Queensland Government

Our ref: DG39696

Office of the
Director-General

Department of
Transport and Main Roads

26 June 2020

Dr Gillian Miles
Chief Executive Officer and Commissioner
National Transport Commission
Level 3, 600 Bourke Street
MELBOURNE VIC 3000

Dear Dr Miles

Thank you for the opportunity to respond to the National Transport Commission's (NTC) *Review of Guidelines for trials of automated vehicles in Australia* (the National Guidelines).

Trials are an important step towards broader Automated Vehicle (AV) deployment and NTC's review of the National Guidelines is welcomed to ensure they remain fit for purpose.

The Department of Transport and Main Roads (TMR) is well placed to input into this review based on its experience in facilitating AV trials in Queensland. TMR has developed an AV Trial Framework, supported by an application guide and templates. The AV Trial Framework is based on the National Guidelines and is reviewed regularly based on lessons learned from trial application, assessment and management processes.

TMR is also a key partner in the iMove Cooperative and Highly Automated Driving (CHAD) Safety Study. The CHAD Safety Study has been the most advanced on-road AV trial in Australia and has given TMR many insights into the opportunities and challenges associated with AV deployment.

I have enclosed TMR's response to NTC's review of the National Guidelines. The Queensland AV Trial Framework is also appended to our response and is offered as a basis for creating a nationally standardised way of assessing and managing AV trials.

If your officers need further information, they can contact Ms Melissa Cummins, Director, (Licencing, Automated Vehicles and Registration), TMR, by telephone on (07) 3066 2217 or email at Melissa.J.Cummins@tmr.qld.gov.au.

I trust this information is of assistance.

Yours sincerely

Neil Scales.

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24 JUNE 2020

QUEENSLAND DEPARTMENT OF TRANSPORT AND MAIN ROADS

RESPONSE TO THE NATIONAL TRANSPORT COMMISSION'S *REVIEW OF THE GUIDELINES FOR TRIALS OF AUTOMATED VEHICLES IN AUSTRALIA*

Introduction

The Department of Transport and Main Roads (TMR) welcomes the opportunity to provide a response to the National Transport Commission's (NTC) *Review of the Guidelines for trials of Automated Vehicles (AV) in Australia* (the National Guidelines).

TMR facilitates AV trials in Queensland under existing legislative exemption powers. These allow for an AV Trial Permit to be issued that exempts some requirements related to vehicle standards, vehicle registration and road rules. To support the consistent and transparent application, assessment, approval and management of AV Trial Permits, TMR has developed an AV Trial Framework (the Queensland Framework). The Queensland Framework is based on the National Guidelines and provides additional detail to ensure requirements are clearly articulated and able to be complied with. The Queensland Framework is appended to this response. Section and attachment numbers referred to in parentheses throughout this response are references to relevant parts of the Queensland Framework.

Information about how to trial an AV in Queensland is also available at the Business Queensland website - www.business.qld.gov.au/automated-vehicles.

To date, there have been a small number of AV trials conducted in Queensland, including:

- Several demonstrations of an EasyMile EZ10 shuttle on closed road environments.
- The Redlands Smart Mobility Trial (operated by the Redland City Council and the Royal Automobile Club of Queensland) which has seen the deployment of an EasyMile EZ10 shuttle on public roads on Karragarra Island in Moreton Bay for 6-months from late-2019. Future deployments of the vehicle are planned.
- The Cooperative and Highly Automated Driving (CHAD) Safety Study (operated by TMR and the Queensland University of Technology) which has seen the demonstration of a modified level 4 highly automated Renault Zoe on public roads at speeds of up to 50km/h at Shailer Park, Logan and Bundamba, Ipswich. The CHAD Safety Study is regarded as one of the most sophisticated AV trials in Australia. It provides TMR with a unique opportunity to understand the technical capabilities and limitations of the technology as well as the implications for future infrastructure, road use and regulation.

Based on these experiences TMR has refined the Queensland Framework over time to ensure application and assessment requirements are clear and the process for applying for an AV Trial Permit is as streamlined as possible. Lessons learned are shared throughout this response.

Response to specific consultation questions

1. Should the guidelines be updated to improve the management of trials and, if so, why?

The National Guidelines would benefit from providing a greater level of detail about the information applicants should provide in order to inform a meaningful assessment by road agencies/regulators. New and existing requirements are discussed below.

Objectives/purpose

The National Guidelines should assist prospective AV trial applicants to understand and develop their objectives and purpose. A lesson learned from TMR experience (both where a permit application was received/assessed and from early discussions with other prospective applicants) is that applicants do not always have a clear view as to what they are trying to achieve. Clear objectives are critical as this informs the approach to planning the trial and the associated requirements for obtaining a permit.

The Queensland Framework encourages applicants to consider their objectives at the beginning of the planning phase (see Section 3.1). A non-exhaustive list of examples is provided, including to:

- test a specific AV technology in Queensland road conditions.
- raise public awareness for AVs in general or for a specific AV technology.
- understand the suitability of the existing road environment for AV technologies.
- trial an AV as a public passenger service as a replacement or alternative to a human-driven service.

TMR works with applicants to refine and clarify their trial objectives and to provide guidance on associated permit implications. For example, trials involving a public passenger service will need to comply with passenger transport legislation.

Vehicle/technology

The National Guidelines would benefit from more clearly detailing the considerations applicants should make in selecting a trial vehicle/s as well as what technical detail should be provided to assist a thorough safety assessment.

The biggest challenge for trialling entities wishing to trial AVs on public roads in Queensland has been non-compliances with vehicle standards unrelated to the Automated Driving System (ADS). This has been particularly problematic for trials involving AV shuttles, which are non-compliant with many Australian Design Rules (ADRs). While non-compliances with ADRs relating to 'driver factors' (for example, steering column and instrumentation panels) can be more easily mitigated, non-compliances relating to 'occupant protection factors' (for example, dynamic impact protection, seatbelts, head restraints and child restraints) are more challenging to overcome. From a safety perspective, TMR's concerns have not been with the ability of these shuttles to operate in automated mode, but rather the significant risk to occupants if a shuttle were involved in a collision with another vehicle.

The Queensland Framework asks applicants to consider vehicle limitations and the impact on achieving their trial objectives (see Section 3.2). To support this, applicants are encouraged to consider a vehicle's Operational Design Domain (ODD) broadly, both relating to ADS technical capability (see Section 5.6) and the physical characteristics of the vehicle itself (see Section 5.2). Both play a crucial role in determining if, where and under what conditions an AV trial can proceed.

Given the objectives of AV trials in Australia are often aimed at public awareness or infrastructure readiness, in many cases the primary applicant for an AV trial is not the AV technology provider. In these cases, TMR has found that it significantly streamlines the application process to provide guidance on what technical detail should be provided as part of the application. The Queensland Framework therefore provides guidance on the technical detail that should be provided about an ADS

to inform a suitability assessment (see Section 5.5). This guidance is intended to be technology agnostic and is focused on capabilities (for example, connectivity, obstacle detection and localisation).

