoing EBS Roll stability and harsh braking alarms collected to date collected from many operating fleets.

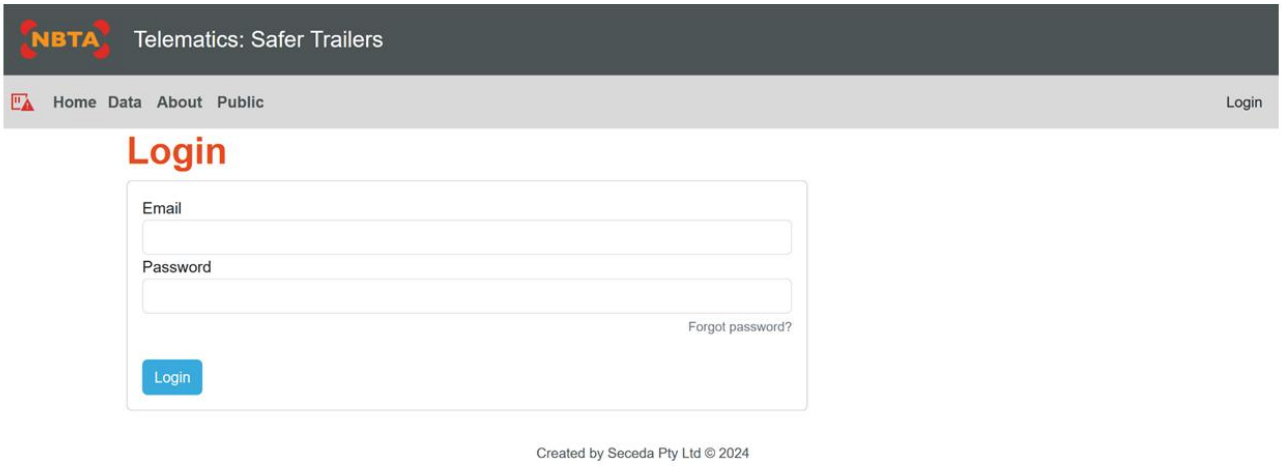
Find out more about the project here.





Stop Reacting—Start Preventing

Using advanced technology to transform near-miss events into actionable insights, empowering the heavy vehicle industry to eliminate rollovers and save lives.