

Queensland Transport and Logistics Council

A Safe and Sustainable Pilot and Escort Framework for Queensland

National Review of Oversize Overmass

Funded by the National Heavy Vehicle Regulators - Heavy Vehicle Safety
Initiative, supported by the Australian Government

September 2026



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Abbreviations

OSOM	Oversize Overmass
QPS	Queensland Police Service
QTLIC	Queensland Transport and Logistics Council
P&EFQ	A Safe and Sustainable Pilot and Escort Framework for Queensland, ‘the Project’
NAFHV	National Access Framework for Heavy Vehicles
HVNL	Heavy Vehicle National Law
SCO	Safety Compliance Officers
FHWA	Federal Highway Administration
SAPOL	South Australia Police
NPCC	National Policing Guidance
AWG	Access Working Group
AWP	Access Work Program
CPVD	Certified Pilot Vehicle Drivers
HVPL	Heavy Vehicle Pilot Licence
WVZ	Wechselverkehrszeichen (variable messaging)
P/EVO	Pilot/Escort Vehicle Operator
NTC	National Transport Commission
DLI	Department of Logistics and Infrastructure
BF3 or BF4	Escort Vehicle Level 3 or Escort Vehicle Level 4
SVNL	Stichting Verkeersregelaars Nederland (Exam authority)
CBR	Centraal Bureau Rijvaardigheidsbewijzen
NZQA	New Zealand Qualifications Authority
NPCC	National Police Chiefs' Council
ACPO	Association of Chief Police Officers
SARA	State Assessment and Referral Agency

Executive summary

Introduction

Queensland is entering a period of unprecedented growth in Oversize Overmass (OSOM) movements, driven by major infrastructure investment and the rapid growth in large-scale infrastructure, resources and industrial project pipelines. This surge is placing significant and increasing pressure on existing pilot and escort arrangements across the state.

The current system is not keeping pace with demand. Heavy reliance on Queensland Police Service (QPS) escorts, combined with fragmented regulatory frameworks, inconsistent requirements across jurisdictions, and limited availability of accredited pilots, is resulting in delays, inefficiencies and increased safety and operational risks. These constraints are already impacting project delivery, network performance and industry confidence, and are expected to intensify without intervention.

To inform a sustainable pathway forward, this Review compiled a comprehensive evidence base, combining a detailed assessment of pilot and escort arrangements across Australian jurisdictions and international benchmarks with extensive stakeholder consultation. Engagement was undertaken with government agencies, police, road managers, industry operators, ports and major project proponents. This consultation provided critical insights into system constraints, operational challenges, and practical opportunities for reform.

The evidence highlights that more flexible, scalable and harmonised approaches can be implemented while maintaining, and in some cases improving, safety outcomes. Across jurisdictions, successful models are characterised by reduced reliance on police resources, greater use of accredited industry escorts, clearer operating frameworks and stronger national consistency.

The findings confirm that targeted reform is required to ensure the sustainability of OSOM operations in Queensland. In response, this Review identifies a suite of practical, evidence-based actions aimed at relieving current system pressures. These actions are designed to ease demand on police resources, improve the availability and capability of industry pilots and escorts, and enable more efficient, consistent and predictable operations.

Collectively, the proposed reforms provide a clear pathway to stabilise the existing system in the near term while establishing a foundation for longer-term, nationally aligned improvement. This will support safer, more reliable OSOM movements, reduce disruption to the road network, and enable the timely delivery of critical infrastructure and major project pipelines.

This report presents a structured, evidence-based framework to test and inform future pilot and escort reform in Queensland. It does not prescribe a final operating model but rather establishes a staged pathway to build the evidence base required for safe and scalable implementation.

Why Reform is Needed

The current reliance on police escorts for OSOM movements is not scalable under projected freight demand and increasing infrastructure activity. This is creating growing pressure on availability, movement reliability and delivery timelines for critical projects.

A more flexible, risk-based approach is required to ensure that safety outcomes are maintained while enabling more efficient and consistent movement of oversized freight.

This framework establishes a pathway to test and refine this approach in a controlled and evidence-based manner.

Key Findings

Demand is outpacing system capacity

Rapid growth in OSOM movements is exceeding the availability of escorts, particularly QPS resources, creating a critical constraint on network productivity.

High reliance on police escorts is unsustainable

The current model is heavily dependent on QPS, limiting scalability and contributing to delays and operational uncertainty.

Regulatory fragmentation drives inefficiency

Variations in pilot accreditation, escort requirements and operating conditions across jurisdictions create complexity, duplication and inconsistent outcomes.

Shortage and underutilisation of industry pilots

Limited availability, combined with constrained operating envelopes, is restricting the effective use of accredited industry resources.

Safety risks are linked to system constraints

Delays and movement cancellations can increase operational complexity and create challenges for project delivery and movement scheduling. While OSOM movements continue to operate within approved permit conditions and approved time windows, constrained escort availability may reduce flexibility and increase coordination requirements.

Clear opportunity for evidence-based reform

National and international practices demonstrate that more flexible, harmonised and risk-based approaches can improve both safety and productivity.

Recommended Actions

Risk-Based Escort Framework

Transition toward a risk-based escort framework where escort requirements are determined by movement complexity, network characteristics, safety risk and traffic interactions. Under this framework, QPS involvement would remain focused on movements requiring police powers, higher-risk traffic management activities and complex operating environments.

Expand and enable the accredited pilot workforce

Increase the capacity, capability and utilisation of industry pilots through new / or improved accreditation pathways and expanded operating roles.

Introduce more flexible, risk-based operating frameworks

Move from prescriptive requirements toward tiered, risk-based approaches that align escort requirements to the complexity of OSOM movements.

Improve national and jurisdictional consistency

Align requirements with national frameworks (e.g. NAFHV) to reduce duplication and improve interoperability across state borders.

Enhance operational efficiency and predictability

Streamline permitting and standardise conditions. Where supported by a detailed risk assessment and approved by the relevant road manager, investigate opportunities for convoy operations, alternative scheduling arrangements and other operational efficiencies that maintain network safety and minimise impacts on road users.

Support targeted trials and staged implementation

Pilot new escort models and operating arrangements in controlled environments to validate outcomes and build stakeholder confidence.

How the Framework Works

The proposed framework introduces a structured, risk-based approach to OSOM pilot and escort requirements, based on three core principles:

- Risk-based classification – movements are assessed based on network, load and operational factors, rather than prescriptive defaults
- Pilot-led for lower-risk movements – expanding the use of accredited escort drivers where appropriate
- Targeted use of police escorts – reserving QPS involvement for higher-risk or complex scenarios

This approach is supported by clearly defined governance roles, coordinated planning, and structured trials to validate safety and operational outcomes.

Project Steering Committee

QTLIC would like to thank the Project Steering Committee, who comprised representatives with diverse expertise and perspectives and who have been instrumental in overseeing and supporting the development and implementation of this report. The Committee's guidance, contributions, and oversight have materially informed the process undertaken in preparing this report.

Notwithstanding the Committee's involvement, this report has been prepared independently by the authors. The findings, conclusions, and recommendations expressed herein are those of the authors alone and do not necessarily reflect the views, positions, or endorsement of all members of the Project Steering Committee or the organisations they represent.

1 Introduction

1.1 Background

Queensland is entering a period of unprecedented growth in Oversize Overmass (OSOM) movements, driven by major infrastructure delivery and the rapid expansion of critical infrastructure and major project pipelines. This surge is placing significant and increasing pressure on existing pilot and escort arrangements. A key challenge relates to the transportation of OSOM loads, which are becoming increasingly common as major projects expand. These loads can extend up to 100 metres in length and exceed six metres in both width and height, presenting significant logistical, safety and operational challenges across the state's transport network.

As the frequency and scale of OSOM movements increase, these challenges can result in safety risks, project delays and disruptions for road managers, road users and project proponents. While the energy transition remains in its early stages, growing demand for escorted OSOM movements has placed increasing pressure on existing escort arrangements. In particular, there have been instances where Queensland Police Service (QPS) resources have not been available on the day of scheduled movements, despite all other approvals being in place and cargo fully prepared. This reflects broader resourcing and capacity constraints within the current escort framework rather than isolated operational issues.

In response to these emerging pressures, the Queensland Transport and Logistics Council (QTLC) undertook an extensive review in 2023 of the processes supporting the transportation of OSOM renewable energy infrastructure. The findings of this work were documented in the report *Supporting QEJP Windfarm Transportation – Review of Oversize, Overmass Wind Farm Arrangements* (January 2024), which engaged more than 60 organisations across government and industry and identified 12 key recommendations. A critical outcome of the review was the identified need to reassess the framework governing Police Escorts and Accredited (non-police) Pilots, recognising their essential role in enabling the safe and efficient movement of OSOM loads.

A Safe and Sustainable Pilot and Escort Framework for Queensland (P&EFQ, 'the Project') seeks to respond to these challenges by defining a clear set of desired safety outcomes for OSOM movements supported by either Police or Accredited Escorts, ensuring the escort model remains fit-for-purpose as large-scale OSOM demand pipelines continue to grow.

1.2 Purpose

The purpose of this Review (the Review) is to examine pilot and escort requirements for OSOM vehicle movements across Australian jurisdictions. Currently, each State and Territory applies differing standards for the number, accreditation and operational arrangements of pilots and escorts. This inconsistency has resulted in regulatory fragmentation and uncertainty regarding the application of best-practice safety protocols.

The P&EFQ, led by QTLC seeks to undertake a comprehensive review of existing pilot and escort regimes at both national and international levels. The Review will identify opportunities to improve consistency, enhance safety outcomes and support long-term sustainability. Its findings will inform the development of a fit-for-purpose pilot and escort framework for Queensland and contribute to the ongoing evolution of the National Access Framework for Heavy Vehicles (NAFHV).

1.3 QPS vs Escort distinction

OSOM movements in Queensland may be supported by three distinct roles:

- Police escorts (QPS): Provide traffic management, traffic control, enforcement and operational functions under policing authority and are typically engaged for higher-risk or more complex movements.

- Accredited escort drivers (Level 2): Authorised to undertake defined traffic-direction activities in accordance with permit conditions.
- Pilot vehicles (Level 1 or Level 2): Provide warning, coordination and hazard identification functions without direct traffic control authority.

While these roles are distinct in capability, current operational practice remains heavily reliant on QPS escorts.

1.4 Report structure

This Review addresses the following elements, presenting key findings and evidence-based insights:

- **Section 2:** Australian pilot and escort regimes
 - **Section 3:** International pilot and escort regimes
 - **Section 4:** Previous reviews
 - **Section 5:** Safety incidents & trends
 - **Section 6:** Stakeholder engagement
 - **Section 7:** Cost of the Problem
 - **Section 8:** Queensland framework
 - **Section 9:** Trial locations and conditions
 - **Section 10:** Conclusions.
-

1.5 Scope

1.5.1 *In scope*

The following key areas are addressed in this report, aligning with the project's objectives:

- **Current pilot and escort regimes in Australia:** Documentation and comparison of each state and territory's requirements (number of pilot/escort vehicles needed, accreditation systems, use of police vs civilians).
- **International benchmarking:** Overview of escort practices overseas (e.g. North America, Europe) to identify best practices or alternative models.
- **Previous reviews and recommendations:** Insights from prior studies – including a 2014 National Transport Commission paper on harmonisation, WSP's 2018 OSOM Access Arrangements Review, the 2023 Review of Oversize Overmass Wind Farm Arrangements – Supporting QEJP Wind Farm Transportation, and Austroads' work on the NAFHV.
- **Training regimes and standards:** Analysis of training and accreditation requirements for pilot/escort drivers in different jurisdictions, and how consistent standards might improve safety.
- **Safety incidents and emerging trends:** Documentation of notable safety incidents involving OSOM movements (in Queensland and beyond) and identification of trends or gaps highlighted by these events.
- **Proposed Queensland framework:** Recommendations for a safe and sustainable pilot/escort regime tailored to Queensland's needs, considering alternative approaches (e.g. greater use of accredited civilian escorts) and harmonisation with national standards.
- **Trial opportunities:** Suggestions for practical trials in Queensland – specific conditions, locations, and evaluation criteria – to pilot the proposed changes and gather evidence on their effectiveness before full implementation.

- **Alignment with NAFHV:** Consideration of how Queensland’s framework can integrate with and inform the National Access Framework, promoting nationwide consistency in OSOM escort practices.

Together, these elements will inform a comprehensive strategy to modernise Queensland’s pilot and escort requirements for oversize transports, ensuring public safety and supporting the state’s economic development, while contributing to Australia’s broader heavy vehicle regulatory reform efforts.

1.5.2 *Out of scope*

The following items are not included within the scope of this project:

- **Permit process reform:** Detailed redesign of OSOM permitting systems or digital platforms is outside the current mandate, except where permit conditions directly influence escort requirements.
- **Infrastructure upgrades:** Physical works such as road widening, bridge strengthening, or port modifications are excluded; the project focuses on operational frameworks, not capital works.
- **Non-OSOM freight movements:** Standard heavy vehicle operations and compliance issues unrelated to oversize/overmass loads are not addressed.
- **Enforcement policy changes:** Broader policing strategies or legislative amendments beyond escort-related provisions are out of scope.
- **Implementation of trials:** Actual execution and monitoring of trials will occur in later phases.
- **Cost:** Detailed cost impacts, funding requirements and economic implications of the proposed reforms are not within the scope of this National Review and would require further targeted analysis.

2 Australian pilot and escort regimes

2.1 Introduction

Each Australian jurisdiction sets its own OSOM escort requirements, including the number of pilot vehicles, accreditation standards and police involvement.

This results in a fragmented system that increases complexity for interstate movements and creates uncertainty around consistent, best-practice safety approaches. The OSOM Access Arrangements Report (WSP, 2018) identified these inconsistencies and highlighted the significant coordination required for interstate movements, as illustrated in Figure 2-1. This complexity also applies to intrastate movements, where coordination requirements remain substantial.

It should be noted that the case study is based on publicly available road manager guidance and does not account for site-specific permit conditions, exceptions, or variations that may materially influence escort requirements.