Trial location

The National Guidelines and Queensland Framework allow for flexibility in how a trial location is constructed. This may be either specific routes or areas (which could be linked to the ODD of a trial vehicle). However, as described above, an ODD must be considered broadly to include both ADS technical capability as well as limitations of the physical vehicle, as both will impact the trial location. The Queensland Framework provides some additional guidance to applicants regarding the considerations to make when selecting a trial location (see Section 3.3).

The Queensland Framework adopts a Safe Systems approach to assessing the suitability of trial locations (see Section 6.2 and Attachment 5). This supports applicants to consider the safety of the trial proposal, in the context of the trial location, based on the likelihood and consequence of various crash types. This includes crashes involving vulnerable road users such as pedestrians, cyclists and motorcyclists. Applicants are required to identify and assess crash risks and develop appropriate mitigation strategies. Acceptance of mitigated risks is required from the trial applicant, relevant local council/s and TMR. While this approach has so far only been applied to specific routes, it could be applied more generally to areas (or ODDs). To streamline the process, applicants are encouraged to consider homogenous road segments and develop standard controls, that are applied broadly, as well as specific controls, for localised issues.

Traffic management plan

A Traffic Management Plan (TMP) has a specific meaning in a road management context, with specific content and approval requirements. A TMP may not be needed for all AV trials. A TMP should be required where roadworks are required to install infrastructure for the trial or where the operation of the trial substantially impacts traffic flows (for example, traffic is diverted to other lanes or routes).

The requirements currently listed in the National Guidelines under the TMP section are important considerations in the selection of a trial location and management of the trial generally. However, the National Guidelines could provide some flexibility to applicants as to how this information is provided. The Queensland Framework has incorporated most of these requirements into the guidance provided to applicants when selecting a trial location (see Section 3.3). The Queensland Framework also includes aspects of a TMP within a general risk assessment (see Section 6.1 and Attachment 4) which can be completed by an appropriately trained and qualified representative of the trial applicant.

Stakeholder engagement

Stakeholder engagement is critical for the success of AV trials in Australia. The National Guidelines would benefit from some additional detail as to the level of stakeholder engagement expected and when this engagement should occur.

The Queensland Framework prompts applicants to consider how they will engage with the community (see Section 4.3.3) as well as stakeholder management more generally (see Section 4.3.4). This includes, the Queensland Police Service, road managers (TMR and relevant local councils), local business and schools and other government agencies. Trial applicants are encouraged to engage with stakeholders early in the planning phase. This ensures issues are identified and addressed early.

2. Should the guidelines be updated to improve the safety management of trials and, if so, why?

TMR continues to support a safety management approach to AV trials in Australia. This approach is flexible and aligns with the proposed direction of longer-term national regulatory reforms (that is, outcome-based rather than prescriptive). It is noted that there is significant cross over within the National Guidelines between the existing Section 3 (Management of Trials) and Section 5 (Safety Management Plan). To address this, TMR has largely combined these in the Queensland Framework

(see Section 6). To support applicants in developing their safety management approach, the Queensland Framework includes two risk assessment tools:

- A general trial risk assessment (see Attachment 4), incorporating broad safety, emergency and traffic management issues.
- A route crash risk assessment (see Attachment 5), specifically focused on the trial location and the risks of crashes due to the trial operation. To simplify this assessment, groupings of risks based on homogenous road segments/areas are encouraged.

It is acknowledged that this approach does involve some duplication as the trial location is considered across both assessment tools. However, providing this level of detail and standardisation of assessment tools has proved a success and supported applicants and TMR assessors alike.

To support the consistent application and assessment of AV trials across Australia, TMR encourages the NTC to develop a standardised way of assessing the safety of AV trials. The Queensland Framework may serve as a useful model to build upon.

Specific commentary against the issues identified in the discussion paper is included below.

Standard of evidence

The two risk assessment tools described above support applicants in Queensland to meet a sufficient standard of evidence. Completing these risk assessments requires applicants to identify and assess risks based on their likelihood and consequence and then mitigate those risks to a level that is acceptable to themselves, impacted local council/s and TMR. Depending on the mitigation strategies proposed, some additional evidence may be required. Some indicative examples are provided below:

- If the vehicle supervisor is required to monitor systems and respond to emergency events, specific training and evidence of completion may be required.
- If redundant systems (or sensor fusion) are proposed to mitigate the risk of sensor failure, appropriate testing and validation reports may be required.

While this can involve some iteration based on discussions between stakeholders, experience to date has shown this is an effective way of satisfying all parties that the risk assessment process has been broad and rigorous. The templates have proven useful in providing clear upfront guidance to applicants as to the expectations for risk assessment and management.

Human inattention

The Queensland Framework includes a variety of fitness for duty requirements in the general risk assessment (see Attachment 4). These include training requirements and prompts to consider a range of risks associated with the vehicle supervisor and/or fallback-ready user. The Queensland Framework also includes a broad range of responsibilities for permit holders and vehicle supervisors to ensure all parties understand their role within the trial (see section 8). Many of these responsibilities are aimed at minimising risks associated with vehicle supervisor inattention.

Non-compliant road user behaviour

TMR's experience with the AV technology trialled in Queensland has been that the technology does not have a pre-conceived idea of what compliant behaviour in other road users should look like. For example, sensors and computing systems typically detect objects and predict behaviour based on observations and not a detailed understanding of road rules.

Nevertheless, TMR supports drawing applicants' attention to the risks posed by other road users acting in unpredictable and non-compliant ways. In support of this, the general risk assessment (see

Attachment 4) within the Queensland Framework includes risk categories and potential hazards relating to other drivers, motorcycles, cyclists and pedestrians.

Interaction with enforcement and emergency services

While the Queensland Framework does not currently require a formal law enforcement engagement plan to be submitted, key aspects of emergency management have been incorporated into the general risk assessment (see Attachment 4).

As the complexity and scale of trials increases (particularly trials that take place over large areas or cross borders), there may be value in formalising this information into standardised law enforcement engagement plans. This should ideally be aligned to the approach that the Commonwealth Government is implementing as part of first-supply arrangements, where applicants for a type-approval will be required to describe how their vehicles will interact with enforcement officers, follow necessary instructions and make data available for investigations.

Pre-trial testing

TMR supports road agencies/regulators having the flexibility to impose pre-trial testing requirements that are relevant to the proposed trial. Given the range of AV technologies that may be trialled in Australia it will be impossible to proactively detail the pre-trial testing requirements in all scenarios, across all jurisdictions.

The Queensland Framework supports flexibility in pre-trial testing by encouraging applicants to supply evidence of prior testing rather than duplicating additional testing in the Queensland context. A lesson learned from TMR's experience to date is that applicants are often unable to provide sufficient evidence of prior testing. In some cases, even when prior testing had occurred, documentation describing the tests and outcomes was not available (or the applicant was not able to obtain it).

The Queensland Framework includes an indicative list of technology agnostic testing requirements to provide some guidance as to TMR's expectations (see Section 5.8). This is not intended to be exhaustive or reflective of the testing requirements for all AVs. As a principle, pre-trial testing should demonstrate the vehicle and technology's capability to safely undertake the Dynamic Driving Task manoeuvres expected during the trial, including with consideration of the trial location and infrastructure.