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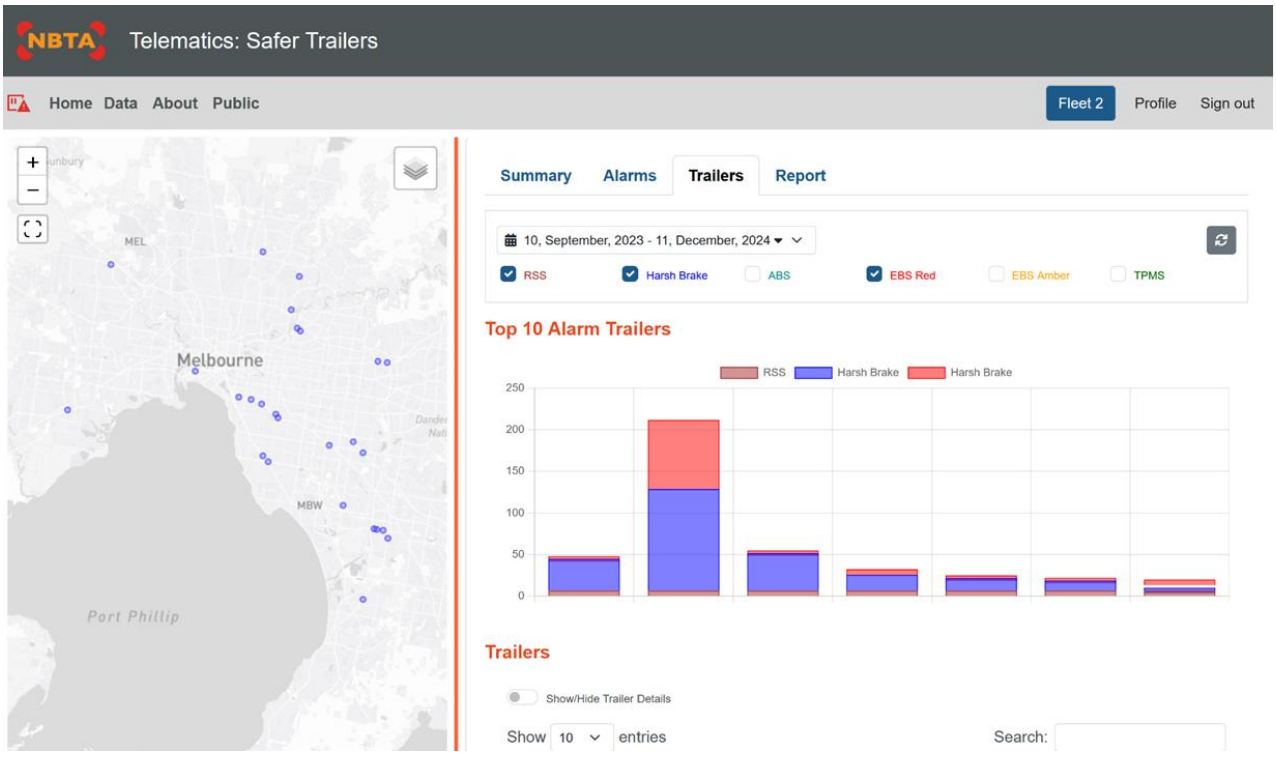
Created by Seceda Pty Ltd © 2024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EBS Amber
TPMS
Top 10 Alarm Trailers
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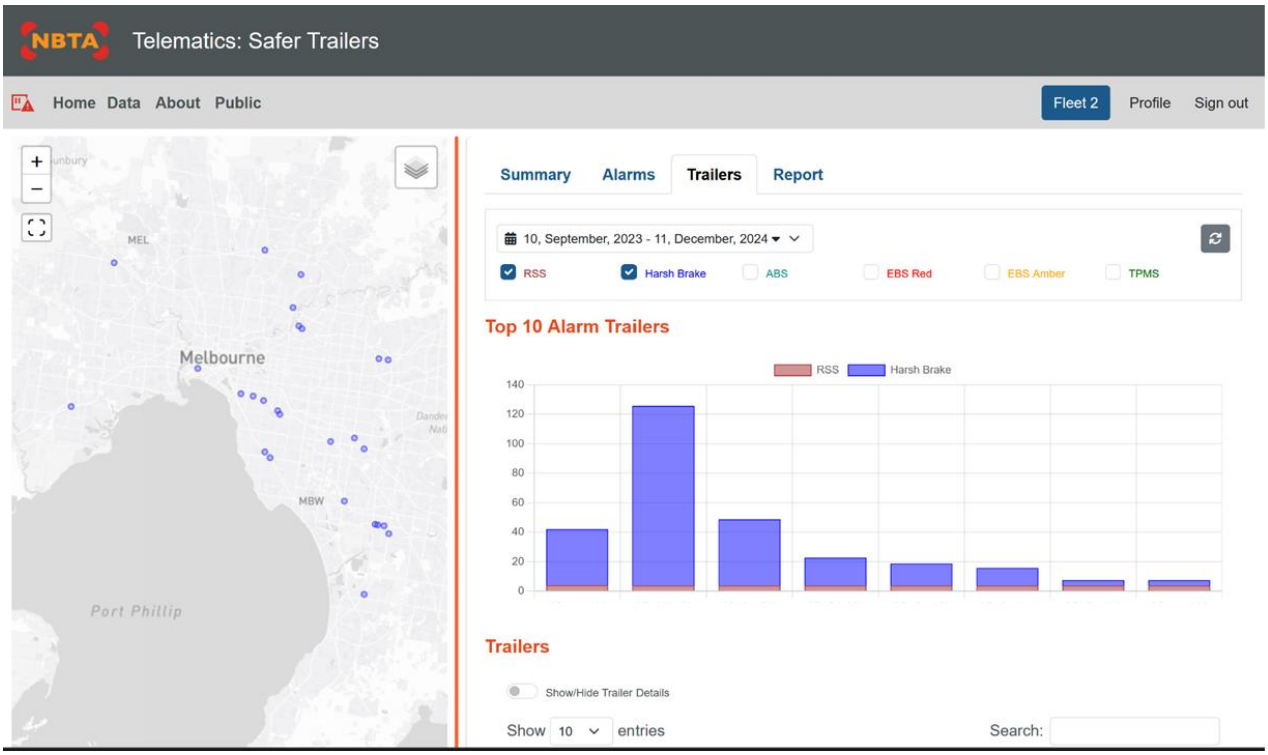
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Top 10 Alarm Trailers