Class 1 OSOM Vehicle — Different pilot and escort requirements across Australia

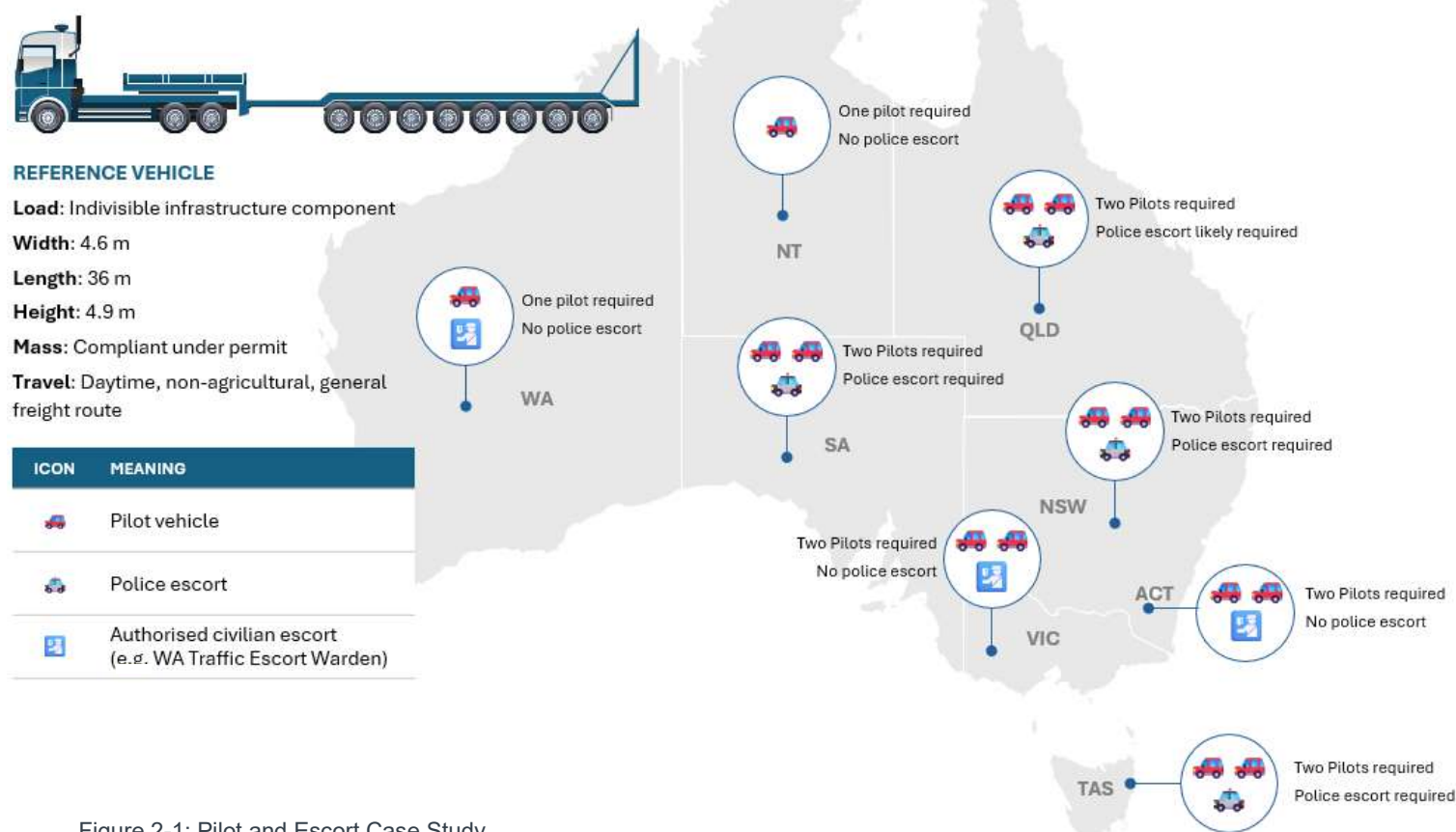


Figure 2-1: Pilot and Escort Case Study

Western Australia differs from other Australian jurisdictions by operating a predominantly civilian-led escort model, using authorised Traffic Escort Wardens with formal traffic control authority, thereby significantly reducing reliance on police escorts.

2.2 Current State

Australia does not have a single, nationwide rule for when and how pilot or escort vehicles must accompany OSOM loads. Instead, State and Territory Road Managers each administer their own requirements. The Heavy Vehicle National Law (HVNL) provides basic definitions of “pilot vehicle” and “escort vehicle” and some general requirements (warning signs, lights, etc.), however pilot and escort operational rules are explicitly left to State jurisdictions.

A pilot vehicle is a support vehicle operating in association with an OSOM load for the purpose of warning other road users, identifying hazards, and facilitating safe movement of the load, without exercising traffic control authority unless expressly authorised. A pilot driver is a person responsible for operating a pilot vehicle in accordance with applicable permit conditions and regulatory requirements.

An escort vehicle is a support vehicle authorised to actively manage traffic interactions associated with an OSOM movement. An escort role involves the exercise of defined traffic management or traffic control authority in support of the safe passage of the load.

Key differences between jurisdictions include:

- **When escorts are required:** Trigger criteria (load width, length, height) for needing one or more pilot and/or escort vehicles differ. For example, New South Wales (NSW) historically required escorts for certain wide loads, whereas Western Australia (WA) has its own thresholds and often uses dedicated escort wardens for the largest moves. In general, wider and longer loads demand more escort vehicles, but the exact cut-offs vary by jurisdiction.
- **Accreditation of pilot drivers:** Some jurisdictions mandate special training and accreditation for pilot vehicle drivers, while others do not. For example, Queensland (QLD), Victoria (VIC), Tasmania (TAS), and Northern Territory (NT) each have a formal pilot accreditation scheme (often with two levels of pilot license for different escort roles), whereas NSW, South Australia (SA), and Australian Capital Territory (ACT) do not require pilots to be formally accredited. WA requires pilot drivers to hold a specific Heavy Vehicle Pilot Licence unique to that state.
- **Who provides escorts:** The term “escort vehicle” usually implies authority to direct traffic. In some states, police perform traffic control escort duties, while in others, authorised civilian or road-agency officers can perform this role. For example:
 - In QLD and NSW, police officers may undertake escort functions for OSOM movements where required by permit conditions or operational circumstances. Under QLD's current regulatory framework, Level 2 Accredited Escort Drivers are also authorised to undertake defined traffic-direction functions. The application of escort arrangements is determined on a case-by-case basis, having regard to the characteristics, operating environment and risk profile of the movement.
 - In VIC, escorts are handled by Department of Transport and Planning (DTP) Safety Compliance Officers (SCOs) rather than police.
 - SA relies on a dedicated SA Police escort team (including some non-sworn transport officers).
 - TAS uses officers from the Department of State Growth's Transport Safety Services, or police, as escorts.
 - WA employs Traffic Escort Wardens (civilians authorised by Main Roads WA) for the largest loads limiting regular police involvement.
 - NT can use either NT Police or accredited civilian “Oversize Escort Operators” for escorting duties.

These differences are summarised below:



These jurisdictional differences mean an OSOM Transport Operator might need to hire different escort teams (or ensure pilots have multiple credentials) when a load crosses between jurisdictions. Jurisdictions that do not require any pilot accreditation (NSW, SA, ACT) rely on the general road rules and police judgment, whereas jurisdictions with formal training may believe it improves safety. This lack of uniform standard has been identified as a risk, especially as OSOM movements grow in vehicle size, volume and frequency.

Under the HVNL, the determination of escort requirements, operating conditions and access decisions ultimately sits with road managers. While the NHVR administers the permit framework, escort and traffic control settings are defined by jurisdictional road authorities (e.g., TMR in Queensland), with police involvement applied in accordance with those conditions.

How did Western Australia transition from Police dependency?

The Western Australian model has progressively transitioned from police-supported escorting to a predominantly civilian-led system. This has been enabled through:

- Introduction of Traffic Escort Wardens with formal traffic control authority
- Structured pilot licensing (Heavy Vehicle Pilot Licence)
- Clear separation of pilot and escort roles

This evolution has reduced reliance on police resources while maintaining safety through structured governance, accreditation and oversight.

2.3 Pilot Requirements

The pilot requirements for the respective jurisdictions are laid out in further detail below in Table 2.1. Pilot accreditation requirements across jurisdictions are subject to change and may vary depending on permit conditions, vehicle class, and specific operating contexts. The summary presented is based on publicly available guidance from jurisdictional road authorities and national reference material.

Table 2.1 Pilot Requirements by Australian Jurisdiction

State/Territory	Pilot Requirements
ACT	The ACT does not require any formal pilot accreditation. Any appropriately licensed driver may act as a pilot, subject to compliance with equipment and permit conditions ¹ .
NSW	No formal pilot accreditation scheme applies in NSW ²
NT	Two-tier system – basic pilot operators may not require formal accreditation, while higher-risk movements require accredited or trained pilots ³
QLD	Two-tier pilot accreditation system – Level 1 Pilot and Level 2 Pilot (with additional competencies such as traffic control), required depending on load size and conditions ⁴
SA	No formal pilot accreditation scheme applies in South Australia ⁵
TAS	Two-tier pilot system, with differing requirements based on load size and complexity ⁶
VIC	Two-tier pilot system, including higher-level accredited pilots for larger or more complex OSOM movements ⁷
WA	Mandatory pilot licensing – all pilot vehicle drivers must hold a WA Heavy Vehicle Pilot Licence ⁸

¹ National Heavy Vehicle Regulator (NHVR), Pilot and Escort Recognition and Training Information Sheet, 2026 – states that pilot accreditation is not required in the ACT. [nhvr.gov.au]

² NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – confirms that NSW does not operate a formal pilot accreditation scheme. [nhvr.gov.au]

³ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – identifies the Northern Territory as operating a two-tier system; supported by NT Government pilot accreditation and training requirements. [nhvr.gov.au], [nt.gov.au]

⁴ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet; Queensland Department of Transport and Main Roads, Pilot and Escort Vehicle Driver Accreditation – confirms two-tier pilot and escort accreditation in Queensland. [nhvr.gov.au], [tmr.qld.gov.au]

⁵ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – confirms that South Australia does not have a formal pilot accreditation scheme. [nhvr.gov.au]

⁶ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – identifies Tasmania as operating a two-tier pilot system. [nhvr.gov.au]

⁷ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – identifies Victoria as operating a two-tier pilot accreditation framework. [nhvr.gov.au]

⁸ Main Roads Western Australia, Heavy Vehicle Pilots – all pilots must hold a WA Heavy Vehicle Pilot Licence. [mainroads.wa.gov.au]

2.4 Escort Requirements

The escort requirements for the individual jurisdictions are laid out in further detail below in Table 2.2.

Table 2.2 Escort Requirements by Australian Jurisdiction

State/Territory	Escort Requirements
ACT	For oversize loads requiring traffic control in the ACT, escorts are typically provided by ACT Policing, with no formal civilian escort framework in operation ⁹
NSW	Escort vehicles must be operated by police officers or other authorised persons with traffic control powers; historically, police escorts have been required for higher-risk OSOM movements ¹⁰
NT	Escorts can be performed by accredited civilian escort operators with traffic control authority or by NT Police, depending on permit conditions and load characteristics ¹¹
QLD	Escorts may be undertaken by Level 2 Accredited Escort Drivers (authorised to direct traffic) or by QPS, depending on the risk profile, permit conditions and operational practice ¹²
SA	Escort vehicles are operated by police officers or other authorised personnel with traffic control powers, with police typically engaged for higher-risk OSOM movements ¹³
TAS	Escorts may be provided by authorised government officers (e.g. Transport Safety Services) or Tasmania Police, depending on the movement requirements ¹⁴
VIC	Escorts are undertaken by authorised officers with traffic control powers (e.g. road authority officers), rather than general police involvement in most cases ¹⁵
WA	The WA model adopts a “cost-plus” approach, which enables Main Roads Western Australia (MRWA) to recover costs while also supporting ongoing investment in improving OSOM corridors and related infrastructure to facilitate future movements. Escorts for higher-risk OSOM movements are undertaken by authorised Traffic Escort Wardens, who are granted traffic control powers to manage road interactions and ensure safe passage of loads. Police involvement is generally limited to exceptional circumstances or where additional enforcement or coordination is required.

⁹ National Heavy Vehicle Regulator (NHVR), Pilot and Escort Recognition and Training Information Sheet, 2026 – identifies that escort roles must be undertaken by authorised persons, with policing arrangements applying in jurisdictions without civilian escort frameworks. [nhvr.gov.au]

¹⁰ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – defines escort vehicles as those driven by police officers or authorised persons with traffic control authority under Australian law; NSW operates within this framework. [nhvr.gov.au]

¹¹ Northern Territory Government, Oversize Load Pilot Operator and Escort Requirements – outlines accreditation requirements and capability for civilian operators with traffic control competencies. [nt.gov.au]

¹² Queensland Department of Transport and Main Roads, Pilot and Escort Vehicle Driver Accreditation – confirms Level 2 escort drivers are authorised to perform traffic control, alongside QPS involvement where required. [tmr.qld.gov.au]

¹³ South Australian Government, Oversize and Overmass Vehicles Guidance – confirms escort roles are governed through permit conditions and authorised personnel under state-controlled arrangements. [sa.gov.au]

¹⁴ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – identifies that escort roles may be performed by authorised entities, including government officers or police depending on jurisdiction. [nhvr.gov.au]

¹⁵ NHVR (2026), Pilot and Escort Recognition and Training Information Sheet – confirms escorts must be undertaken by authorised persons with traffic control powers, consistent with Victoria’s use of authorised officers. [nhvr.gov.au]

2.5 Australian training requirements

Table 2.3 outline the policy for pilot and escort training set by the Jurisdictions:

Table 2.3 Australian pilot and escort training requirements

Jurisdiction	Pilot accreditation required?	Levels & who can escort	Core training / assessment (publicly referenced)	Experience threshold (public)	Refresher / renewal	Traffic control authority (who may direct traffic)	Mutual recognition / notes
ACT	No pilot accreditation scheme	Pilots unaccredited Escorts = Police	(no scheme)	—	—	Police only	No pilot accreditation to recognise; visitors must meet permit conditions.
NSW	No pilot accreditation scheme	Pilots unaccredited Escorts = Police	TfNSW (2025) aligned operational pilot/escort requirements for several Class 1 categories (clarity/consistency), but no accreditation introduced.	—	—	Police only	Alignment improves clarity but doesn't change training; interstate accreditations not required for NSW pilots.
NT	Yes (two-tier)	Level 1 & Level 2 pilots; escorts require NT accreditation	Initial: training Certificate III units covering TLIC3010, TLIF3060, TLIE3009, TLIF3013, vehicle inspection, plus checks. L2/escort brings authority to display traffic control devices.	Pilot (accredited): ≥ 10 OSOM jobs > 4.5 m wide (for first accreditation).	As per Department of Logistics and Infrastructure (DLI) accreditation cycle (noted on approval).	NT accredited L2 pilots / escorts may direct traffic (within authority).	NT recognises some interstate L2 pilots to the same level, but escort authority is NT-only (apply to DLI).

Jurisdiction	Pilot accreditation required?	Levels & who can escort	Core training / assessment (publicly referenced)	Experience threshold (public)	Refresher / renewal	Traffic control authority (who may direct traffic)	Mutual recognition / notes
QLD	Yes (two-tier for pilots & escorts)	Level 1 Pilot; Level 2 Escort Vehicle Driver (can also pilot)	L1: pass knowledge test <i>or</i> hold TLIC3010. L2 (Escort): must hold TLIC3010 (and meet EVD requirements). 3-year accreditation.	Not publicly specified for L2 in guidance (L1 requires test/unit).	3-year accreditation.	L2 Escort Vehicle Driver is authorised to perform traffic control.	QLD recognises interstate L1 pilots/L2 escorts from formal schemes (NT, VIC, WA) under conditions; limited recognition for visitors from non-accrediting states for L1 on return journeys.
SA	No pilot accreditation scheme	Pilots unaccredited; escorts = Police (DIT may require extra police in certain corridors)	DIT publishes Escorting Guidelines; no pilot accreditation.	—	—	Police only	—
TAS	Yes (two-tier model recognised)	L1 & L2 pilots; escorts commonly by Transport Safety/Investigation Officers (TSIOs) or Police	NHVR indicates L2 training includes TLIC3010, TLIF3060, TLIE3009, TLIF3013, vehicle inspection; escorting delivered by trained TSIOs.	Not publicly specified (for pilots) beyond L2 competencies.	Typically, 3-year refresh for competency units (per national practice).	TSIOs / Police direct traffic; pilots warn traffic.	TAS L2 pilots recognised by other L2 states (and vice-versa) subject to unit currency.
VIC	Yes (two-tier)	Level 1 Pilot; Level 2 CPVD (Certified Pilot Vehicle Driver)	CPVD requires: TLIF3060, TLIC3010, TLIE3009, TLIF3013, TLIB2002, + full licence.	Entry to CPVD: ≥ 12 months piloting with ≥ 20 OSOM movements in last 12 months. Renewal: ≥ 40 movements over 3 years.	3-year CPVD authority; TLIF3060 refresh required.	CPVD may perform traffic control (authority).	VIC recognises WA/TAS/NT/QLD accreditations if TLIF3060 refreshed ≤ 3 years.