Safety assurance criteria

TMR considers it appropriate that the National Guidelines align with all agreed safety assurance criteria. The agreed safety assurance criteria are the cornerstone of the future regulatory framework (both at first-supply and in-service) in Australia. Embedding these criteria in the National Guidelines will increase their familiarity and give industry and governments the opportunity to test ways of providing assurance and conducting assessments.

The Queensland Framework includes most aspects of the safety assurance criteria, even if not explicitly referenced using the same terminology. However, TMR would review and update the Queensland Framework to more closely align with the safety assurance criteria if the National Guidelines were similarly reviewed and constructed.

While the level of detail required to be provided in a trial context will differ compared to what is envisaged for commercial deployment, the safety assurance criteria provide a useful scaffold to construct the safety management approach within the National Guidelines. The table below provides a brief illustrative comparison between the safety assurance criteria and similar trialling requirements, including how this is incorporated into the Queensland Framework.

Safety assurance criterion	Trialling requirement	Queensland Framework
1. Safe system design and validation processes	Description of technology being trialled and adequacy for trial.	Section 5.5
2. ODD	Appropriateness of ODD for trial, including both ADS and physical vehicle characteristics.	Section 5.6
3. Human machine interface	Description of interaction between vehicle and supervisor.	Section 5.7
4. Compliance with relevant road traffic laws	Description of how vehicle will comply with local road rules.	Section 6.1.3
5. Interaction with enforcement and other emergency services	Law enforcement engagement plan.	Section 6.1.2
6. Minimal risk condition	Description of how faults in the technology will be managed during the trial to ensure safety is not compromised.	Section 5.5
7. On-road behavioural competency	Description of technology being trialled and adequacy for trial.	Section 5.5
8. Installation of system upgrades	Description of how changes to the trial impacting the technology be managed.	Sections 4.3.5 and 5.5
9. Verifying for the Australian road environment	Pre-trial testing and safety assessment of trial location.	Sections 5.8 and 6.2
10. Cybersecurity	Description of how cybersecurity will be managed during the trial.	Section 6.1.1
11. Education and training	Vehicle supervisor and other user requirements.	Sections 6.1.1 and 8

3. What issues have been encountered when obtaining or providing insurance?

TMR is aware that some trial applicants have had issues in obtaining insurance for AV trials. This has primarily related to a lack of suitable insurance products in the market and the unknown risk profile of AV trials.

As the NTC's project examining Motor Accident Injury Insurance concluded, the applicability of existing Compulsory Third-Party (CTP) insurance is unclear in relation to AVs. Where AV trials have occurred on public roads in Queensland, it has been TMR's preference to register trial vehicles so that they are identifiable and are covered by a policy of CTP insurance. However, whether CTP insurance would cover personal injuries sustained in a crash involving an AV trial would depend on several factors and is untested in Queensland.

To address the potential gap in CTP coverage, additional insurance requirements are set out in the Queensland Framework (see Section 4.4). Despite any issues faced, all trials conducted in Queensland have been able to obtain insurance to meet these requirements.

4. Are the current insurance requirements sufficient? If not, how should they change?

The Queensland Framework requires AV trials to be covered by a policy of comprehensive insurance, which includes public and product liability insurance for at least $20 million. Insurance policies must expressly cover personal injuries and death as well as property damage caused by, or in relation to, the operation of the vehicle on both private and public land and roads. Insurance policies must list the State of Queensland as an interested party on the insurance certificate(s).

Based on TMR's understanding, most Australian jurisdictions impose similar minimum insurance requirements. For example, it appears as though most jurisdictions require public liability insurance for at least $20 million. TMR suggests the National Guidelines be updated to provide industry with an indication of the minimum insurance requirements that are likely to be imposed, noting that individual jurisdictions may choose to impose additional or increased insurance requirements in some circumstances. Clearer indication of the minimum national insurance requirements for AV trials may also help to inform the development of more tailored insurance products within the market.

5. Should the guidelines be updated to improve the provision of relevant data and information?

TMR is supportive of a review of the National Guidelines to provide clarity to industry about the types of data and reporting requirements likely to be imposed on AV trials in Australia. Specific commentary against the issues identified in the discussion paper is included below.

Consistency of reporting requirements

Consistency of reporting requirements across trials would support industry as well as make comparisons between trials and the aggregation of insights easier. To enable this, the National Guidelines could provide advice as to the form and content of various core reporting obligations. A standardised set of core reports, including templates with consistent content and format, would support the sharing of information and insights between trials and jurisdictions.

In addition to core reporting requirements, jurisdictions should be able to request additional reporting as necessary.

Incident reporting

Under the Queensland Framework, all trialling entities must agree to a range of reporting requirements (see Section 9). This includes incident reporting (serious and non-serious) and other reports such as monthly and end of trial reporting. These reporting arrangements have proved useful for TMR to understand the operation of AV trials and stay across any emerging issues. In response to this reporting, TMR has requested further investigation/information and has amended permit conditions.

For specific definitions and reporting requirements see the Glossary of Terms within the example AV Trial Permit that is attached to the Queensland Framework (see Attachment 1). The definitions of serious and non-serious incidents are broadly consistent with the National Guidelines, although TMR has refined this over time to maximise value and minimise the burden placed on trialling entities. The content of reports, including monthly and final reports is also defined to provide consistency.

Disengagements

The concept of reporting on disengagement requires careful consideration to not create an overly burdensome obligation on trialling entities. Disengagement of the ADS is not always evidence of a dangerous incident. For example, some technologies rely on vehicle supervisors taking back control in certain circumstances as a risk mitigation treatment. In addition, some Queensland trials have seen a high-rate of emergency stops (which could be considered disengagements). In almost all cases, this has been due to the technology operating in a conservative manner and falsely detecting obstructions (for example, long grass at the roadside moving in the wind). This vehicle behaviour has not caused any safety issues.

The Queensland Framework incorporates the concept of a disengagement within the definition of a non-serious incident. TMR has also refined the definition of a disengagement to be *"an incident resulting in the vehicle supervisor(s) undertaking emergency intervention in the operation of the vehicle that did not result in any injury or death (for example, using the emergency stop function to avoid a collision)."* This narrower definition ensures reporting obligations are commensurate with risk and are not overly burdensome for trialling entities.

Broader data recording requirements

The Queensland Framework requires all trial vehicles to be fitted with data recorders to record details about serious incidents, for example crashes (see Section 4.5.1). Data recorded must provide information on the location, automation status, traffic and environmental conditions, sensor information, incident information (type and description), video footage and driver information. Flexibility is provided as to how this obligation is met from a technical perspective.

6. Is there any additional information the guidelines should include for trialling organisations?

The Queensland contact information within the National Guidelines should be updated as below.

W: www.business.qld.gov.au/automated-vehicles

E: AutomatedVehicleRegulation@tmr.qld.gov.au

7. Should the guidelines apply to any other emerging technologies and operating domains?

As noted in the discussion paper, the National Guidelines have no legislative effect. To be given legislative effect they may be considered as part of the application for exemptions or permits under various jurisdictional schemes. As such, the application of the guidelines will depend on the scope of those jurisdictional schemes.