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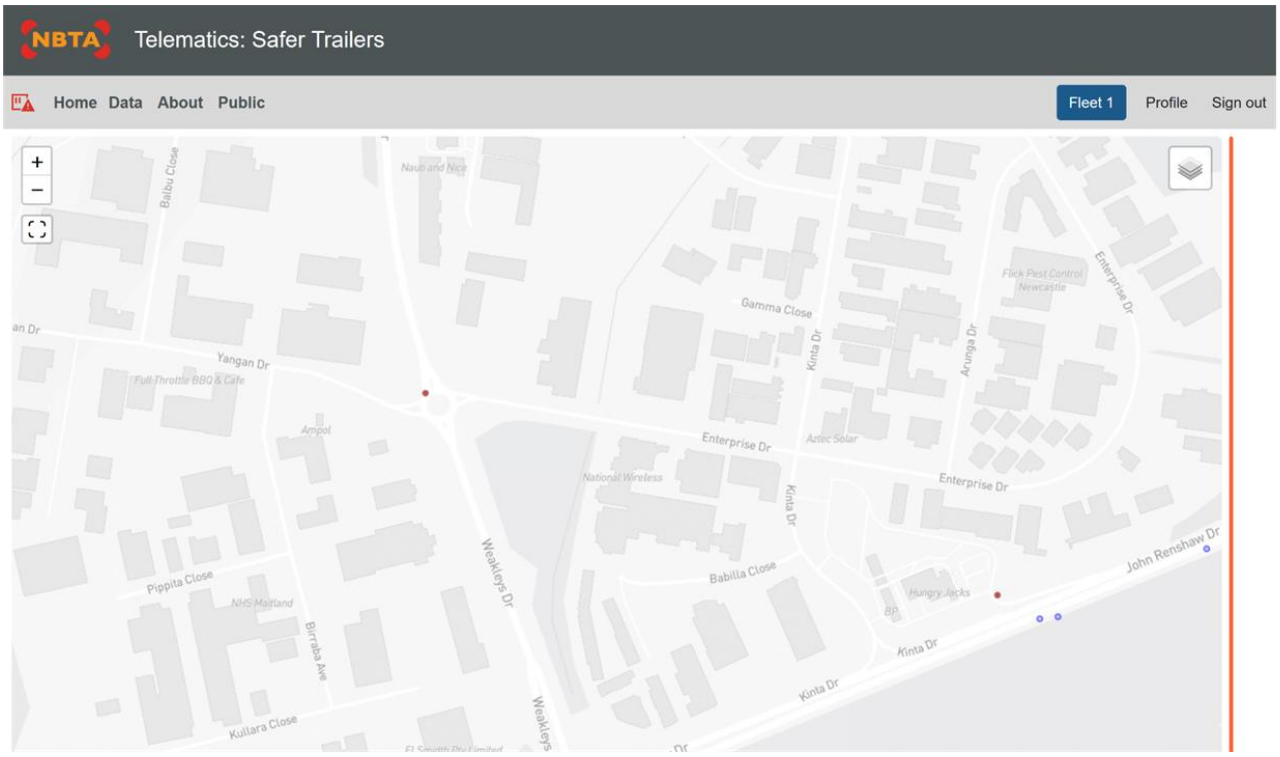
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Ampol
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Kinta Dr
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Enterprise Dr
National Wireless
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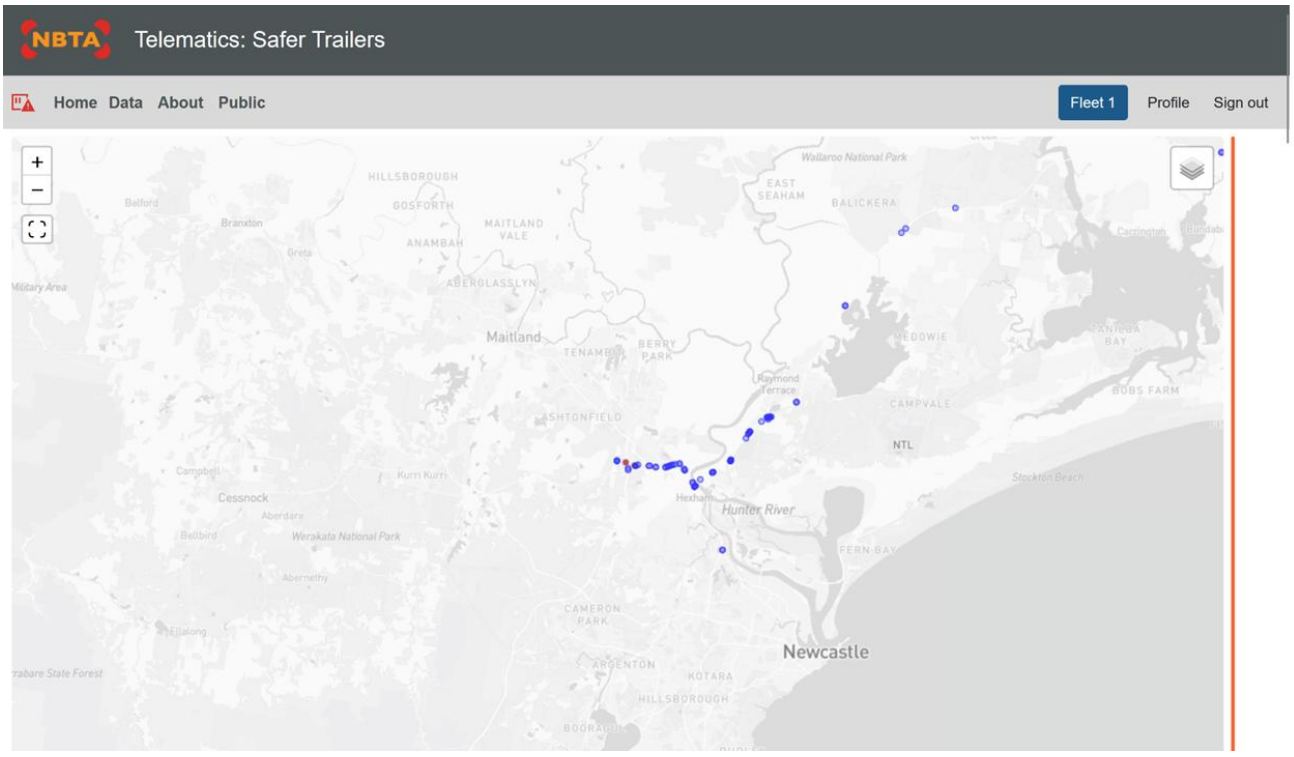
NHS Maitland
Birraba Ave