Jurisdiction	Pilot accreditation required?	Levels & who can escort	Core training / assessment (publicly referenced)	Experience threshold (public)	Refresher / renewal	Traffic control authority (who may direct traffic)	Mutual recognition / notes
WA	Yes (licensing scheme: HVPL)	HVPL for pilots; escorts = Traffic Escort Wardens	Five RTO units + Bridge Video Supervision; medical; driver licence; compliance with HVPL Business Rules/Code of Conduct. Licence validity 3 years with refresher.	Not publicly listed by trip count (competency-based + audit regime).	3-year licence; refresher required for renewal.	Traffic Escort Wardens (not HVPL pilots) direct traffic.	Interstate recognition handled via mutual recognition provisions in other states (e.g., VIC/QLD) when operating there; in WA you must hold HVPL for piloting.

3 International benchmarking

3.1 Introduction

This section benchmarks how leading overseas jurisdiction's structure pilot (warning and coordination) and escort (traffic-direction) roles for OSOM movements, with a focus on the competencies required to enter each role, how authority to direct traffic is conferred, and what experience, refresh cycles, equipment standards and oversight and training requirements are applied.

We examined New Zealand (national curriculum and examinations for Class 1/2 load pilots), the United Kingdom (police-anchored escorting supported by national guidance and codes of practice), Germany (BF3/BF4 private escorts with mandated training and biennial refresh), the Netherlands (independent theory plus police-observed practical leading to an appointment pass), the United States (core Pilot/Escort Vehicle Operator (P/EVO) curriculum with state add-ons and reciprocity), and Canada – British Columbia (provincial guidelines with industry-delivered competency training).

3.2 New Zealand

New Zealand operates a nationally uniform system for load pilots, structured into Class 1 and Class 2 roles. Class 1 pilots are responsible for warning and coordination, while Class 2 pilots, after passing a central theory exam administered by Waka Kotahi or Aspeq or completing New Zealand Qualifications Authority (NZQA) Unit Standard 1768, are authorised to manage traffic interactions, including specific bridge-control procedures. The certification process covers planning, hazard management, traffic communication, and post-trip procedures. A single curriculum, centralised examiner network, and the official Load Pilot Code ensure consistent performance expectations across all regions. This nationally defined framework clearly demonstrates how traffic-direction powers are tethered to verified competence.

3.3 United Kingdom

The UK maintains a police-anchored approach to abnormal load escorting, with policy and practice guided by the 2025 National Police Chiefs' Council (NPCC) Abnormal Load Guidance, which supersedes earlier Association of Chief Police Officers (ACPO) (2010) directives. This updated framework harmonises how police forces oversee abnormal indivisible load movements, ensuring consistent risk management and authorisation procedures nationwide. While operators may self-escort in some cases, national accreditation for civilian escorts remains limited. Consistency is instead achieved through police engagement, inspection, and enforcement, supported by the government's Code of Practice on lighting and marking for abnormal loads and escort vehicles. Recent efforts by the College of Policing, including standardised roadside check sheets, illustrate how officer training and competence are being aligned across force boundaries to deliver uniform outcomes.

3.4 Germany

Germany operates a mature, nationally standardised system for private escorts using BF3 and BF4 (Escort Vehicle Level) vehicles equipped with wechselverkehrszeichen (WVZ) changeable message signs. Escort drivers must complete a structured two-day BF3 course covering traffic law, permitting practice, bridge and road design basics, and WVZ operation, and pass an assessment. To maintain authorisation, a biennial refresher is required. This nationally defined framework ensures that the role, training, equipment, and ongoing competence are consistent across the country, enabling civilian escorts to lawfully direct traffic with predictable safety performance and operational reliability.

3.5 Netherlands

Dutch transport escorts (transportbegeleiders) must obtain an appointment pass before practicing, following a structured certification process that combines independent examination and operational oversight. Candidates must pass both a Centraal Bureau Rijvaardigheidsbewijzen (CBR) theory exam and a practical exam conducted by Stichting Verkeersregelaars Nederland (SVNL) with a police delegate present, and both components must be completed within six months. This governance model reinforces public confidence by ensuring that civilians directing traffic have demonstrated competence under law-enforcement supervision. National guidance outlines the training, examination, and appointment flow, while the business portal clarifies the legal requirement for the appointment pass, creating a coherent, audit-ready pipeline from training to authorisation.

3.6 United States

The United States employs a hybrid model for P/EVO certification, blending a core national curriculum with state-specific overlays. The Federal Highway Administration (FHWA) P/EVO Training Manual outlines foundational competencies (including route planning, convoy positioning, communications, safety procedures, and equipment standards) used across many states. Certifications typically carry a three-year validity, and several states operate reciprocity agreements, such as Florida accepting Washington State's P/EVO credential, sometimes with additional requirements like an 8-hour defensive driving course. This "core plus local add-ons" approach enables multi-jurisdiction operability while preserving local risk controls. FHWA's best practices reinforce the expectation that P/EVOs meet consistent competency standards regardless of the issuing state.

3.7 Canada (British Columbia).

Canada's pilot escort arrangements are provincial, with British Columbia's Pilot Car Load Movement Guidelines offering a clear example of a pragmatic, standards-based system. These guidelines define when pilot cars are required and outline planning and operational expectations, including route surveys, height-pole procedures, and when police escort is necessary. Training is delivered by recognised providers and industry associations, focusing on competence and currency in a manner that mirrors U.S. practice in the Pacific Northwest. The province's model combines government-defined operational standards with market-delivered training, creating a coherent framework that supports compliance and measurable expectations for pilot car operators.

Table 3.1 International benchmarking

Jurisdiction	Core training / assessment (publicly referenced)	Level & who can escort	Refresher/renewal	Mutual recognition / notes
New Zealand	National system: Class 1 and Class 2 load pilots. Class 2 candidates pass a Waka Kotahi/ASPEQ theory exam <i>or</i> complete NZQA Unit Std 1768 covering hazard mgmt, comms, bridge control, post-trip duties.	Class 2 may direct traffic under the national load pilot code and exams.	National assessment; currency guided by central materials/exams.	Single curriculum + exams provide consistent competence across NZ.
United Kingdom	Operators may self-escort, but training for operators is not nationally accredited in one standard; consistency is driven by police guidance and roadside practices.	Police-centred model: 2025 NPCC Abnormal Load Guidance governs escorting practice; Code of Practice sets lighting/markings for abnormal loads/escorts.	Officer training harmonised via check-sheets; operator competence varies by provider.	National policing guidance (NPCC) supersedes ACPO 2010 and underpins enforcement.
Germany	BF3/BF4 escort drivers complete a 2-day BF3 course with exam covering traffic law, permitting, bridge/road basics, WVZ sign operation.	Private escorts with WVZ signage may direct traffic under federal guidance; biennial refresher required.	Refresh every 2 years; equipment and course standards nationally defined.	Mature, uniform model enabling civilian traffic control with strict equipment/competency rules.
Netherlands	Transportbegeleider requires passing CBR/CCV theory and SVNL-supervised practical; both must be completed within 6 months.	Appointment pass confers authority; practical exam involves a police delegate, ensuring operational standards for traffic direction.	Central exams; appointment pass required before practice.	Blend of independent exam and police-oversighted practical reinforces credibility.
United States	Many states require P/EVO certification; FHWA P/EVO Training Manual sets common curriculum (planning, positioning, comms, equipment, safety).	States recognise each other selectively (e.g., WA State P/EVO accepted in Florida with an extra defensive driving requirement). Local add-ons common.	Most cards valid 3 years; add-on courses (e.g., DDC 8-hr) in some states.	Core + state top-ups model yields reciprocity with local risk levers.
Canada (BC)	Provincial Pilot Car Load Movement Guidelines; training delivered by industry/associations; competency includes route surveys and height-pole procedures.	Provincial authorities manage escort expectations; police used when warranted; no single federal scheme.	Currency via provider programs; government sets operational standards.	Clear government guidance + market training produces pragmatic compliance.

3.8 Capacity and Scalability Insights (International Comparison)

A key theme emerging from the international review is the extent to which different jurisdictions have structured their pilot and escort models to manage capacity constraints and support scalability under growing OSOM demand.

3.8.1 *Managing capacity through workforce design*

Jurisdictions that rely on accredited civilian escort workforces (e.g. Germany, Netherlands, United States, and Canada) demonstrate a clear ability to scale escort resources in line with demand:

- In Germany, the use of certified BF3 and BF4 escort vehicles enables private operators to undertake defined traffic-management functions where authorised under the relevant jurisdictional framework. The scope of these powers varies significantly between jurisdictions and may not extend to activities such as rail interface management, signalised intersection control, or other functions requiring specific statutory authority.¹⁶
- These models allow escort services to be delivered by a broader, trained workforce, rather than being constrained by the availability of sworn police resources.
- Similarly, in the United States, the use of a large, decentralised P/EVO workforce, supported by nationally recognised training frameworks, allows escort capacity to be drawn from the private sector across multiple jurisdictions¹⁷.

This approach effectively decouples escort capacity from policing capacity, enabling more flexible and scalable service delivery.

3.8.2 *Capacity constraints in police-dependent models*

In contrast, jurisdictions that retain a police-anchored escort model (e.g. the United Kingdom) exhibit structural capacity limitations:

- Police escorting is subject to broader workforce pressures, including staffing constraints and competing operational demands, which can limit availability for OSOM movements¹⁸
- Industry feedback in the UK has highlighted challenges including:
 - Increased restrictions on police escort availability
 - Variability in police capacity and requirements across regions
 - Delays and additional planning requirements linked to escort availability¹⁹.

These dynamics demonstrate that police-dependent models are inherently less scalable, particularly under conditions of sustained growth in OSOM demand.

3.8.3 *Hybrid models as a capacity response*

Several jurisdictions have adopted hybrid models to balance safety oversight with capacity:

- In the Netherlands, civilian escort operators are accredited through a police-observed certification process, ensuring competence while maintaining public confidence.

¹⁶ BF2 and BF3 escort vehicles - Trucks And Cranes giglasbergen.wixsite.com

¹⁷ Pilot/Escort Vehicle Operators Training Manual - FHWA Freight ops.fhwa.dot.gov

¹⁸ Reframing the police staffing challenge: A systems approach to ...academic.oup.com

¹⁹ Abnormal Loads: updated guidance welcome - rha.uk.net

- In Canada (British Columbia), industry-delivered training combined with government-defined standards provides a scalable workforce model without fully relinquishing regulatory control.

These approaches provide additional capacity while retaining assurance mechanisms, offering a practical middle ground between full police control and fully market-based systems.

3.8.4 *Key insight for Queensland*

Across all jurisdictions, the evidence indicates that:

- Capacity is not solely a function of demand, but of how escort roles are structured and who is authorised to perform them.
- Systems that rely primarily on police escorts are more likely to experience capacity constraints, delays and inefficiencies.
- Systems that enable trained, accredited civilian escorts can better absorb demand growth, improve availability, and maintain service reliability.

This reinforces the importance of transitioning toward a more flexible, scalable escort model that reduces reliance on constrained public resources while maintaining safety outcomes.

4 Previous reviews

4.1 Introduction

Over the past several years, numerous reviews and studies have examined pilot and escort issues. The key reviews include:

2014: NTC Pilot and Escort Harmonisation Proposal

The National Transport Commission released a discussion paper advocating a nationally harmonised pilot accreditation scheme with two levels of pilots and a future pathway for accredited escorts.

2018: National Oversize Access Arrangements

A comprehensive industry report highlighted inconsistencies in pilot/escort rules across states, recommended national standards for when escorts are required and mutual recognition of pilot qualifications.

2022: Austroads National Access Framework (NAFHV)

Austroads (on behalf of transport ministers) developed NAFHV to improve national consistency in heavy vehicle access decisions. It emphasized principles like harmonising practices and enabling more automated, by-consent processes for heavy vehicle movements.

2024: QTLC Wind Farm OSOM Review

A Queensland-specific review of OSOM wind farm component transport noted frequent delays due to lack of police escorts and urged an urgent review of the pilot/escort framework as a critical recommendation.

4.2 2014 National Transport Commission – Harmonisation of Pilot and Escort Vehicle Driver Requirements – National Accreditation Scheme

In 2014, the National Transport Commission (NTC), in collaboration with Austroads and the National Heavy Vehicle Regulator (NHVR), issued a discussion paper titled “Harmonisation of Pilot and Escort Vehicle Driver Requirements – National Accreditation Scheme.” This paper explicitly addressed the patchwork of rules across states and proposed a solution: a two-tier national pilot accreditation system. Key elements proposed:

- **Registered vs Accredited Pilots:** Level 1 “Registered Pilots” would meet a basic standard (possibly a short course or competency assessment) allowing them to escort smaller oversize loads anywhere in Australia. Level 2 “Accredited Pilots” would require more extensive training, experience logging, and background checks, qualifying them for more complex tasks and potentially to act in an escort (traffic control) capacity. At the time, the only jurisdiction allowing non-police escorts was NT, so the scheme anticipated expanding that concept.
- **Future accredited escorts:** The paper also contemplated a framework for third-party escort accreditation, i.e. civilians empowered to direct traffic (doing some duties currently done by police). It floated the idea of formal qualifications and legal authority for such escorts, recognising that a few jurisdictions might eventually allow this (as NT already did, and as QLD was considering via Level 2 pilots).
- **Mutual recognition:** A driving goal was that a pilot or escort driver accredited in any state would be recognized nationally. This would eliminate the redundant requirement for, say, a QLD pilot certified with extensive training to

re-qualify if operating in WA or VIC, and vice versa. It aimed to reduce regulatory burden on transport companies and improve productivity by standardizing escort capabilities.

- **Stakeholder feedback sought:** The paper posed numerous questions (ten key questions) to industry and governments, such as: Are the proposed qualifications adequate? Should third-party (civilian) escorts have similar powers as police? What transitional measures are needed for states that currently have no pilot licensing? These questions underscore unresolved issues like how much authority civilian escorts should have and how to bring non-accrediting states into the fold.

The NTC's 2014 initiative clearly identified the need for harmonisation. It laid groundwork for reform but did not immediately result in a unified scheme. Some progress was made – the NHVR began working on national training materials and some states edged closer to mutual recognition (e.g. NSW later began recognising certain interstate pilot licenses informally). However, implementing a full national accreditation program stalled amid the complexity of getting all jurisdictions to agree. The issues and ideas from 2014 remain highly relevant with our current review essentially revisiting these questions with benefit of the last decade's experience.