TMR does not support the broadening of the National Guidelines beyond their stated purpose, which is to inform the application of jurisdictional AV trial schemes. The Queensland Framework is limited by the existing legislative powers on which it is based. For an AV Trial Permit to be issued, the trial location must include a road or road-related area and the use of the vehicle must require an exemption from requirements related to vehicle standards, registration and road rules. Where a trial does not trigger these exemption requirements, TMR has no powers to apply the Queensland Framework.

TMR considers Small Automated Vehicles (SAVs) as a category of AV and so the Queensland Framework could be applied, providing a relevant exemption is required. TMR is of the view that the National Guidelines and Queensland Framework are already flexible enough to apply to SAVs. However, there may be some value is expressly clarifying this in within the National Guidelines to ensure consistency of application.

The National Guidelines should not apply to advanced driver assistance technologies (SAE level 1 and 2 vehicles) that are fully compliant with vehicle standards and commercially available in Australia.

8. Are there any additional criteria or additional matters relevant to the trials of automated heavy vehicles that should be included in the guidelines?

TMR has not had any experience with automated heavy vehicle trials to date. However, general safety requirements relevant to AVs are similar for both light and heavy vehicles.

There will of course be heavy vehicle related considerations that impact automated heavy vehicle trials. For example, requirements under the Heavy Vehicle National Law and interactions with the National Heavy Vehicle Regulator. While it may assist applicants if the National Guidelines provided some more general advice about these considerations, there doesn't appear to be a compelling reason to revise the National Guidelines to be heavy vehicle specific.

9. Are there currently any regulatory or other barriers to running larger trials? If so, how should these barriers be addressed?

The National Guidelines and Queensland Framework appear sufficiently flexible to permit the application and assessment of larger AV trials. For example, the existing legislative exemption powers,

on which the Queensland Framework are based, allow for permits to be issued to a vehicle or class of vehicles.

While jurisdictional AV trial schemes necessarily require local application, assessment and approval, there are opportunities for greater standardisation. A greater degree of consistency in requirements, application and assessment tools would streamline the process of applying for and assessing inter-jurisdictional trial proposals. TMR supports the greater standardisation of application and assessment tools and offers the Queensland Framework, particularly the risk assessment templates, for consideration by the NTC and other jurisdictions. TMR is also willing to review the Queensland Framework and assessment tools to align with national best practice, once agreed.

The risks associated with larger AV trials may be different and would need to be assessed on a case by case basis. Mitigation strategies and conditions of approval will depend on the specific trial proposal and risk. There may be differences in risk appetites and political drivers between jurisdictions which could result in different assessments of the same or similar trial proposals.

10. Should the guidelines continue to allow commercial passenger services in automated vehicle trials? If so, should the guidelines reference additional criteria that trialling organisations should be subject to, and what should these criteria be?

One of the primary use cases of AVs (both during trials and proposed for broader deployment) is to provide passenger transport services. As such it is critical that the National Guidelines support this in a trial context.

However, for the purposes of assessing safety, the 'commerciality' of an AV Trial passenger service is not a significant consideration. It is also important to note that AV passenger transport trials can be provided for free (non-commercial) or a fee (commercial). This 'commerciality' delineation does not alter the overall safety risks and outcomes. Rather, the National Guidelines should focus on risk profiles and consideration should be given to providing more detailed guidance for higher risk trials. AV Trial passenger services will face significantly higher risk profiles given the additional risk to passengers who are being carried inside the vehicle.

It will be challenging to comprehensively cover all passenger transport requirements in the National Guidelines. This is because:

- most passenger transport regulation is administered at state and territory level and there is no nationally consistent model; and
- within jurisdictions, regulatory requirements can differ significantly based on the type of passenger transport service and specific trial proposal.

Based on TMR's experience, passenger transport requirements are often not well understood by trial applicants (who may not be an existing passenger transport provider) and can be challenging to comply with. To support trial applicants and to give an indicative view of the range of regulatory requirements that may apply, the National Guidelines should be updated to provide an overview of the broad passenger transport regulatory considerations that are relevant to AV trials. This should include consideration of:

- Operator requirements (for example, accreditation and licensing for taxis, booked hire vehicles, limousines and bus services).
- Service requirements (for example, market entry restrictions and service contract arrangements for the specific services, such as scheduled or demand responsive transport).
- Vehicle requirements (for example, regular inspections and maintenance schedules as well as specific passenger service vehicle standards).

- Driver requirements, which can include vehicle supervisors of AVs (for example, accreditation and licensing).
- Broader impacts (for example, on other passenger service operators, services or stops).

Trial applicants should be encouraged to reach out to the relevant jurisdictional passenger transport regulator to understand requirements early in the planning phase of the trial. To support this, the Queensland Framework provides detail about relevant Queensland public passenger service requirements (see Section 3.4).

One aspect of public passenger regulation that applies nationally and should be explicitly included in the National Guidelines is the minimum accessibility requirements mandated under the Commonwealth Government's *Disability Standards for Accessible Public Transport 2002* (DSAPT). DSAPT establishes the minimum accessibility requirements in relation to public passenger vehicles, infrastructure, and premises, including issues such as access paths, manoeuvring areas, ramps and boarding devices, allocated spaces, handrails, doorways, controls, symbols and signs, the payment of fares and the provision of information. DSAPT does not provide powers for State and territory governments to exempt passenger transport trials from DSAPT requirements.

Although TMR does not directly regulate DSAPT compliance, for trials that involve public passenger services, the Queensland Framework requires evidence of compliance as a condition of approval of an AV Trial Permit (see Section 3.4.5). This ensures accessibility requirements are considered holistically and from the initial planning phases of a trial, including the selection of the trial vehicle.

Given AVs are manufactured internationally, and in many cases by non-traditional vehicle manufacturers, Australian disability accessibility requirements are often not considered in the design and construction. In circumstances where an AV cannot meet DSAPT requirements, equivalent access must be achieved without discrimination as far as is possible. TMR continues to make representations to trial operators and vehicle manufacturers to improve the accessibility of these vehicles. Aside from providing universal and equitable access to AV trials, this is important to ensure accessibility is considered as a key design principle for future AVs that are developed for passenger transport deployment. This will be critical to ensuring AVs are able to meet one of their stated benefits which is to provide increased mobility and independence to the community, including those who are currently unable to drive a conventional vehicle.

The Commonwealth Department of Infrastructure, Transport, Regional Development and Communications is currently reviewing DSAPT. This review is expected to be finalised by 2023.

11. What challenges have you faced with administrative processes when applying for approving trials of automated vehicles, and how could these be addressed?

TMR initially faced challenges with trial applicants not understanding what information was required to support their application, the level of detail needed and how to provide it. The Queensland Framework has been refined over time to address this. Providing greater clarity in requirements has resulted in efficiencies in the trial application and assessment process, this includes reduced back and forth between applicants and TMR, and reduced assessment timeframes by TMR assessors.

TMR has not had to assess a trial application for a large geographical area or ODD. While the Queensland Framework is flexible enough to provide for this, internal procedures may need to be refined to support an efficient risk assessment process. This would include a greater reliance on risk assessments and mitigation strategies for homogenous segments or areas. Initially an assessment of this nature is expected to take some time as procedures are developed and refined.