Kullara Close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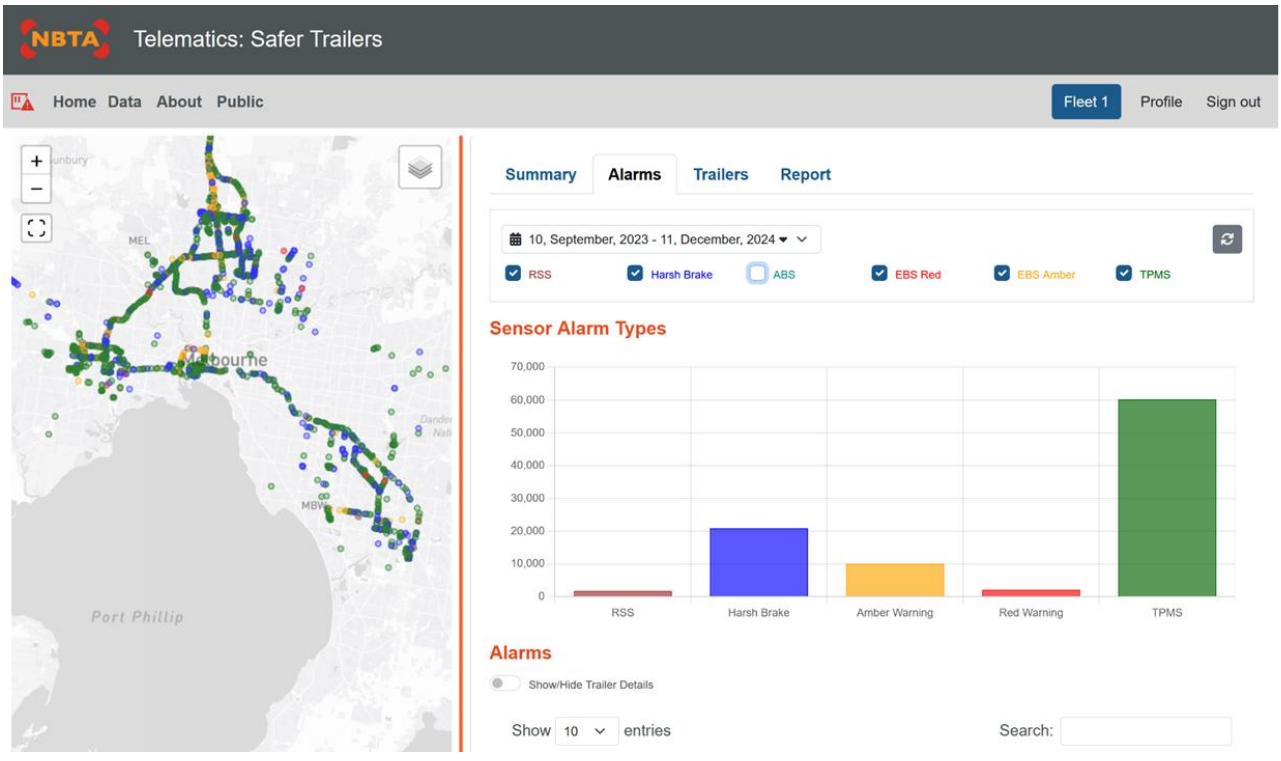
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Sensor Alarm Types
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50,000
40,000
30,000
20,000
10,000
0
RSS
Harsh Brake
Amber Warning
Red Warning
TPMS
Alarms
Show/Hide Trailer Details
Show 10 entries
Search:
Melbourne
Port Phillip

Declaration and Certification

By submitting this final report, I certify that the information provided is accurate and complete to the best of my knowledge. I understand that the grant funding has been used in accordance with the terms and conditions outlined in the grant agreement.

Name of Authorised Person	Anthony Germanchev
Title:	Executive Director
Signature:	
Date:	8 May 2025