4.3 2018 WSP's Review of OSOM Access Arrangements

The 2018 Review of Oversize Overmass (OSOM) Access Arrangements was commissioned by the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts (DITRDCA) to address growing concerns about the efficiency, consistency and effectiveness of OSOM access across Australia. At the time, OSOM movements were becoming increasingly important to support major infrastructure, resource and construction activities, yet the regulatory and operational framework for managing these movements had evolved in a fragmented, jurisdiction-specific manner.

Key Findings of the 2018 OSOM Review (WSP): This comprehensive report identified numerous pain points in OSOM transport. Relevant to pilots and escorts, it noted:

- **Lack of harmonisation:** “Each State and Territory has different requirements for pilots and escorts... around the numbers required and accreditations.” The report highlighted how this inconsistency complicates interstate moves and frustrates operators who must juggle multiple rule sets. It included figures comparing, for example, QLD's vs VIC's escort rules, showing clearly different thresholds. The case study mentioned (moving a large load through QLD, NSW, VIC, and SA) demonstrated the practical impact: a trip that, if under one regime, might use 2 escort vehicles end-to-end instead required swapping and adding escorts at state borders, incurring extra cost and coordination effort.
- **Accreditation and training inconsistencies:** The review pointed out that differing training requirements (or absence thereof) across jurisdictions cause inefficiencies. A particularly striking line was: “Different states and territories have different training and accreditation requirement yet there are no formal arrangements to recognise driver accreditation when loads are moved across borders.”. This was identified as a major inefficiency as effectively; qualified pilots are under-utilised because their credential isn't automatically accepted everywhere. The report noted the NTC's 2014 work on a national scheme and strongly recommended that those findings be implemented. It even listed recommended outcomes of a harmonised scheme, such as recognising any pilot accredited in one state as either “Accredited Pilot” or “Registered Pilot” nationally depending on their prior level.
- **Role of police and costs:** The 2018 Review noted that, in some jurisdictions (including QLD, NSW and SA), police escorts form part of the OSOM operating framework and can represent a significant component of OSOM movement costs. The review also identified that escort availability and coordination requirements have the potential to influence movement scheduling and operational efficiency. At the time, the review noted that QLD was the only jurisdiction where Police Commissioner consent formed part of the permit approval process, creating an additional step within the broader access process. The review further highlighted that escort arrangements vary between jurisdictions, including WA's use of Traffic Escort Wardens authorised to undertake escort functions. The findings reinforced the

broader objective of improving national consistency in pilot and escort requirements and considering opportunities to reduce regulatory complexity while maintaining safety outcomes.

Recommendations: The review made 19 recommendations in total; those directly related to pilots/escorts included:

- **Recommendation 17:** Implement harmonised national standards for pilot and escort vehicles. In other words, create one set of rules defining when escort vehicles are needed, applicable countrywide (likely via the HVNL or national notices).
- **Recommendation 18:** Harmonise inconsistencies around accreditation for pilot drivers by 2020. This set a target for all jurisdictions to recognise a single accreditation scheme in the near term.
- **Recommendation 19:** Simplify the pilot and escort process to remove layers of approval. Specifically, it urged that the multiple steps (NHVR permit, state road authority consent, police scheduling) be streamlined. It even mentioned a process improvement project between NHVR, QLD TMR, and QPS to look at consent simplification.

These recommendations were a clear call to action that the status quo was not optimal. It's notable that by 2020, full harmonisation had not been achieved, although progress was made on some fronts (e.g. more states starting to talk about mutual recognition, NHVR publishing info sheets comparing requirements).

The 2018 review also examined safety considerations, noting that while all jurisdictions prioritise safety, the absence of clear, evidence-based guidance on the most effective escort regimes has resulted in each state and territory maintaining its own established approach. It highlighted a broader industry issue, acknowledged in National Transport Commission (NTC) work programs and other forums, regarding the lack of definitive evidence linking escort configurations and training levels to safety outcomes. This reinforced the need for a comprehensive, evidence-based review to identify a safe and sustainable national model.

Importantly, in response to the findings of the 2018 review, several jurisdictions commenced incremental reforms to address identified constraints within their respective frameworks. This included initial steps toward improved consistency in access arrangements, consideration of pilot accreditation harmonisation, and refinements to permit processes. However, these changes were largely implemented on a jurisdiction-by-jurisdiction basis, and a fully harmonised, nationally aligned approach has not been realised, with many of the underlying issues persisting.

In essence, the review recognised that while escorts are universally accepted as critical to safety, there remains limited empirical evidence to determine optimal escort requirements or to quantify the relationship between training, operating models and safety performance. As a result, it recommended targeted trials, improved data collection and further analysis to inform a more robust, nationally consistent framework.

4.4 2022 Austroads National Access Framework for Heavy Vehicles (NAFHV)

The National Access Framework for Heavy Vehicles (NAFHV) is designed to improve access decision-making for heavy vehicles across Australia by promoting consistency, transparency, and collaboration among road managers, regulators, and industry. It supports the objectives of the National Freight and Supply Chain Strategy and aligns with broader reforms such as the Heavy Vehicle National Law Review. The framework proposes a set of shared principles to guide access decisions, including enabling access by default, fostering collaboration, harmonising practices, encouraging the use of safe and sustainable vehicles, automating decision-making, and facilitating open data exchange.

The framework envisions a coordinated national approach, supported by an Access Working Group (AWG) comprising representatives from jurisdictions, local governments, industry, and key agencies. This group would oversee a dynamic Access Work Program (AWP), which would be updated biannually and report annually to national transport ministers. The framework is intended to be a living document, reviewed every three years, and aims to streamline access processes, reduce reliance on permits, and support investment in infrastructure and vehicle innovation.

The NAFHV outlines several strategic objectives and actions:

- Establish a national vision and principles for best-practice access decision-making.
- Prioritise projects that improve efficiency and reduce administrative burden.
- Increase automation in access assessments and reduce the need for permits through pre-approvals and harmonised networks.
- Develop tools such as consistent guidelines, spatial systems, and network assessment tools.
- Improve systems for matching vehicles to suitable networks and support infrastructure investment planning.
- Encourage industry investment in safer, more productive vehicles by providing greater certainty around access.
- Enhance enforcement clarity for cross-border operations.

Relevance to Pilot/Escort was the focus around harmonising pilot/escort requirements aligns with NAFHV's goals. For "access by default" to work, road managers across jurisdictions need to trust each other's standards – if one state mandates an escort for a particular size, others should agree if that's truly deemed necessary, or agree it's not needed. The framework encourages collaboration among states and the NHVR on such issues. It also espouses using consistent guidelines and data to make decisions. A national standard for when escorts are required and how they are accredited would thus directly support NAFHV's consistency objective.

4.5 2024 QTLC Supporting QEJP Windfarm Transportation

Placed in the context of the failings of the current OSOM framework, the growing demand in Queensland for renewable energy contains a major threat of bottlenecking and pipeline delivery failure. As the state faced a surge in OSOM transports for renewable energy projects, came the Queensland-focused review Supporting QEJP Windfarm Transportation – Review of OSOM Wind Farm Arrangements" (Jan 2024). The report yielded several relevant insights:

- **Escort shortages causing delays:** It documented that increasingly, even when an oversize move had obtained all necessary permits, the move could not proceed on schedule because Queensland Police Service (QPS) escorts were unavailable on the day. Specifically, the phrase "increasing failure to secure QPS resources on the day of moves" is used. This meant wind farm components sometimes sat loaded and ready, incurring standstill costs, waiting for police escort availability. This finding highlights a real logistical bottleneck attributable to the current escort model in QLD. It directly ties to the question of sustainability, as relying solely on police for critical escort roles might not be tenable as OSOM demand grows.
- **Data on growth of OSOM moves:** The review noted that OSOM loads up to 100 metres long and over 6 metres wide are "now commonplace" in these projects – a scale that pushes the limits of existing escort practices. It emphasized that QLD's infrastructure and processes were not fully prepared for this volume of large moves and that there's an urgent need to adapt.
- **Industry feedback:** The QTLC engaged over 60 organisations (heavy haulage companies, energy project developers, police, road authorities, local councils, ports, etc.) in the review. A common theme from industry was frustration with the inconsistency and uncertainty around escorts. Companies want to know well in advance how many escorts will be needed, who will provide them, and that they'll be available on schedule. The current fragmentation (state rules, case-by-case permits, reliance on police scheduling) makes it hard to plan projects confidently. Stakeholders called for clearer, possibly more self-executable rules (like notices or standing guidelines) instead of ad-hoc permit-by-permit decisions on escorts.

The Wind Farm OSOM review presented 12 key recommendations. One of the "critical" recommendations was an urgent review of the pilot and escort framework in QLD. In other words, Phase 2 of this project (focusing on pilots and escorts) was born directly out of that recommendation. The reasoning was that without fixing the escort bottleneck, the state's ambitious renewable energy rollout could face continued delays and safety risks. Other recommendations from that review dealt with things like improving permit processes, enhancing route infrastructure, and stakeholder coordination, but all these intersect with escort arrangements. For instance, one recommendation was focussed on exploring the use

of permits by notice or pre-approved routes (so not every move needs discrete approval), which ties into having predefined escort requirements.

Safety incidents and near-misses: While the QEJP report’s focus was not solely on safety incidents, it did note concerns from stakeholders about incidents. There was mention of the need to “document and consider any safety incidents” involving current escort regimes – which is one of the tasks of this Phase 2 review. The takeaway was that any known incidents (e.g. bridge strikes, traffic accidents during escorted moves) should inform how the new framework is shaped.

Emerging trends (trials): The wind farm review also observed that the scale of OSOM needed for renewable energy is unprecedented in QLD, implying that traditional methods (police escorts for everything above 4.5 metres) may not scale. It hinted at looking into how other regions handle similar tasks – e.g. noting WA’s approach or the fact that in North America, private escort companies handle wind farm component moves with minimal police interference. This comparative angle supported the idea of considering alternative models (like private accredited escorts taking a larger role).

In summary, the 2024 QTLC review set the stage for change by clearly identifying the current escort system as a limiting factor for economic development (specifically the energy projects) and safety. It essentially asked: How can we make the pilot/escort system more reliable, more scalable, and safe? This is exactly what this Phase 2 aims to answer.

5 Safety incidents & trends

5.1 Introduction

Understanding real-world safety incidents (and near-misses) under current pilot and escort regimes is crucial. These incidents provide evidence of what can go wrong and why, informing what aspects of the system need improvement. The proceeding sections examine some notable incidents, trends and outcomes.

5.2 Case Study: Mount Crosby Bridge Strike, Queensland (May 2025)

A recent OSOM incident on the Warrego Highway near Ipswich, QLD highlights the potential consequences associated with complex heavy vehicle movements. A truck carrying a large wind turbine component was unable to follow the intended route and subsequently struck the Mount Crosby Road overpass bridge, with the load becoming lodged beneath the structure.

The incident resulted in significant damage, led to extended highway closures, and caused widespread disruption to the network. While no serious injuries were reported, the event underscores the potential for high-consequence outcomes during OSOM operations.



Figure 5-1: Mount Crosby Bridge Strike (Source ABC News 22 May 2025)

This incident highlights several key considerations:

- **The importance of clear communication and coordination:** OSOM movements involve multiple parties, including drivers, pilots, escorts and traffic management personnel. Maintaining effective communication throughout the journey is critical to ensuring alignment with the planned route and safe execution.
- **The reliance on planning and route management:** OSOM movements are typically supported by detailed route planning, including identification of constraints such as height restrictions. However, these plans require effective real-time implementation to manage risk during execution.
- **The potential role of supporting systems and controls:** The incident raises the importance of considering additional safeguards, such as in-vehicle navigation aids, real-time route monitoring, or physical traffic management measures, to support drivers and escorts in complex or high-risk sections of the network.

5.3 Case Study: Apsley (Highland Lakes Road), TAS – Wind-Turbine Blade Transport Rollover

In 2019, a prime mover and trailer combination transporting a wind-turbine blade approximately 68 m long rolled over on a bend along Highland Lakes Road near Apsley, Tasmania. The incident was widely revisited in 2023 during industry discussions on OSOM safety because it highlighted systemic challenges in moving ultra-long renewable energy components through regional road networks.



Figure 5-2: Wind turbine blade transport rollover (Source: Tasmanian Police)

The vehicle was negotiating a tight horizontal curve on a rural arterial route when the trailer's rear section tracked off the sealed pavement onto the soft shoulder. The combination destabilised and rolled down an embankment, causing significant damage to the blade and equipment. No fatalities occurred, but the recovery operation was complex, involving heavy-lift cranes and extended road closures.

Key elements leading to the incident:

- **Geometric constraints:** The selected route included curves with insufficient widening for the swept path of a 68 m load. Shoulders were narrow and unsealed, offering no structural support when the trailer tracked off the lane.
- **Load characteristics:** The blade's extreme length and overhang created low-speed off-tracking and amplified lateral forces on curves. High centre of gravity increased rollover susceptibility when the trailer tilted on the soft verge.
- **Speed and steering dynamics:** Even at low speed, steering corrections to maintain clearance likely induced lateral instability. Lack of intermediate steering axles or active steering technology may have limited manoeuvrability.
- **Route assessment and conditioning:** Pre-trip route surveys identified the corridor as "passable," but mitigation works (curve widening, shoulder strengthening) were not fully implemented. Limited contingency planning for loss of line control on tight bends.
- **Escort and communication factors:** Escort vehicles were present during the movement. Publicly available information does not clearly identify the specific escort configuration or the extent to which escort personnel observed trailer tracking during the incident. Nevertheless, the event highlights the importance of effective communication, situational awareness, and clearly defined operational procedures when transporting ultra-long loads through constrained road environments.

Key safety lessons include:

- **Route conditioning is critical:** For ultra-long loads, geometric compliance must include curve widening and shoulder reinforcement, not just clearance checks.
- **Dynamic risk controls:** Use of rear-steer technology, real-time tracking sensors, and abort protocols can reduce rollover risk.
- **Escort role enhancement:** Escorts should be trained to monitor trailer behaviour actively and communicate corrective actions promptly.

- **Pre-move simulations:** Swept-path and stability modelling should be mandatory for OSOM moves exceeding defined length thresholds.

5.4 Case Study: US Bridge Collapse (Washington, 2013)

In a famous U.S. incident, an oversize load caused the collapse of the I-5 Skagit River Bridge in Washington state. A trucking company with an oversize drilling rig was being escorted by a pilot car with a height pole. The pole struck several overhead bridge beams, but the escort driver was on her cell phone and failed to alert the truck in time. The truck hit the truss, causing a section of the bridge to fall into the river (National Transportation Safety Board, 2013). Miraculously, only minor injuries occurred as two vehicles fell into the water. The investigation by NTSB found multiple failures. The permitting process didn't ensure route clearance, the escort driver was distracted, and they were traveling too close together (400 feet gap instead of the recommended 800 feet). This led to reforms, including Washington State prohibiting escort drivers from using phones and improving route clearance analysis.