TMR has experienced some challenges in categorising trial vehicles under relevant ADR definitions. How a vehicle is categorised impacts which ADRs it must comply with and other regulatory requirements, such as passenger transport requirements and DSAPT obligations.

12. Are there any other barriers to cross-border trials? Is there a need to change current arrangements for cross border trials?

TMR is unaware of current arrangements for cross border trials beyond an agreement that jurisdictions are committed to working together to support cross border trials.

As noted in response to Question 9, greater standardisation of requirements, application and assessment tools would support more streamlined processes relating to applying, assessing and approving cross border trials.

13. Should there be a more standardised government evaluation framework for automated vehicle trials? If so, what are the trial issues that should be evaluated?

TMR would support a standardised evaluation framework for AV trials in Australia. A standardised framework will allow for the consistent investigation and documentation of the outputs of AV trials. In turn, this should support more sharing of these outcomes which would be of benefit to all Australian governments and the general public.

Trial evaluations should be based on the objectives and purpose of the trial. At a high-level, evaluations could yield results relating to:

- Details of safety incidents and insights for future trials/general deployment.
- Human factors research about the interaction between vehicle and supervisor.
- Public perceptions of the technology (for example, vehicle occupants and other road users).
- Public passenger service insights (for example, patronage, comfort, willingness to travel, accessibility considerations).
- Experiences in applying and assessing applications and regulatory management of the trial.
- Infrastructure requirements to support AVs and general infrastructure readiness.

14. Should the results of evaluations be shared between states and territories? If so, how should commercially sensitive information be treated?

TMR supports the results of AV trial evaluations being shared openly between jurisdictions and, as far as possible, with the general public. Given one of the key benefits of AV trials in Australia is to increase community awareness and acceptance of the technology, it is critical that trials are conducted transparently. In addition, if there are any key safety issues associated with a particular AV technology or trial it is critical that this information is shared with other jurisdictions to support the safe management of similar technology and trials across Australia.

Subject to commercial considerations, TMR strives to publish all end of trial reports and evaluations relating to AV trials in Queensland. For example, key project artefacts from the CHAD Safety Study are made publicly available on the Queensland Government website.

A consistent AV trial evaluation framework would support the sharing of insights. This could consider how to treat information that is commercial in nature while maximising the information that can be shared publicly. Some jurisdictions may choose to make the sharing or publication of trial evaluations a condition of trial/permit approval.

TMR would support a national entity (for example, the NTC or Austroads) to undertake a routine aggregation of lessons learned from AV trials across Australia to support greater sharing of knowledge and improve future trial outcomes.

15. What works well in the automated vehicle importation process, and what are the challenges?

The Queensland Framework includes information for trial applicants about how to apply for vehicle importation and encourages consideration of associated timeframes in the planning phase (see Section 5.3).

TMR has experienced the AV importation process both as a trial participant and as a regulator of trials. In general, our view is that the information provided by the Department of Infrastructure, Transport, Regional Development and Communications and the process for seeking vehicle importation works well for individual vehicle imports. We are unable to comment on the effectiveness of these processes for larger-scale importation applications that would be required to support larger-scale AV trials.

All vehicles imported for AV trials in Queensland have been non-compliant with ADRs and as such approved as test and evaluation vehicles. This can create challenges for the importer who is limited in the use of the vehicle (restricted solely for trial purposes). The vehicle's value is also impacted as there is limited or no opportunity for sale or transfer of the vehicle at the conclusion of the trial.

Given the high cost of AVs, we understand that the Luxury Car Tax (LCT) can create barriers to trialling AVs in Australia. The LCT waiver is only available to importers who can establish the learnings from the research that will be provided back to the vehicle manufacturer. This requirement places extra financial burden on importers and researchers and discourages road authorities and research institutes from importing AVs for research purposes. Given Australia does not have a light vehicle manufacturing industry, any modifications to an AV must be made by the vehicle manufacturer or equipment supplier overseas. This can result in relatively minor modifications incurring considerable costs to the importer once the LCT is applied.

16. Is there anything further that should be done to facilitate a transition from trial to commercial deployment?

As noted earlier in this response, greater alignment between the National Guidelines, state and territory AV trial schemes and the proposed end-state regulatory framework would support a smoother transition from trials to commercial deployment. One way of achieving this is to incorporate the safety assurance criteria more clearly into the National Guidelines to enable industry and governments to test them and learn lessons from these experiences.

As the regulatory framework for broad commercial deployment is progressively developed and implemented it will be necessary to consider the role of a national in-service safety regulator in AV trials. An initial role for a small scale national in-service safety regulator could be to coordinate AV trials nationally. This would enable the regulator to gradually develop the necessary expertise and internal processes and use lessons learned to improve the regulation of broader deployment. States and territories will still have an important road access role to play but may be able to increasingly rely on the national regulator for support with the technical and safety assurance aspects of AV trials.

17. Are there any matters that the NTC should consider in its review of the guidelines?

Matters for consideration in the review of the National Guidelines are discussed throughout this response.

Automated Vehicle Trial Permits

A step-by-step guide to applying for an Automated Vehicle Trial Permit in Queensland

Queensland Government

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Glossary

Term	Acronym	Definition
Australian Design Rules	ADR	Vehicle standards that must be met before a vehicle can be supplied to the Australian market. ADRs can be exempted by AV Trial Permits in some circumstances.
Automated Driving System	ADS	The hardware and software that are collectively capable of performing the entire dynamic driving task on a sustained basis.
Automated Vehicle	AV	A vehicle fitted with an ADS.
Compulsory Third-Party insurance	CTP	Mandatory injury insurance covers liability of the driver of the vehicle for injuries caused to others in an at fault crash. CTP may not cover all crashes involving an AV. TMR requires evidence of additional insurance.
Department of Infrastructure, Transport, Regional Development and Communication	DITRDC	Commonwealth department responsible for regulating vehicle imports and ADRs.
Department of Transport and Main Roads	TMR	Department responsible for assessing and issuing AV Trial Permits.
***Disability Standards for Accessible Passenger Transport 2002* (Cwth)**	DSAPT	Commonwealth Government standards that provide for accessible public transport vehicles, infrastructure and premises.
Driver Authorisation	DA	Authorisation required to drive a vehicle used in a public passenger service.
Dynamic driving task	DDT	All real-time operational and tactical functions required to operate a vehicle on a road, and includes: turning, lane keeping, lane changing, accelerating, braking, monitoring the driving environment and providing appropriate signals.
Fibre-optic Gyroscope	FOG	A fibre-optic gyroscope that senses changes in orientation, performing the function of a mechanical gyroscope.
Global Positioning System	GPS	A radio navigation system to determine location, velocity, and time 24 hours a day, in all weather conditions.
Human Machine Interface	HMI	Interface between the vehicle supervisor and an ADS. Includes functional and ergonomic design of the interface (for example, visual, auditory and tactile factors).
Inertial Measurement Unit	IMU	An electronic device that measures and reports force, angular rate and orientation, using a combination of accelerometers, gyroscopes, and magnetometers.
Light Detection and Ranging	LiDAR	A detection system which works on the principle of radar but uses light from a laser.
Microelectromechanical System	MEMS	Technology of microscopic devices with moving parts.
National Transport Commission	NTC	Agency responsible for leading national AV policy and regulatory reforms.
Operational Design Domain	ODD	The specific conditions under which an ADS is designed to function.
Operator Accreditation	OA	Accreditation to operate a public passenger service.
Public Passenger Service	-	See Schedule 3 of the *Transport Operations (Passenger Transport) Act 1994.* *A service that includes a driver for the transport of passengers. The service must be provided for a fare in the course of a trade or business or as a courtesy or community transport service and includes a driver service but does not include a service excluded from the Act by a regulation.*

Term	Acronym	Definition
Queensland Road Rules	QRRs	*Transport Operations (Road Use Management – Road Rules) Regulation 2009*. Legislation setting out the road rules that drivers in Queensland must abide by.
Queensland Police Service	QPS	Primary enforcement agency in Queensland
Radio Detection and Ranging	RADAR	A system for detecting the presence, direction, distance, and speed of objects by sending out pulses of radio waves.
Road	-	See Schedule 4 of the *Transport Operations (Road Use Management) Act 1995.* *A road includes:* • *a busway and a public area for driving or riding motor vehicles but does not include an area declared under regulation not to be a road.*
Road-related area	-	See section 13 of the QRRs. *A road-related area is any of the following –* • *an area that divides a road;* • *a footpath or nature strip adjacent to a road;* • *an area that is not a road and that is open to the public and designated for use by cyclists or animals;* • *an area that is not a road and that is open to, or used by, the public for parking vehicles.*
Real-time kinematic	RTK	A technique used to increase the accuracy of GPS signals by using a fixed base station which wirelessly sends out corrections to a moving receiver.
SAE International Standard	SAE J3016	SAE J3016 shows a graphic to reflect the evolving standard of level of automated driving
Simultaneous Localisation and Mapping	SLAM	A computational process of constructing and updating a map of an unknown environment while simultaneously keeping track of a vehicle's location within it.
Trial entity	-	Entity who is responsible for and undertakes to ensure the safety of the trial and will be the permit holder if an AV Trial Permit is approved.
Vehicle Identification Number	VIN	A unique identification number assigned to the vehicle and stamped into the vehicle chassis.
Vehicle to Infrastructure communications	V2I	A collective term for technologies enabling an ADS to communicate with connected infrastructure.
Vehicle to anything communications	V2X	A collective term for technologies enabling an ADS to communicate with other connected things (for example, other vehicles and infrastructure).
Vehicle supervisor	-	The human supervising the AV during the trial, and who may also need to take back control of the vehicle.

1. Introduction

This Application Guide (this Guide) has been developed to assist entities wishing to conduct Automated Vehicle (AV) trials in Queensland. This is a comprehensive guide to applying for an AV Trial Permit and conducting safe AV trials by identifying, assessing and treating all risks.

TMR can assist you in preparing an Application for an AV Trial Permit. After reading this Guide, if you have any questions about the process of applying please contact TMR's AV Regulation team.

Website: www.business.qld.gov.au/automated-vehicles

Email: AutomatedVehicleRegulation@tmr.qld.gov.au.

1.1 What is an AV Trial Permit?

An AV Trial Permit can be issued to an entity wishing to trial an AV on Queensland roads and road related areas. AV Trial Permits can provide exemptions from some existing transport requirements. For example, the Queensland Road Rules (QRRs), vehicle standards and vehicle registration.

AV trial permits are issued under several legislative powers, including:

- section 128 of the *Transport Operations (Road Use Management – Accreditation and Other Provisions) Regulation 2015*,
- section 14(1)(b) of the *Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 2010*, and
- section 107 of the *Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010*.

An example AV Trial Permit is provided at **Attachment 1**.

1.2 Do you need an AV Trial Permit?

An AV Trial Permit is required for any AV trials that operate on roads or road related areas in Queensland and that meet either or both criteria below:

1. the trial vehicle/s does not meet the requirements for vehicle registration (for example, the vehicle/s does not comply with relevant Australian Design Rules (ADR) (See Section 5.2 Compliance); and/or,
2. the QRRs present a barrier to the proposed trial operation.

It is recommended that you seek independent legal advice if you are uncertain as to whether you need an AV Trial Permit. If the criteria above do not apply, you should consider any requirements that might still apply. For example, if your trial involves a public passenger vehicle, passenger transport requirements will apply.

1.3 Are you eligible?

A strict eligibility criteria applies to all Applications. These criteria are designed to streamline the Application process, ensure relevant parties are aware of and support the proposed trial, and provide adequate coverage for injuries and property damage incurred during the proposed trial.

Before applying for an AV Trial Permit, you must have:

- Comprehensive insurance, including public and product liability insurance for at least AUD$20 million.
  - Registration in Queensland includes a mandatory Compulsory Third Party (CTP) personal injury insurance that covers liability of the driver of the vehicle for injuries caused to others in an at fault crash. There is some variation between cover depending on the provider, with CTP generally covering medical expenses and lost income for a period of time. It should be noted that currently, CTP may not cover your AV trial and as a result, TMR requires evidence of a broader insurance package.

  - Insurance policies must expressly cover personal injury and death as well as property damage caused by, or in relation to, the use of the vehicle/s on both private and public land and roads
  - Insurance policies must remain in force for the duration of the trial and include the State of Queensland as a named party on the insurance certificate(s)
  - If you have not yet obtained insurance, you must provide written evidence from an insurer with in-principle support to meet the insurance requirements above.
- Obtained, or be in the process of obtaining, all relevant permits, approvals, accreditation or consents as listed in this Guide.
- Consulted with the relevant local government(s) and received their support for the trial.

1.4 Reference materials

If you are considering conducting an AV trial in Queensland, the Department of Transport and Main Roads (TMR) recommends that you first review the *Automated Vehicle Trials in Queensland - Quick Reference Guide* at **Attachment 2**. This is a short overview that will inform your initial planning and decision making.

You should also consult the National Transport Commission's (NTC's) *Guidelines for Trials of Automated Vehicles in Australia*. These guidelines can be found at the NTC website (www.ntc.gov.au) and are the basis on which this guide was developed.

2. Applying for an AV Trial Permit

2.1 Application process

The table below provides an overview of the activities required to apply for an AV Trial Permit.

Activity	Who	Description
Plan	Trial entity	Planning is essential to ensure that you achieve your trial objective/s. Contact TMR for further information about the Application process.
Draft Application	Trial entity	Drafting the Application takes time. It is easy to underestimate the level of complexity in assessing and treating all risks. Ensure you allow enough time in your schedule to complete a holistic application.
Submit Application	Trial entity	Your application must be complete. Incomplete Applications will require further information and will take longer to process. Some incomplete Applications may be rejected.
Review and assessment	TMR and other government agencies	Assessment involves consultation with multiple areas of TMR and other government agencies. TMR may request additional information to support your Application, this may delay the assessment process.
Approval	TMR	Once the assessment is completed it will be progressed for approvals. AV Trial Applications can be complex and approval times will differ as the assessment process is thoroughly reviewed. Ask TMR for guidance on how long to allow for approvals as this will differ depending on the complexity of the proposed trial.
Notification of outcome	TMR	You will be advised of assessment outcome. You cannot commence the AV Trial until you have received a signed AV Trial Permit.