This incident highlights several points:

- Escort attention and adherence to protocol are critical. Although the height pole detected the low clearance as intended, human distraction prevented timely action, turning a warning into a catastrophic outcome.
- Proper escort spacing is essential. Reduced following distance limited reaction time and removed the opportunity to stop or divert once the hazard was identified.
- It demonstrates the importance of thorough pre-trip route vetting. The route approval process failed to confirm the bridge could safely accommodate the load, placing excessive reliance on escorts as the final safeguard.
- It raises the issue of technology versus human performance. Detection equipment worked correctly, but human error nullified its benefit, suggesting that technology alone is insufficient without training and vigilance.



Figure 5-3: Collapse of the Interstate 5 Skagit River Bridge

5.5 Safety Risks Inherent to OSOM Movements

Oversize Overmass (OSOM) movements are an essential component of Australia's freight task, enabling the delivery of critical infrastructure, construction materials and major project components. However, by their nature, these movements operate outside standard mass and dimension limits and therefore introduce inherent safety risks that must be actively managed.

5.5.1 *Inherent Risk Profile*

OSOM movements present a unique combination of risks, driven by:

- Scale and physical constraints
 - Extended length, width and height increase exposure to roadside infrastructure (e.g. bridges, powerlines, intersections)
 - Reduced manoeuvrability and longer stopping distances
- Interaction with live traffic
 - Requirement to occupy multiple lanes or encroach into opposing traffic
 - Increased reliance on other road users responding appropriately
- Network and infrastructure limitations
 - Legacy road infrastructure not designed for modern OSOM loads
 - Varying clearance, geometry and structural capacity across the network

5.5.2 *Operational Complexity Risks*

The safe movement of OSOM loads depends on the coordinated performance of multiple parties, introducing additional layers of risk:

- Multi-party coordination
 - Drivers, pilots, escorts, police and traffic controllers must operate in alignment
 - Breakdowns in communication or coordination can elevate risk exposure
- Planning and execution interface
 - Detailed pre-planning (route selection, hazard identification) must be effectively executed in real time
 - Variability in conditions (traffic, environment, fatigue) can influence outcomes during movement
- Variation in regulatory and operational frameworks
 - Differences in escort requirements, accreditation and operating procedures across jurisdictions
 - Increased complexity for interstate operations

5.5.3 *High-Consequence Event Potential*

While serious incidents are relatively infrequent, OSOM movements carry the potential for high-consequence outcomes, including:

- Infrastructure strikes (e.g. bridges and utilities)
- Major network disruption on key freight corridors
- Exposure to other road users leading to potential injury or loss of life

- Significant economic impacts, including project delays and repair costs

These events highlight that even isolated incidents can have disproportionate impacts at both network and system levels.

5.5.4 *Evidence and Safety Uncertainty*

A consistent finding across national and international reviews is the lack of definitive evidence linking specific escort configurations, accreditation levels or operating models to improved safety outcomes.

- All jurisdictions prioritise safety, but adopt different approaches in the absence of a clear evidence base
- Limited data exists to determine:
 - Optimal escort numbers
 - Effectiveness of different training levels
 - Relative safety performance of police vs civilian escort models

This uncertainty has contributed to the persistence of fragmented and conservative regulatory approaches.

5.5.5 *Implications for Reform*

The inherent safety risks associated with OSOM movements reinforce the need for a system that is:

- Risk-based and evidence-led
 - Aligning controls to the complexity and risk profile of each movement
- Consistent and scalable
 - Reducing variability and improving predictability for industry and regulators
- Supported by capability and technology
 - Enhancing situational awareness, communication and real-time decision-making
- Focused on continuous improvement
 - Incorporating data collection, incident insights and targeted trials to build the evidence base over time

5.5.6 *Implications for Escort Model Reform*

With consideration of the above safety risks and learning, safety outcomes are primarily influenced by:

- Route selection
- Planning discipline
- Real-time control

Reform should focus on strengthening risk controls and governance mechanisms rather than prescriptively defaulting to a single escort delivery model.

5.6 Summary

OSOM movements will always involve a higher level of inherent risk due to their size, complexity and interaction with the road network. The challenge is not to eliminate this risk, but to manage it in a way that is proportionate, consistent and informed by evidence.

A more harmonised and adaptable pilot and escort framework provides a critical opportunity to improve safety outcomes while supporting the efficient movement of these essential loads.

6 Stakeholder Engagement

6.1 Introduction

A comprehensive and collaborative stakeholder engagement process underpinned this Review, ensuring that the findings and recommendations reflect the practical realities and operational pressures experienced across Queensland's OSOM ecosystem. Engagement drew on the extensive industry, government and community interactions undertaken through QTLC's 2024 Supporting QEJP Windfarm Transportation review, which involved more than 60 organisations across government and industry.

This process ensured that the proposed pilot and escort reforms address challenges common to transport operators, large-scale infrastructure and industrial project proponents, regulators, police agencies and local road managers, as well as the wider freight and logistics sector.

6.2 Stakeholder Groups Engaged

Stakeholders represented the full OSOM transport chain, including:

Government & Regulatory Agencies

- Queensland Police Service (QPS) – responsible for current traffic-direction escort roles
- Department of Transport and Main Roads (TMR)
- Transport for NSW (TfNSW)
- Department of Transport (Victoria)
- Main Roads Western Australia
- National Heavy Vehicle Regulator (NHVR)
- Local government road managers

These agencies provided insight into current resource pressures, regulatory inconsistencies and operational constraints.

Heavy Haulage & OSOM Transport Operators

- Prime mover and platform trailer operators
- Specialist wind turbine and blade transport contractors
- Escort vehicle service providers (police and civilian)

Operators shared experiences of scheduling uncertainty, interstate inconsistencies and escort-availability delays.

Major Project Proponents

- Large-scale infrastructure and industrial project proponents
- EPC (Engineering, Procurement & Construction) contractors
- Port and logistics hub operators

These stakeholders highlighted the critical path role of OSOM movements and the substantial cost and schedule impacts from escort-related delays.

Industry Bodies & Councils

- Queensland Transport and Logistics Council (QTLC)
- Queensland Renewable Energy Council (QREC)
- Freight industry associations

They contributed whole-of-industry perspectives on the need for consistency, predictability and nationally recognised training pathways.

6.3 Key Themes from Stakeholder Engagement

6.3.1 *Escort Availability is the Single Most Pressing Constraint*

Across industry, stakeholders emphasised frequent instances where OSOM movements were fully permitted and loaded but could not proceed because QPS escorts were unavailable. While Level 2 civilian escorts are authorised to perform traffic direction functions within Queensland, their role and powers are not directly equivalent to those of police. Depending on the nature, complexity and risk profile of a movement, police involvement may still be required for broader traffic management, enforcement and operational functions. Nevertheless, the operational default has remained police-led. As OSOM volumes increase, this default has created capacity constraints that would not exist under a fully utilised civilian escort model.

Disproportionate impact on project cost and value

One wind farm proponent highlighted that even short delays in OSOM transport can have a disproportionate impact on project cost and value. Given that OSOM movements typically sit on the critical path for construction, delays in transport can halt downstream activities such as installation and commissioning.

By way of illustration, on large infrastructure projects, even a single day delay can result in hundreds of thousands of dollars in holding costs, once factors such as crane mobilisation, specialist labour, convoy staging, and traffic management are considered. When extended across multiple days or repeated across multiple movements, this can escalate to multi-million-dollar program impacts, in addition to deferred revenue from delayed generation.

This issue was highlighted repeatedly in QTLC’s 2024 review, which documented “increasing failure to secure QPS resources on the day of moves. “Stakeholders viewed the current escort model as increasingly difficult to scale under forecast OSOM demand.”

Escort Availability

“Even when everything is ready to go – permits, loads, drivers – we still lose days because police escorts aren’t available. It’s becoming the biggest constraint on our program.”

6.3.2 *Lack of National Consistency Creates Operational Inefficiency*

Operators and national freight companies stressed the challenge of moving OSOM loads across borders where pilot accreditation, escort requirements and traffic-authority rules differ significantly. This fragmentation contributes to additional cost, duplication and uncertainty.

National Inconsistency

“Every state has a different rulebook. Our pilots and escorts need to work under three or four different systems just to move one turbine blade across Australia.”

6.3.3 *Safety Risks Are Real but Manageable with Clearer Frameworks*

Stakeholders referenced recent incidents – including the Mount Crosby bridge strike, where a Level 2 industry escort was lead – as evidence that improved communication, route adherence technology and consistent competencies could substantially reduce risk. Escorts themselves emphasised the need for clearer role definitions and training pathways.

Safety Risks

“The recent incidents show that even well-planned OSOM movements can fail without real-time communication, strict route discipline and clear traffic-control authority. Safety depends on every link in the chain performing exactly as intended.”

6.3.4 *Large-Scale Project Pipelines Exacerbate System Pressures*

Developers and haulage operators noted that turbine blades (up to 100 m), tower sections and nacelles are already stretching current escort arrangements. With major Hub pipelines emerging, stakeholders expressed concern that delays will worsen without reform.

Large-Scale Project Pipelines Demand

“The scale of turbine components now is enormous – 80 to 100 metres long. The current escort model simply wasn’t built for this volume.”

6.3.5 *Strong Support for Pilot-Led and Hybrid Escort Models*

Australian and international benchmarking, combined with industry experience, has strengthened support for a progressive shift to accredited civilian escorts for suitable low-risk conditions. Stakeholders noted that Western Australia, NT, Tasmania, Germany and North America all demonstrate safe use of non-police traffic-direction roles under structured conditions.

Support for Pilot-Led Reform

“Other states and countries already use accredited civilian escorts safely. We’re keen to see Queensland catch up.”

6.3.6 *Technology Adoption is Viewed as Critical*

Operators, escort providers and police all supported trials of:

- GPS-based route-adherence alerts
- Real-time tracking of long loads
- Rear-steer and trailer monitoring systems
- Dash and pole-mounted video recording

These technologies were seen as essential for reducing misrouting, improving situational awareness and strengthening post-incident learning.

Need for Technology

“Better tech – GPS route enforcement, cameras, trailer-tracking – would make these movements safer overnight.”

6.3.7 Traffic Management Planning is a Critical Enabler

Stakeholders emphasised that the success of pilot-led and reduced-police operating models is heavily dependent on the quality of Traffic Management Planning. Robust Traffic Management Plans (TMPs) were identified as a prerequisite for obtaining approval for complex OSOM movements and provide confidence that risks associated with intersections, traffic interactions and network disruption have been appropriately mitigated.

Several stakeholders pointed to recent bridge girder transportation programs as examples where detailed TMPs, route planning and stakeholder coordination enabled large-scale movements to proceed safely with reduced police involvement. Feedback suggested that future reforms should place greater emphasis on consistent TMP requirements, standardised templates and risk-based planning methodologies to support expanded use of accredited escorts and technology-enabled operating models.

6.4 Summary

Stakeholders across the OSOM sector expressed a strong appetite for reform. Engagement confirmed that Queensland’s current escort framework, though historically effective, is now misaligned with emerging transport demands, particularly those driven by critical infrastructure and major project pipelines. Stakeholders consistently supported a move toward risk-based escort allocation, a harmonised national accreditation pathway, a structured trial program and greater use of enabling technologies to support safe and scalable OSOM movements.

This feedback directly informed the development of the six-pillar framework that underpins this Review.

7 Cost of the Problem

The current reliance on police escorts for OSOM vehicle movements has resulted in a growing mismatch between escort availability and the volume of freight required to support infrastructure and critical infrastructure and major project pipelines. As prior noted; Level 2 civilian escorts may undertake escort functions where the movement aligns the relevant risk criteria set by TMR and the NHVR. Despite this, QPS serves as the de-facto escort provider based on historical practice. As a consequence, where police escorts are unavailable, approved OSOM movements are delayed or cancelled, resulting in cargo not being moved as planned. This creates a range of direct and indirect economic, social, and system-level costs that extend beyond individual freight movements and impact project delivery, communities and broader government objectives.

7.1 Direct economic costs

7.1.1 *Non-movement of OSOM cargo*

When police escorts are unavailable, OSOM movements that have already been approved and loaded cannot proceed. This results in immediate and measurable costs including:

- Standby costs for heavy vehicles, drivers and escort resources
- Idle time for loaded vehicles and specialised trailers
- Holding costs at ports, depots or laydown areas
- Inefficient use of prior planning and permitting effort.

These costs are incurred without delivering productive outcomes and may be repeated where multiple rescheduling attempts are required. Any costs flowing on from delays in OSOM movements are initially absorbed by industry, before being passed down to the consumer through higher service prices.

7.1.2 *Construction delay and program extension*

OSOM movements often sit on the critical path for major projects. Delays to a single movement can:

- Prevent installation of OSOM elements such as wind turbines, bridge girders or precast elements
- Idle downstream construction crews and specialist plant
- Extend overall construction programs.

Program extensions increase project costs through prolonged site establishment, extended contractor engagement and delayed commissioning. For large infrastructure, critical infrastructure and major project pipelines, even minor delays can translate into material cost escalation and increased risk of contractual claims.

7.1.3 *Increased transport and logistics costs*

Uncertainty around escort availability can force freight operators to:

- Reschedule movements into less efficient time windows
- Implement additional operational controls or revised staging arrangements where required under permit conditions.

These responses increase the per-movement cost of OSOM transport and reduce overall logistics efficiency. Over time, these inefficiencies are priced into project delivery costs, initially absorbed by industry before ultimately flowing through to end-users via higher prices.

Queensland is experiencing a significant increase in OSOM movements associated with critical infrastructure and major project pipelines, particularly wind farms, which require transport of large numbers of turbines, blades, towers and nacelles. Similar demands arise from major transport and civil infrastructure projects involving large precast elements and girders.

Escort unavailability creates a systemic risk to the timely delivery of these projects by:

- Introducing uncertainty into construction sequencing
- Increasing the likelihood of cascading delays across project stages
- Reducing confidence in delivery timeframes for investors and proponents.

At this scale, this undermines the efficiency and predictability required to support major project pipelines and energy transition objectives.

7.2 Public sector and system-level costs

7.2.1 *Inefficient use of police resources*

Police escorts are a finite resource with competing operational priorities. The current model:

- Constrains police capacity to deliver their full range of core community safety and policing responsibilities
- Is difficult to scale in line with growing OSOM demand
- Results in inefficiencies where planned escorts are cancelled or reallocated at short notice from other regions.

This represents an opportunity cost to government and highlights the structural limitations of relying on police escorts as the primary mechanism for OSOM movements.

7.2.2 *Market and investment impacts*

Unreliable escort availability increases delivery risk for proponents and contractors. This can lead to:

- Higher contingency allowances in project budgets and expected CAPEX and OPEX costs due to increased timelines
- Increased bid prices to manage schedule uncertainty
- Reduced competitiveness of QLD relative to jurisdictions with more predictable escort frameworks.

These impacts are diffuse but cumulative, contributing to higher whole-of-project costs across the economy.