2.2 Application format

No specific form is provided for AV Trial Permit Applications as each Application is unique. Your Application must be provided in writing and clearly address Sections 3 to 7 of this Guide.

You can submit your Application to TMR at AutomatedVehicleRegulation@tmr.qld.gov.au. TMR prefers documentation in Microsoft Office suite or PDF file formats and can only receive documents to the limit of 20mb via email. Larger files or physical copies can be couriered or delivered as arranged with TMR.

2.3 A guide to this Guide

For ease of understanding, the rest of this Guide is structured into the following sections:

- **Section 3** asks you to consider the trial objectives to tailor your Application accordingly.
- **Section 4** seeks key information about the proposed trial.
- **Section 5** seeks information about the vehicle and technology to be trialed.
- **Section 6** asks you to consider how you will identify and manage risks.
- **Section 7** provides an opportunity to provide relevant additional information.
- **Section 8** clarifies the roles and responsibilities of key trial entities.
- **Section 9** sets out mandatory reporting requirements for all AV trials.
- **Section 10** details how TMR will use and disclose your information.
- **Section 11** contains a declaration that must be included in your Application.

3. Preliminary considerations

Before preparing an AV Trial Permit Application, it is important to understand what you are trying to achieve and how best to tailor the trial location, vehicle/s and service (if applicable) to meet that objective. The following sections are provided to guide your consideration of the key issues that will help to ensure your trial is a success.

Your Application should provide statements addressing each of the sections below. Please use headings in your Application to support TMR's review.

3.1 What is the trial objective?

What are you trying to achieve by conducting an AV trial in Queensland? For example, you may want to:

- Test a specific AV technology in Queensland road conditions.
- Raise public awareness for AVs in general or for a specific AV technology.
- Understand the suitability of the existing road environment for AV technologies.
- Trial an AV as a public passenger service as a replacement or alternative to a human-driven service.

Understanding the trial objective will help you to plan for the trial and will provide valuable context for TMR's assessment of your Application.

3.2 Choose the most appropriate vehicle

What vehicle/s are you proposing to trial? At this stage in the Application process, consider the limitations of the vehicle/s and the impact on the trial objective and proposed location. Full vehicle details and technical specifications are required at Section 5 of this Guide.

In considering the appropriateness of the vehicle/s, it is important to remember that AVs are designed to be used in specific Operational Design Domains (ODD). AVs cannot be safely used outside of their ODD. Some examples are provided below for context:

- Slow-speed vehicles are not appropriate on high-speed infrastructure.
- Vehicles without compliant occupant protection systems are not appropriate for use on high-trafficked or high-speed infrastructure.
- Some ODDs require specific physical and digital infrastructure (for example, signs, line markings and communication systems) and cannot operate safely without this.

Vehicles that are not appropriate for the proposed trial location will not be approved or will have significant conditions and limitations placed on their use. This may limit your ability to achieve the trial objective.

3.3 Choose the most appropriate location

Where are you proposing to conduct the trial? The specific route or area will be the subject of a thorough risk assessment (see Section 6 of this Guide).

The location of the trial is one of the key risk factors that TMR needs to understand as part of the process of assessing applications for AV Trial Permits. The choice of location will have direct implications for the types of vehicles that can be safely trialed.

Consider the questions below in selecting a location for the trial.

- Does achieving the trial objective require a specific location or type of infrastructure?
- What are the characteristics of the proposed location? For example:
  - Traffic volumes
  - Crash data
  - Presence of school zones
  - Presence of vulnerable road users (for example, pedestrians, cyclists, motorcyclists)
  - Distance between the trial location and the secure parking or storage area
  - Obscured driveways or road entries
  - Additional infrastructure may be required to operate the vehicle (LiDAR boards)

3.4 Passenger transport obligations

If you intend on providing an AV trial which the general public can travel on, your trial may be considered a public passenger service and subject to passenger transport requirements under the *Transport Operations (Passenger Transport) Act 1994* (TOPTA). These requirements include:

- A service contract or written agreement with TMR
- Impacts on other services/stops
- Operator Accreditation (OA) for any operator/s
- Driver Authorisation (DA) for any driver/s or vehicle supervisor/s
- Compliance with DSAPT (refer to attachment 3).

Compliance with TOPTA is the responsibility of the trial entity and such requirements cannot be exempted, varied or suspended by an AV Trial Permit. As such, it is critical when planning your AV Trial to understand whether the AV Trial will be regulated as a public passenger service and if so, what requirements may apply.

It is recommended that you contact TMR early in the trial planning process to understand how passenger transport requirements will impact your proposal. To enable TMR to provide you with accurate advice, you will need to answer and provide details to the following questions:

- Will the trial service be provided for a fare or other consideration?
- Which entity or entities are funding and providing the trial service and for what purpose?
- Will the trial service be open for use by the general public?
- Will the trial service impede any public transport stop/station, or existing TransLink service?
- Will the trial service operate to a timetable, on a continuous loop/shuttle, or on demand? (provide a map of the proposed trial area/route including origin, any proposed stops and end destination).

Answers to the questions above as well as how your trial is compliant with TOPTA and other passenger transport requirements (outlined further below) need to be included in your application.

3.4.1 Service requirements

There are restrictions on providing certain public passenger services in declared service contract areas or along declared routes. A list of declared service contract areas and routes is available at www.tmr.qld.gov.au/Travel-and-transport/Public-transport/Declared-service-contract-areas.aspx.

Applicants cannot provide an AV passenger service trial within a declared area or route in South East Queensland unless you hold a service contract or written agreement with TMR. The process involved in entering into a service contract or written agreement is timely and may require TMR to assess factors including the impacts to existing public passenger services, infrastructure use and transit conditions, along with any contractual obligations that TMR may have with existing providers in the proposed location.

AV Trials proposed for locations outside of South East Queensland that operate within a declared service contract area or route may have other restrictions limiting their operation.

If you intend on trialing an AV as a public passenger service within a declared service contract area, it is recommended that you engage with the existing service contract holder/s to understand impacts and opportunities for partnerships.

3.4.2 Impacts on other services/stops

If other public passenger services or public passenger service infrastructure (such as bus stops) are likely to be impacted or delayed by the trial, you will be required to complete a TransLink Temporary Closure application.

You can apply at www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Temporary-Closures-process. You must apply 21 days prior to the change occurring.

For further information about temporary closures contact temporary.closures@translink.com.au.

3.4.3 Operator requirements

Operators of public passenger services are required to hold an OA before providing the service. The purpose of an OA is to encourage the high-quality operation of public passenger services by:

- raising standards and awareness of operators in the areas of safety, service delivery and business acumen
- ensuring operators are held accountable for complying with appropriate standards.

If your proposed trial requires an OA, please allow up to six weeks for TMR to assess your OA application. The assessment of your AV Trial Permit Application may be put on hold while your application for OA is processed.

More information is available at www.tmr.qld.gov.au/business-industry/Accreditations/Operator-accreditations.