7.3 Community and amenity impacts

Escort constraints also create sustained impacts for communities located along OSOM transport routes. These include:

- Extended construction periods, prolonging exposure to noise, vibration and traffic disruption
- Repeated mobilisation and demobilisation of OSOM movements, increasing disturbance
- Reduced certainty for residents regarding the timing and disruptive OSOM movements

In its formal submission responding to the Review of Oversize Overmass Wind Farm Transport Arrangements (March 2024), QREC stated that regional towns and communities experience disruption from increased OSOM movements, and poorly coordinated or delayed transport can prolong these impacts, increasing community frustration. QREC emphasised that pre-approved routes and streamlined permitting would provide greater certainty for communities, reducing unplanned disruptions and therefore the resulting impacts from long or staggered transport schedules

7.4 Network reliability and safety conditions

Delays and movement cancellations can increase operational complexity and create challenges for project delivery and movement scheduling. While OSOM movements continue to operate within approved permit conditions and approved time windows, constrained escort availability may reduce flexibility and increase coordination requirements.

While not necessarily increasing incident rates directly, this elevates exposure to safety risk and places additional strain on road network coordination.

7.5 Strategic implications

Collectively, these impacts indicate that the current escort framework is not well aligned with the scale and complexity of future OSOM demand. Without reform, the cost of the problem will continue to grow as project pipelines expand, placing increasing pressure on government, industry and communities.

Increased OSOM movements induced by the number of renewable sites and planned wind farms over the four-to-six-year period from 2026 will cause a surge in demand in pilot vehicles, escort vehicles, and police escorts. In addition to this, the Queensland Energy Roadmap lists twelve areas, referred to as Regional Energy Hubs earmarked for development in critical infrastructure, major project pipelines and network infrastructure. These Hubs are planned for:

- | | |
|------------------|------------------------|
| — Southern Downs | — Calliope |
| — Western Downs | — Isaac |
| — Wooroolga | — Capricorn |
| — Darling Downs | — Far North Queensland |
| — Tarong | — Collinsville |
| — Callide | — Flinders |

The planned Hubs have project phases that extend through to the early 2030s, and form part of the significant pipeline of critical infrastructure and major project pipelines that require OSOM movements. With the planned development and delivery of Hubs in QLD, there will be a significant demand for OSOM movements to supply the required equipment. Of these movements, each trip in QLD has historically been accompanied by one police vehicle and two escort vehicles, which means that the pipeline of Regional Energy Hubs, renewable energy projects and planned wind farms will continue to pressure the capabilities and resources of QPS, pilots, and escorts. This breakdown is demonstrated below in Figure 7-1.

The forecasts presented in this section are based on currently identified renewable energy projects and should not be interpreted as representing total OSOM demand in QLD. Significant future demand is also expected from mining, major infrastructure, construction, defence, housing and Olympic-related projects, which are outside the scope of this dataset.

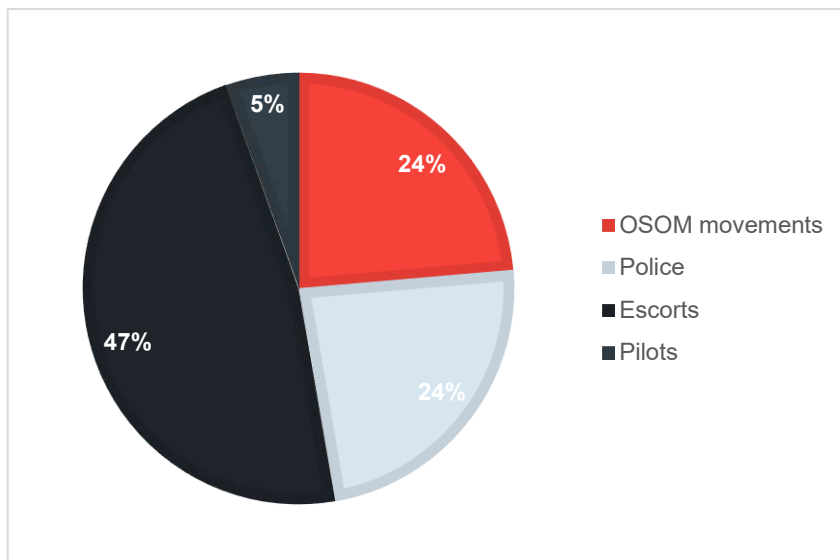


Figure 7-1 Share of Vehicle Type in OSOM Transit (QLD)

With the future number of renewal sites and planned windfarms, OSOM movements will continue to increase through 2028. As a result, escort requirements will almost double from 7939 in 2026 to 14,212 in 2028, while pilot demand will rise from 916 to 1,640. Over this same period, demand for QPS resources will experience a similar growth – 3,970 trips in 2026; 4,652 trips in 2027; 7,106 trips in 2028; 5,215 trips in 2029. This data is drawn from NHVR Renewable Projects database and compiles the aggregate demand for OSOM movements from potential renewable energy projects and those currently in construction. In Queensland, the data lists nine projects in construction and an additional eleven that are planned and pre-construction.

This demand is problematic for the success of Queensland’s wind farm project pipeline – as outlined in 7.2.1, the capacity for the QPS to act as escort vehicles is already constrained and is resulting in otherwise ready OSOM movements being unable to proceed. The costs associated with this issue will be further exacerbated by the increased demand for the QPS as escorts, which will continue to stretch the already limited resources. In all, this represents the most concentrated period of demand for OSOM movements in Queensland – highlighting the rapidly growing need for the requisite accompanying vehicles as seen below in Figure 7-2.

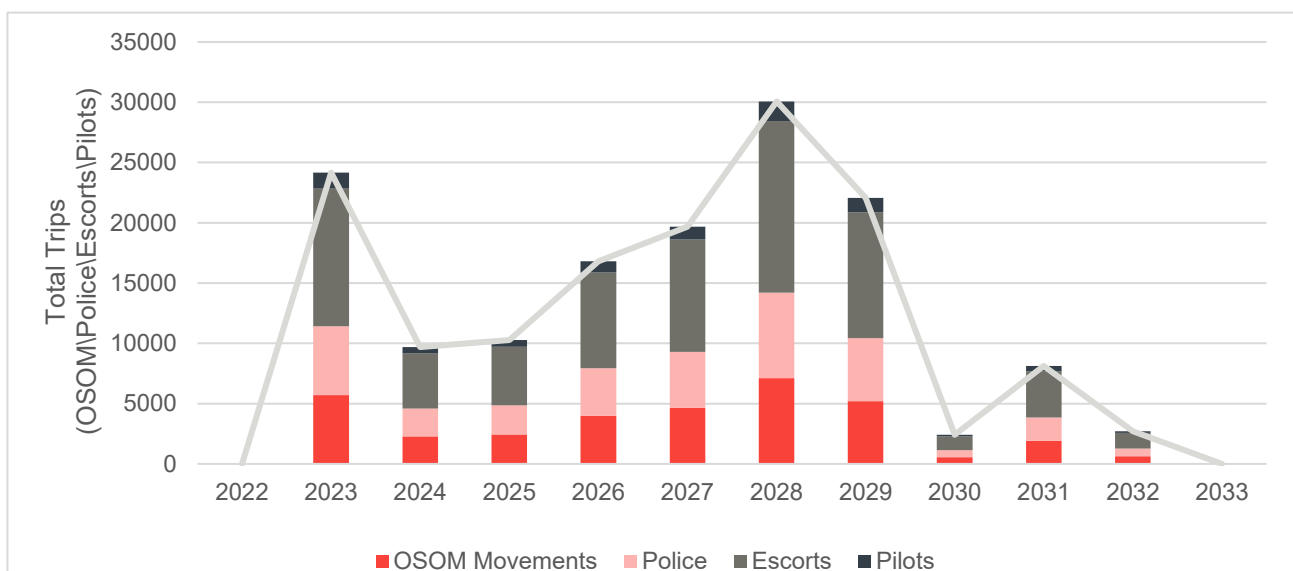


Figure 7-2: Total Trips Involved in OSOM Transit (QLD) per year

Within the renewable energy project dataset used for this analysis, forecast Queensland OSOM movements reduce after 2029 and decline toward the end of the forecast period. This should not be interpreted as a reduction in total OSOM activity across Queensland, as ongoing demand from mining, construction, defence, housing, major infrastructure and Olympic-related projects is outside the scope of this dataset.

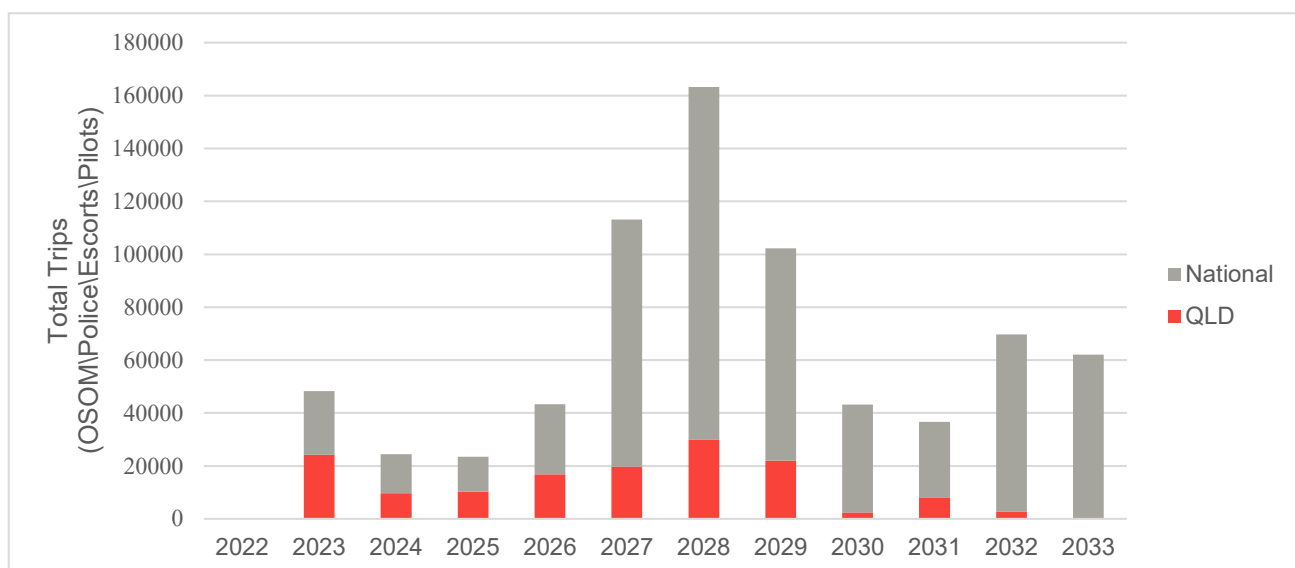


Figure 7.3 Total Annual Trips in QLD as a Share of National

OSOM movements in Queensland are projected to grow steadily over the next four to six years, creating an increasing mismatch between demand and escort capacity. Without a coordinated response, this constraint will drive system-wide impacts, including delays to critical infrastructure, major project pipelines, and housing delivery, with flow-on effects to electricity prices and supply outcomes.

At a network level, increased and less coordinated movements will exacerbate congestion and disruption, particularly in regional communities. Collectively, these pressures will translate into higher costs, reduced productivity, and diminished economic and community outcomes, underscoring the need for a proactive, system-wide response.

Increased OSOM activity will also require continued focus on road-user awareness, public education, and coordinated traffic-management practices. Regardless of the escort model adopted, maintaining safe interaction between OSOM movements and general traffic will remain fundamental to achieving positive safety outcomes and community acceptance.

7.6 Comparison of Operating Models

While detailed cost quantification is outside the scope of this review, the proposed Framework is expected to reduce reliance on constrained public resources while enabling more flexible and scalable delivery, subject to validation through trials.

Table 7.1 Comparison of operating models

Aspect	Current Model (Police-led)	Proposed Framework (Risk-based / Pilot-led)
Escort Availability	Constrained by QPS supply	Scalable via industry capability
Cost Structure	High public resource dependency	Shifted partially to industry
Flexibility	Low	High
Risk Management	Prescriptive	Risk-based

While detailed quantification is outside the scope of this review, the comparison highlights a structural shift from constrained public resource reliance to a more scalable, industry-supported model, with potential for improved cost efficiency subject to validation through trials.

8 Queensland framework

8.1 Introduction

This chapter sets out a practical framework to address the identified safety, capacity and reliability challenges associated with OSOM pilot and escort arrangements. The framework is organised around a set of inter-related pillars, each supported by a clear objective and a small number of targeted actions. Collectively, the pillars are intended to deliver near-term capacity relief, maintain or improve safety outcomes and establish a robust evidence base to support staged reform over time.

8.2 Governance

Effective implementation of the framework requires clear delineation of roles and responsibilities across government and industry stakeholders.

Table 8.1 Proposed governance responsibilities

Function	Lead Agency	Supporting
Policy & network decisions	TMR (road manager)	NHVR, QPS
Permitting	NHVR	TMR
Pilot & Escort Accreditation	TMR	NHVR, Industry
Trial design & approval	TMR	NHVR, QPS
Compliance & monitoring	NHVR / TMR	Industry
High-risk escort operations	QPS	TMR
Industry advisory input and operational feedback where appropriate	N/A	QTA

All final decisions relating to escort requirements, risk classification and trial approvals sit with the relevant road manager. TMR retains responsibility for pilot and escort accreditation frameworks, associated competency requirements and accreditation policy settings within Queensland.

QTLC's role is envisaged as a convening and industry advisory function, supporting coordination across government, regulators and industry stakeholders. Following completion of the review, QTLC will not act as a delivery authority, but will contribute to ongoing industry engagement, dissemination of findings, and facilitation of feedback through established forums such as the OSOM Industry Forum.

8.3 Pillar 1: Shift low-risk movements to accredited pilots (Risk-Based Allocation of Escort Resources)

Objective

Reduce reliance on police escorts for low-risk OSOM movements by expanding the use of accredited industry pilots, while maintaining safety outcomes through clearly defined operating envelopes and governance.

Planned justification

This pillar is intended to deliver immediate capacity relief by freeing up police resources and enabling a larger proportion of OSOM movements to proceed under pilot-only arrangements. It will also improve scheduling flexibility, reduce costs, and establish a clear risk-based framework for determining when police involvement is required.

In addition, certain movements may require police involvement where broader traffic management, enforcement, public safety or operational coordination functions are necessary. While Level 2 accredited escorts are authorised to undertake defined traffic-direction functions, current training and practice may not fully support large-scale deployment in high-complexity intersection environments.

As such, movements involving significant intersection interaction may remain classified as higher risk unless supported by enhanced controls, additional escort resources or targeted training uplift.

Actions

Table 8.2: Pillar 1 Action Plan

ID	Opportunities for action	Who
1.1	<p>Formally define a class of low-risk OSOM movements suitable for pilot-only escorting, based on road type, traffic environment, load characteristics and operating conditions.</p> <p>Low-risk movements should be defined through a structured assessment framework incorporating the following criteria:</p> <ul style="list-style-type: none"> — Road classification (dual carriageway / rural / urban) — Traffic interaction complexity — Load characteristics (width, length, speed) — Environmental conditions — Incident and near-miss history — Intersection density and complexity — Number of signalised intersections — Requirement for traffic signal intervention — Availability of technology-based intersection management controls — Availability and quality of approved Traffic Management Plans <p>Final classification will be determined by the road manager (TMR), informed by data and stakeholder input.</p> <p>Clarify the role and capability of Level 2 accredited escort drivers, including traffic-direction authority at intersections and complex environments.</p> <p>This includes a review of current training requirements to confirm adequacy for expanded escort roles (e.g. stopping traffic, managing signalised intersections, red-light contravention where permitted), and identifying any additional competencies required.</p> <p>Initial envelope expansion (e.g. up to ~5.0 width and extended load lengths) should be applied conservatively and subject to corridor-specific assessment of lane width, shoulder availability and intersection density.</p>	<p>TMR (lead), supported by NHVR and QPS.</p> <p>QTA – Industry advisory and operational input</p>

ID	Opportunities for action	Who
1.2	Adopt a risk-based escort framework whereby police escorts are reserved for movements requiring police powers, higher-risk traffic management activities, or complex operating environments.	TMR and QPS (policy alignment)
1.3	Leverage established evidence and practitioner experience from successful trials which demonstrate high-throughput, pilot led delivery with no adverse safety impacts when tightly governed.	QTA – Industry advisory and operational input endorsed by TMR
1.4	Embed clear permit conditions, escalation triggers and compliance mechanisms to ensure pilot-only operations remain within the approved risk envelope.	NHVR (permit conditions), TMR (policy), Operators (compliance)

Special Consideration – Ultra-Long Components

While many OSOM movements may be suitable for expanded pilot-led approaches, ultra-long components may continue to warrant police involvement due to their exceptional length, swept-path requirements, intersection complexity and elevated consequence profile. These movements should be assessed as a separate risk category within any future risk-based escort framework.

8.4 Pillar 2: “No-regrets” envelope change on dual carriageways

Objective

Unlock near-term OSOM capacity on suitable parts of the network by modestly expanding the police-free operating envelope on dual carriageways, supported by additional controls and monitoring.

Planned justification

This pillar provides a low-risk, high-impact capacity uplift by targeting network segments that already exhibit favourable safety characteristics (e.g. separation, controlled access). It enables incremental change without systemic reform, allowing the network to respond to immediate demand pressures while building operational evidence.

Actions

Table 8.3 Pillar 2 Action Plan

ID	Opportunities for action	Who
2.1	<p>Introduce a conservative expansion of the pilot-only envelope on dual carriageways (for example, increased allowable width subject to additional pilots, speed controls and operating conditions). Initial envelope of 5m and 37m long, with a proposition of incremental step changes.</p> <p>The suitability of corridors for expanded pilot-only operations must be assessed based on network characteristics, recognising that risk varies significantly across urban, peri-urban, rural and remote environments. Particular attention should be given to merge points, constrained geometry, limited shoulders, and communication reliability.</p> <p>It is acknowledged that not all dual carriageway networks present equivalent risk profiles. For example, sections of the Bruce Highway and similar regional corridors may include narrow shoulders, temporary works, merge conditions or residual opposing traffic risk that require additional consideration.</p> <p>Particular attention should be given to merging zones, contraflow arrangements and constrained geometry where recovery space is limited, as these represent higher-risk scenarios even within otherwise suitable corridors.</p>	TMR (lead road manager), with NHVR and Local Government input where applicable
2.2	Prioritise corridors with strong geometric separation, controlled access and limited interaction with vulnerable road users.	TMR (lead), supported by Operators
2.3	Require proponents operating within the expanded envelope to support structured data capture on movements, incidents, near misses and network impacts.	Operators (data provision), with TMR oversight
2.4	Treat the envelope change as a “no-regrets” interim measure that can be defined or withdrawn based on observed safety and performance outcomes.	TMR (decision authority), supported by QTA – Industry advisory and operational input

8.5 Pillar 3: Targeted trials with rigorous measurement leading to staged reform

Objective

Build a defensible evidence base for longer-term policy change through well-designed trials that test alternative escort arrangements under controlled conditions.

Planned justification

This pillar addresses the current lack of empirical evidence underpinning escort arrangements by generating robust, data-driven insights. It enables government and industry to move from conservative, assumption-based settings toward evidence-led reform, reducing uncertainty and supporting consistent national approaches over time.

Actions

Table 8.4 Pillar 3 Action Plan

ID	Opportunities for action	Who
3.1	Design targeted OSOM escort trials on defined routes and corridors, building on past successful trials	TMR (lead), QTA, QPS— Industry advisory and operational input
3.2	Clearly specify trial parameters, including load dimensions, escort configurations, operating times, weather constraints and contingency arrangements. Initial envelope of 5m wide, 37m long, with a proposition of incremental step changes.	TMR (approval and conditions), with NHVR input
3.3	Undertake detailed corridor suitability assessments prior to trial implementation, including geometric analysis, traffic volumes, intersection density and operational constraints.	Operators (delivery), Technology Providers, with TMR/NHVR oversight
3.4	Implement consistent instrumentation and reporting requirements, including incident reporting, near-miss capture and operational performance metrics.	TMR (decision), supported by NHVR and QTA – Industry advisory and operational input
3.5	Use trial outcomes to inform stages reform, progressively expanding pilot-only arrangements where evidence demonstrates maintained or improved safety outcomes.	TMR (decision), supported by NHVR and QTA – Industry advisory and operational input

Trial Governance and Success Criteria

All trials will be led by TMR, with input from NHVR, QPS and industry, and will operate within existing HVNL frameworks.

Proposed Pass / Fail criteria:

- **Safety:** No increase in incident rate
- **Operational:** Improved on-time movement rates
- **Compliance:** Adherence to defined conditions

Successful trials are defined as those demonstrating maintained or improved safety outcomes, alongside measurable improvements in reliability and efficiency.

8.6 Pillar 4: Harmonised accreditation spine and explicit mutual-recognition map

Objective

Reduce regulatory complexity and uncertainty for interstate OSOM movements by converging around a harmonised national accreditation baseline, supported by transparent mutual recognition across jurisdictions.

Planned justification

This pillar is aimed at reducing friction, duplication and inconsistency across jurisdictions, improving efficiency for interstate movements and strengthening confidence in pilot capability. It supports a transition toward a more nationally consistent OSOM operating environment, while maintaining appropriate levels of competency and safety oversight.

Framework alignment with the Legislation

Implementation of this framework is intended to occur within the existing HVNL structure where possible. However, certain elements (e.g. expanded traffic-direction authority or national harmonisation) may require future legislative or regulatory reform at a national level.

Definition of Level 1 and Level 2

For the purposes of this framework:

- Level 1 Pilot – provides warning and coordination functions only.
- Level 2 Escort Driver – authorised to undertake defined traffic control activities under permit conditions.

These roles are currently defined in Queensland, but vary across jurisdictions, reinforcing the need for national harmonisation.

Actions

Table 8.5 Pillar 4 Action Plan

ID	Opportunities for action	Who
4.1	Establish a national pilot and escort competency “spine” built around existing training units and competencies, with a defined refresh cycle for traffic-direction roles.	Austroads and NHVR (lead), with jurisdictional input (TMR)
4.2	Develop and publish an explicit mutual-recognition map that clearly aligns with each Australian state pilot accreditation levels.	NHVR (lead), supported by TMR
4.3	Supplement mutual recognition with practical guidance to remove ambiguity at jurisdictional borders and reduce reliance on case-by-case interpretation.	NHVR (lead), supported by jurisdictions (incl. TMR)
4.4	Align audit, compliance and disciplinary processes where practicable to reinforce confidence in accredited pilot capability across jurisdictions.	Jurisdictions (incl. TMR), coordinated through Austroads/NHVR
4.5	Work through Austroads and NHVR to investigate development of a nationally recognised escort accreditation framework that provides consistent competencies, mutual recognition arrangements and clearly defined traffic management authority across jurisdictions.	Austroads (lead), NHVR, Jurisdictions

8.7 Pillar 5: Forward planning and coordination model

Objective

Improve the reliability and predictability of OSOM movements by strengthening forward planning, coordination and visibility across regulators, police, industry and road managers.

Planned justification

This pillar improves network efficiency and reliability by addressing coordination gaps, particularly in high-demand corridors. It will reduce conflicts, delays and congestion impacts, while enabling more proactive management of OSOM movements across the network.

This approach builds on existing coordination models used in major project delivery, formalising these practices into a consistent, statewide framework.

Building on existing practice

Similar coordination approaches are currently applied on major and complex projects (e.g. State Assessment and Referral Agency (SARA) coordinated projects), however these are typically project-specific and not consistently applied across the network. This pillar formalises and scales these practices into a repeatable, statewide coordination model.

Actions

Table 8.6 Pillar 5 Action Plan

ID	Opportunities for action	Who
5.1	Formalise regular multi-party coordination forums, bringing together road managers, police, local government, proponents and transport operators.	TMR (lead), with QPS, NHVR and Operators
5.2	Use these forums to schedule escort demand, allocate movement windows, identify overlaps and proactively manage network constraints.	TMR (lead coordination), supported by Operators
5.3	Introduce agreed triggers for contingency measures such as holding yards, re-sequencing of moves or temporary operating changes. Triggers could include traffic congestion beyond an acceptable length, incident on route (crash, emergency works), or thresholds for inclement weather events.	TMR (lead), with QPS for incident response triggers
5.4	Build on existing ad-hoc practices observed at ports and major logistics hubs, converting them into a consistent and repeatable coordination model.	TMR (lead), with Port Authorities and Operators

8.8 Pillar 6: Technology as a safety multiplier

Objective

Enhance situational awareness, compliance and safety performance through targeted use of technology that complements, rather than replaces, pilot and escort capability.

Planned justification

This pillar strengthens safety and operational performance by improving real-time visibility and decision-making, while also supporting the collection of consistent, high-quality data.

Technology is positioned as an enabling tool to support situational awareness and compliance, rather than a standalone safety control, and will be tested and refined through structured trials.

Responsibility

Responsibility for technology deployment and monitoring will primarily sit with operators, supported by structured reporting to NHVR and TMR. Oversight will be provided through audit, compliance reviews and trial governance arrangements.

Actions

Table 8.7 Pillar 6 Action Plan

ID	Opportunities for action	Who
6.1	Trial vehicle tracking and in-cab route-adherence alerts to reduce the risk of off-route movements and late route changes.	Operators (lead), with TMR/NHVR oversight
6.2	Deploy cameras on escort vehicles to support incident review, training and continuous improvement.	Operators (lead), with TMR guidance
6.3	Introduce digital signage on lead pilot vehicles displaying actual load width to improve decision-making by other road users.	Operators (lead)
6.4	Use technology deployments as part of instrumented trials, ensuring data feeds directly into the broader evidence base for reform.	TMR (lead data aggregation), supported by QTA – Industry advisory and operational input
6.5	Investigate Intelligent Intersection Management Technology to support OSOM movements through complex signalised networks. This may include temporary signal priority systems, adaptive signal phasing, intersection monitoring technologies and connected vehicle solutions that improve corridor progression and reduce the need for manual traffic control. Trials should focus on locations with high intersection density where police involvement is currently driven by traffic management requirements.	TMR (lead), Technology Providers, Operators

Case Study: Rockhampton Ring Road Girder Movements

Recent bridge girder transportation activities associated with the Rockhampton Ring Road project utilised signalised intersection management technology to facilitate repeated OSOM movements through complex urban environments. The approach included temporary modifications to traffic signal timing, allowing green phases to be extended for up to 90 seconds to support uninterrupted passage of oversized loads.

The technology-enabled approach reduced traffic management complexity, improved operational efficiency and minimised the requirement for direct intervention at intersections. Stakeholders identified this initiative as a practical example of how technology can complement pilots and escorts while maintaining safety outcomes.

Table 8.8

8.9 Summary

Together, these pillars provide a structured, evidence-led framework to address the current limitations of OSOM pilot and escort arrangements. The approach prioritises immediate, low-risk improvements, while deliberately creating the conditions for longer-term, nationally harmonised reform. By combining policy change, targeted trials, improved coordination and enabling technology, the framework supports safer, more reliable and more efficient movement of OSOM loads without increasing risk to road users or regulators.

The framework is intended to evolve over time, with specific parameters, operating envelopes and implementation settings subject to refinement through future data analysis and further assessment as trials are undertaken.

9 Trial locations and conditions

A balanced trial program should test alternative escort configurations across a diverse set of environments reflective of Queensland's OSOM demand profile. This ensures insights are robust, scalable, and applicable across regional freight, and metropolitan contexts. Trials should prioritise corridors with known OSOM throughput, strong geometric suitability and clear operational value.

9.1 Responsibility and trial selection

All trials will be governed by TMR as the relevant road manager, with clear roles defined for NHVR, QPS and industry participants. Trial selection should also align with TMR network classifications and consultation ensuring that higher-risk corridors are appropriately controlled or excluded from early-stage trials.

9.2 Trial Categories and Rationale

9.2.1 *Category A — High-Demand OSOM Corridors*

These corridors support large, high-dimension industrial and infrastructure components, movements that are among the largest, slowest and most escort-dependent in the state. They represent Queensland's most significant near-term OSOM demand.

Purpose of trials:

- Test pilot-only or hybrid arrangements on long-distance rural arterials.
- Measure risk controls for ultra-long loads (60–100m).
- Validate technology such as tracking, rear-steer monitoring and route-adherence alerts.

9.2.2 *Category B — Major Freight & OSOM Corridors*

These include highways and connectors with high OSOM throughput (e.g., girders, precast, port equipment).

Purpose of trials:

- Evaluate scalability of pilot-led operations on higher-volume roads
- Assess interaction with general traffic
- Validate alignment with network reliability and safety controls.

9.2.3 *Category C — Controlled Urban Interface Sections*

Limited but important for testing operational feasibility near metropolitan areas.

Purpose:

- Understand interaction with signalised networks
- Test escort configurations at constrained intersections
- Capture near-miss and incident data in mixed-traffic settings.

9.3 Proposed Trial Locations

Below is a balanced set of recommended locations with justification. All are directly aligned with the Hub pipeline and/or OSOM incident patterns identified in the Review.

9.3.1 Potential High-Demand OSOM Corridors

Table 9.1 High-Demand OSOM Corridors

Location / Route	Rationale	Proposed Trial Type
Western Downs Hub – Warrego Hwy → Dalby → Kogan Creek	High concentration of turbine component movements, long straight rural sections	Pilot-only envelope expansion; technology instrumentation
Southern Downs Hub – Cunningham Hwy → Warwick → Whetstone	Consistent OSOM demand; suitable geometry for envelope testing	Mixed escort model (L2 + pilot)

9.3.2 Major Freight (Projects and Cargo) Corridors

Table 9.2 Major Freight Corridors proposed corridors

Location / Route	Rationale	Proposed Trial Type
Peak Downs Highway – Mackay to Moranbah	Significant mining-related OSOM loads	Hybrid escort trials with data capture
Port of Brisbane → Gateway Motorway	High-volume port oversize freight	Technology-enabled escort sequencing trials

9.3.3 Urban Interface Trials

Table 9.3 Urban Interface Trials proposed corridors

Location / Route	Rationale	Proposed Trial Type
Ipswich Motorway (Darra – Redbank)	Proximity to Mount Crosby incident; high learning potential	Strictly instrumented trial with enhanced alerting
Townsville Ring Road	Mix of urban/industrial OSOM demand	Pilot-led escort for smaller OSOM loads

9.4 Trial Conditions

Each trial should include the following minimum controls, consistent with the safety findings in Section 5 and the framework in Section 8.

Escort Configuration Conditions

- Defined load envelopes (width, height, length) aligned with dual-carriageway safety margins
- Minimum pilot numbers (e.g., Lead + Rear + Additional Lateral pilot for >6 m width)
- Traffic-direction authority restricted to accredited Level 2 / CPVD-equivalent roles

Operational Conditions

- Time-of-day restrictions (night/early morning where appropriate)

- Convoy operations are not considered within the initial trial scope, unless specifically approved by the relevant road manager under defined conditions.
- Trial design emphasises robust upfront planning and route validation to minimise the need for deviation management during movements.

Technology Conditions

- GPS-based route-compliance alerts (lead and driver cab)
- Rear-steer or trailer-tracking sensors for ultra-long loads
- Continuous video capture on lead pilot and escort vehicles
- Digital load-width signage on lead pilot vehicles (where available)

Data and Reporting Conditions

- Standardised incident and near-miss reporting
- Time-stamped positional and speed data
- Post-movement safety debriefs
- Trial progress dashboards submitted monthly to NHVR/TMR
- Where applicable, data collection and reporting should align with emerging national platforms such as the National Automated Access System (NAAS), supporting greater consistency and integration of OSOM network information.

9.5 Compliance

Primary responsibility for compliance monitoring sits with TMR, supported by NHVR audit functions and operator reporting. This ensures clear accountability for oversight of non-police escorted movements.

Case Study: QUBE Bridge Girder Transport Trials (Queensland)

The QUBE bridge girder transport trials in Queensland, undertaken on major projects including the Coomera Connector and Gympie Bypass, tested a shift from traditional police-supported escort arrangements to a pilot-led model for large OSOM movements (approximately 47.5m girders). The revised approach replaced a typical escort configuration of two police and two pilot vehicles with four accredited pilot vehicles operating under defined conditions. The trials were delivered at scale, with approximately 650 girders transported over a 12-month period without police involvement. [mainroads.qld.gov.au]

The trials demonstrated significant operational benefits, with productivity increasing from around two girders per night to five girders per night, alongside improved scheduling flexibility and reduced reliance on constrained police resources. Stakeholder feedback indicated that the previous reliance on police escorts posed a risk of materially extending project duration, whereas the pilot-only model reduced both costs and delays. Overall, the trials provide strong, local evidence that pilot-led escort arrangements can safely support high-volume OSOM movements when implemented within clearly defined operating conditions.

The success of these trials was underpinned by extensive pre-planning, detailed Traffic Management Plans (TMPs), route assessments, stakeholder engagement and progressive risk mitigation activities. The operating model was implemented only after identified operational risks had been assessed and appropriate controls established through existing governance and approval processes.

In addition to the revised escort configuration, the success of the trial was supported by detailed Traffic Management Plans, extensive route assessments, strong stakeholder coordination and proactive management of key intersection locations. These factors demonstrate that successful pilot-led operations are dependent on a broader system of risk controls rather than escort arrangements alone.

9.6 Evaluation Framework

At minimum, trials should be evaluated against criteria and indicators such as:

- **Safety outcomes:** incidents, near misses, deviations from envelope
 - Recordable safety incidents per 1,000km travelled (number of incidents / total km)
 - Near miss rates per 1,000km travelled (number of events with credible potential to cause harm)
 - Envelope deviation frequency (count of deviations per movement, deviation duration)
- **Reliability:** on-time movement rate, cancellations due to escort availability
 - On time departure rate (% of movements on time, departing within agreed window)
 - On time arrival rate (% of movements arriving within agreed window)
 - Schedule adherence variance (actual vs planned duration)
 - Cancellation rate due to escort availability (% of planned movements cancelled due to escort availability)

- Reschedule lead time (average time to re-book a cancelled movement (days))
- Percentage of movements supported by appropriately accredited escort personnel. Trial participants should demonstrate ongoing access to appropriately accredited Level 2 escort resources where these are required by permit conditions or trial requirements.
- **Network impact:** traffic delays, community feedback
 - Total delay to other road users (vehicle minutes of delay)
 - Queue length and duration (maximum queue length (m or vehicles)), time to dissipate queue (minutes)
 - Number of traffic control interventions (number of stops, rolling blocks, intersection holds)
 - Unplanned disruptions (count per movement and total additional minutes)
 - Community feedback, traffic delay metrics, queue length monitoring, corridor performance indicators, incident trend data and road-user safety observations.
- **Cost efficiency:** reduction in QPS resource utilisation
 - Total QPS labour hours used per escort task (including travel, staging, escort, traffic control)
 - QPS vehicles deployed per movement (average number of QPS vehicles used)
- **Scalability:** potential for statewide extension
 - Corridor coverage potential (% proportion of OSOM demand that could operate under the trial escort configuration)
 - Geometric constraint hit rate (% proportion of planned movements that require additional controls)

Trial data should be sourced from permit records, accredited escort logs, operator reporting, GPS tracking data, incident databases, NHVR compliance activities and project-specific monitoring systems to support consistent performance assessment.

These indicators collectively define trial success and will inform decisions on whether to expand, modify or discontinue pilot-only operating models.

Any exceedance of approved operating conditions should trigger investigation and corrective action, including review of permit conditions, additional training, implementation of additional controls, temporary suspension of trial activities or withdrawal of approved operating arrangements.

10 Conclusions

10.1 Introduction

Queensland is at a pivotal moment in the modernisation of its Oversize Overmass (OSOM) escort framework. As the state undergoes rapid growth in critical infrastructure and major project pipelines and associated freight movements, the current pilot and escort system, particularly its reliance on QPS escorts, is facing escalating pressure. This Review makes clear that without strategic reform, escort shortages, delays and safety risks will increasingly undermine Queensland's ability to support its project pipeline and broader economic objectives.

A decade of prior reviews, combined with extensive national and international benchmarking, shows that Queensland's challenges are neither unique nor insurmountable. Jurisdictions that have successfully transitioned to more scalable and consistent OSOM frameworks have done so through three critical levers:

- Clear competency pathways,
- Evidence-based allocation of traffic-direction authority, and
- Structured trial programs to validate and refine new models.

This Review provides Queensland with a coherent roadmap to adopt the same principles.

10.2 A pathway toward harmonised, evidence-led reform

The six-pillar Queensland Framework established in Section 9 forms the backbone of a safe, sustainable and scalable escort model. It balances near-term capacity relief with long-term national alignment. Key elements include:

- **Shifting low-risk movements to accredited pilots:** This change preserves QPS involvement where it delivers the most value—high-risk, high-complexity corridors—while enabling industry-led escorts under clear envelopes and governance. This directly responds to identified capacity constraints and industry delays.
- **No-regrets envelope changes on dual carriageways:** Small but meaningful adjustments on suitable high-standard roads offer immediate throughput benefits without compromising safety. These changes mirror successful approaches seen in Western Australia, the U.S. and parts of Europe.
- **Targeted, instrumented trials:** Trials offer the empirical foundation required for durable policy reform. By applying consistent reporting, risk triggers and technology, Queensland can build confidence in pilot-led models and generate defensible safety evidence.
- **A harmonised accreditation spine:** Converging on an Australian-wide competency baseline anchored in common Transport & Logistics units (e.g., TLIC3010, TLIF3060) will reduce friction at borders and lift national consistency. Explicit mapping between WA's HVPL, Victoria's CPVD, NT's Level 2 and Queensland's L2 will support industry mobility and regulatory confidence.
- **Forward coordination and planning:** Regular multi-party forecasting, window allocation and escalation pathways will reduce surprise demand spikes and improve reliability, addressing a major source of schedule risk identified in recent wind energy and infrastructure projects.
- **Technology as a safety multiplier:** GPS-based route adherence, digital load-width signage and continuous video capture help address the root causes of incidents such as misrouting, communication breakdowns and driver uncertainty. These measures directly respond to lessons learned from case studies including the Mount Crosby bridge strike and international incidents, demonstrating the need for enhanced situational awareness tools.

10.3 Importance of a national, consistent approach

The analysis confirms that Australian jurisdictions currently operate with divergent thresholds, accreditation systems and traffic-direction rules. This introduces significant inefficiencies and undermines safety consistency across borders. Queensland is well positioned to influence the next stage of national harmonisation via:

- Contributing a well-defined competency spine to Austroads and NHVR work
- Demonstrating the effectiveness of pilot-led escorting at scale through trials
- Publishing a transparent mutual-recognition map to reduce regulatory ambiguity.

Given the current momentum in national access reform and the alignment with the National Access Framework for Heavy Vehicles (NAFHV), Queensland's leadership in this area will accelerate broader harmonisation efforts.

10.4 Implementation readiness and next steps

The evidence assembled through this Review supports a clear, phased approach to implementation:

- **Formalise the proposed trial program (Section 8):** Including route selection, corridor envelopes, operational controls and data requirements.
- **Engage with QPS, industry and road managers:** Establish governance, coordination forums and shared decision-making structures.
- **Develop and publish the accreditation spine and mutual-recognition map:** Ensuring clarity for operators, trainers, regulators and interstate jurisdictions.
- **Deploy enabling technologies:** Prioritising route adherence alerts, digital signage and convoy instrumentation.
- **Run trials and evaluate outcomes rigorously:** With results feeding into staged long-term reforms.

These steps will position Queensland to progressively expand pilot-led movements where safe, reduce reliance on police for routine OSOM tasks, and increase the predictability and throughput of freight operations statewide.

10.5 Conclusion

Queensland's OSOM demand is entering the most intensive period in its history, and the current escort framework cannot support this scale without reform. This Review provides a clear, evidence-based pathway to modernise escort arrangements – enhancing safety, improving reliability, reducing project delays and strengthening national consistency. By adopting the six-pillar framework and delivering a structured trial program, Queensland can transition toward a safe, sustainable and future-ready escort system that supports major project delivery and underpins the state's economic and critical infrastructure and major project pipelines ambitions.

Importantly, this report establishes a pathway to reform rather than a fixed end-state, ensuring that future changes are grounded in evidence, aligned with legislative frameworks, and supported by key stakeholders.

11 Limitations

This Report has been prepared by WSP Australia Pty Limited (WSP) and Pastin Solutions (Pastin) for Queensland Transport and Logistics Council (Client) in accordance with the scope of services defined in WSP's proposal dated 12 March 2025 and the Agreement dated 25 March 2025.

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Appendix A. Pillar Alignment

Appendix A.1 Pillar 1: Shift low-risk movements to accredited pilots (Risk-Based Allocation of Escort Resources)

Initiative ID	Initiatives	Intended Outcomes	Benefits	KPIs
1.1	Define low-risk OSOM movement class suitable for pilot-only escorting	Clear, risk-based classification for when L1/L2 pilots can replace QPS	Reduced police dependency; increased throughput	% of eligible moves correctly classified; reduction in QPS allocations
1.2	Adopt “Risk-Based Escort Framework” policy	QPS used only where their risk-mitigation value is highest	QPS resource optimisation; predictable scheduling	QPS hours saved; escort cancellations reduced
1.3	Leverage evidence from prior trials nationally/internationally	Proven safety envelope for pilot-led operations	Increased confidence for stakeholders	Trials referencing global best practice incorporated
1.4	Strengthen permit conditions, escalation triggers & compliance	Ensures safe operation boundaries and reduces deviations	Safety maintained or improved	Permit compliance rate; # of escalations triggered

Appendix A.2 Pillar 2: “No-regrets” envelope change on dual carriageways

Initiative ID	Initiatives	Intended Outcomes	Benefits	KPIs
2.1	Expand pilot-only envelope on suitable dual carriageways (width/conditions)	Fast, safe capacity lift with minimal risk	Higher OSOM throughput; reduced delays	Throughput change; incidents per 1,000 km travelled
2.2	Prioritise corridors with strong geometry & low VRU interactions	Trial limited to safe, controlled locations	Reduced risk exposure	Corridor suitability audits completed
2.3	Require structured movement data capture	Evidence to support long-term reform	High-quality evidence base	Reporting completeness; data quality compliance
2.4	Treat expansion as reversible interim measure	Ability to tighten rules if adverse outcomes emerge	Safe, monitored trial	Safety dashboard published quarterly

Appendix A.3 Pillar 3: Targeted trials with rigorous measurement leading to staged reform

Initiative ID	Initiatives	Intended Outcomes	Benefits	KPIs
3.1	Design trials across defined corridors	Controlled, comparable evaluation of escort models	Real-world validation of reform options	# of successful trial runs completed
3.2	Define trial parameters (dimensions, weather, timing, escalation)	Standardised trial conditions	Improved control & safety consistency	% of movements conforming to parameters
3.3	Undertake detailed corridor suitability assessments prior to trial implementation, including geometric analysis, traffic volumes, intersection density and operational constraints.	Recommended corridors	Safe and allocated corridors	# of successful trial runs completed
3.4	Implement consistent instrumentation (GPS, cameras, reporting)	High-quality operational data	Robust root-cause analysis capability	Data completeness; near-miss reporting rates
3.5	Use outcomes to inform staged reform	Evidence-based policy change	Reduced regulatory uncertainty	Adoption of successful configurations

Appendix A.4 Pillar 4: Harmonised accreditation spine and explicit mutual-recognition map

Initiative ID	Initiatives	Intended Outcomes	Benefits	KPIs
4.1	Establish national competency spine (TLIC3010, TLIF3060, etc.)	Consistent baseline for pilot/escort capability	Cross-border readiness	Publication of competency spine
4.2	Publish national mutual-recognition map	Simplified interpretation across borders	Reduced confusion, reduced admin burden	Map published and adopted by regulators
4.3	Publish border-transition guidance	Predictability for operators	Reduced non-compliance	% operator adherence to guidance
4.4	Align audit & disciplinary processes	Common compliance standard	Greater confidence across jurisdictions	Harmonisation achieved across ≥ 3 states
4.5	Development of a nationally recognised escort accreditation framework	National streamlined framework	Adopted and recognised framework	Decrease in delays

Appendix A.5 Pillar 5: Forward planning and coordination model

Initiative ID	Initiatives	Intended Outcomes	Benefits	KPIs
5.1	Establish multi-party coordination forums	Shared forecasting & forward planning	Improved network predictability	Number of operational forums per quarter
5.2	Implement scheduling and demand-allocation processes	Reduce conflicts & last-minute rescheduling	Better utilisation of escorts	Reduction in same-day cancellations
5.3	Define contingency triggers & escalation pathways	Consistent response to disruptions	Reduced schedule overrun	Response times; number of escalations managed
5.4	Standardise port/hub coordination practices	Leverage existing strong practice	Increased reliability at critical pinch points	Standardised SOPs adopted statewide

Appendix A.6 Pillar 6: Technology as a safety multiplier

Initiative ID	Initiatives	Intended Outcomes	Benefits	KPIs
6.1	Trial vehicle tracking & in-cab route adherence alerts	Reduce misrouting & bridge-strike risks	Improved compliance & situational awareness	# of adherence alerts; % corrected in real time
6.2	Deploy cameras on escort vehicles	Richer post-incident analysis	Better training & continuous improvement	Video availability rate; incident review timeliness
6.3	Introduce digital load-width signage	Improve awareness for road users	Reduced interactions & near-misses	Near-miss frequency drops
6.4	Integrate technology data into statewide evidence base	Holistic understanding of risk trends	Supports scalable permanent reform	Quarterly data reports delivered
6.5	Investigate Intelligent Intersection Management Technology	Improved management across intersections	Improvement safety and timing	# of same light movements