3.4.4 Driver requirements

Drivers, including vehicle supervisors, of vehicles used to provide a public passenger service are required to hold a DA. DA maximises public confidence in public passenger services by ensuring that drivers are suitable persons, having regard to the safety of children and other vulnerable members of the community, the personal safety of passengers and their property, public safety and the reputation of public passenger transport.

DA applicants and holders must satisfy various suitability requirements, including:

- medical fitness
- satisfactory criminal history
- satisfactory traffic history.

If you require DA for any, or all your drivers or vehicle supervisors, please allow up to six weeks for TMR to assess any applications. The assessment of your AV Trial Permit Application may be put on hold while your application for DAs are processed.

More information is available at www.tmr.qld.gov.au/Licensing/Passenger-transport-driver-authorisation.

3.4.5 Accessibility requirements

All public passenger services must comply with the Commonwealth Government's *Disability Standards for Accessible Public Transport 2002* (DSAPT). DSAPT establishes minimum accessibility requirements in relation to vehicles and infrastructure, including issues such as access paths, maneuvering areas, ramps and boarding devices, allocated spaces, handrails, doorways, controls, symbols and signs, the payment of fares and the provision of information.

Compliance with DSAPT requirements is the responsibility of the trial entity, TMR cannot provide exemptions. TMR can provide advice on DSAPT and support consultation with accessibility representatives. Your Application should include details of the DSAPT compliance of your trial, including both vehicle/s and infrastructure. TMR will not issue an AV Trial Permit where there are clear non-compliances with DSAPT requirements. Please see **Attachment 3** for DSAPT compliance information.

More information is available at www.tmr.qld.gov.au/Travel-and-transport/Disability-access-and-mobility/Accessible-public-transport-standards.

4. Trial details

Your Application should provide information clearly addressing each of the sections below. Please use headings in your Application to support TMR's review.

4.1 Trial entity details

4.1.1 Trial entity

This is the entity that will be issued an AV Trial Permit, if approved.

- Entity name
- ABN/ACN
- Place of company registration
- Evidence of incorporation
- Address of registered office (not PO box)
- Postal address (if different to above)
- Website

4.1.2 Trial entity representative

This representative must have delegation to make decisions on behalf of the responsible trial entity.

- Name
- Position within company
- Contact details (phone and email)

4.1.3 Trial partners

- Organisation names and role within trial

4.1.4 Vehicle supervisors

If multiple, provide for all.

- Name
- Address
- Date of Birth
- Driver licence details (licence number and issuing jurisdiction/country)
- Driver authorisation number (if relevant)

4.2 Local Council support

Provision of Local Council details will be taken as support. TMR may contact the Local Council/s to confirm support and discuss particulars of your Application. Provide the details below for all Local Councils that are impacted by the trial.

- Name of Council/s
- Date of consultation
- Name and position of Council representative
- Contact details (phone and email)

4.3 Management of the trial

4.3.1 Trial duration

- What is the duration of the trial (proposed start and end dates)?
- What are the days and hours of operation during the trial?

4.3.2 Trial supervision

- Will a vehicle supervisor/s be on board the vehicle at all times?
- If not, how do you propose to monitor the vehicle during the trial?

4.3.3 Community engagement

- Are there any specific demographic features that the trial must consider (for example, high population of older residents)?
- Are there any community concerns associated with the trial?
- What education and training has been, or is proposed to be, provided to the public?
- How will other road users (for example, drivers, pedestrians, cyclists) interact with the trial?

4.3.4 Stakeholder management

- How will the Queensland Police Service be engaged before and during the trial?
- Does the trial impact any key stakeholders (examples provided below) and, if so, how?
  - Road managers (TMR, local councils, toll road operators)
  - Local businesses or schools
  - Other government agencies
- Will media be involved before, during or after the trial? Are there any pre-planned media events?
  - Significant notice is required if it is expected that TMR, including the Minister, will attend media events. Approval of TMR or Ministerial attendance at media events will be on a case by case basis.

4.3.5 Managing Change

- How will you manage changes during the trial?
  - Please set out change management strategies to manage changes to the vehicle or infrastructure or other potential or likely upgrades over the course of the trial. For example, management of the vehicle, technology and recharging infrastructure.

4.4 Insurance

- Provide evidence of comprehensive insurance, including public and product liability insurance for at least AUD$20 million.
  - Insurance policies must expressly cover personal injuries and death as well as property damage caused by, or in relation to, the use of the vehicle/s on both private and public land and roads.
  - Insurance policies must remain in force for the duration of the trial and include the State of Queensland as a named party on the insurance certificate(s).
  - If you have not yet obtained insurance, you must provide written evidence from an insurer with in-principle support to meet the insurance requirements above.
  - You will not be covered by the Queensland Government and may not be covered by CTP insurance for costs incurred following a collision between the trial vehicle/s and a third party or infrastructure.

4.5 Data and information

4.5.1 Incident reporting

All vehicles issued with an AV Trial Permit are required to be fitted with data recorders that will record information of the trials. Data that is collected must allow for reporting of incidents and provide enough information on location, automation status, vehicle information, traffic and environmental conditions, sensor information, incident information (type and description), video footage and driver information. The data captured should not be edited and must be made available to TMR, if requested.

- To fulfil this requirement, provide details of:
  - the mechanism for capturing and reporting serious and non-serious incidents
  - the type of data collected
  - how data will be provided to TMR
  - the hardware (for example, a black box) that will be used to record data
  - the software that will be required to read and interpret the data
  - any current or proposed national or international information data standards that will be used to enable data to be collected, recorded, formatted or transmitted

Applicants should also note standard reporting is required (see Section 9).

4.5.2 Research

- What research will be undertaken during the trial and will it be made available to TMR (for example, passenger surveys, human factors research).

5. Vehicle technology

Your Application should provide information clearly addressing each of the sections below. Please use headings in your Application to support TMR's review.

5.1 Vehicle details

Item	Description
Make	Brand of vehicle, for example Renault
Model	Car product, for example Espace
Date of manufacture	Year of manufacture only
Vehicle dimensions	Overall length, width, height and wheelbase measurement
Australian Identification Plate fitment	Formerly known as a Compliance Plate, provides details of the registering Australian state or territory and provides clear indication the vehicle is ready for use on public roads
Vehicle Identification Number (VIN)	A unique identifier for the vehicle made up of 17 characters
Body type	Shape or style of the vehicle, for example sedan, hatchback, shuttle
Steering wheel location	If relevant, left-hand drive or right-hand drive
Seating capacity	Number of seats available for passengers
Standing capacity	Estimated number of standing passengers
Energy source	What powers the vehicle – for example petrol, electric
Unladen mass	The mass of the vehicle unoccupied and unladen, with all fluid reservoirs filled to nominal capacity including fuel, and with all standard equipment
Gross Vehicle Mass	Maximum operating mass as specified by the manufacturer, including the vehicle's chassis, body, engine, engine fluids, fuel, accessories, driver, passengers and cargo
Maximum power output	Check with manufacturer, for example 68kW
Maximum speed of travel	Check with manufacturer, for example 135km/h in manual mode, 50km/h in automated mode
Garage address	Address at which vehicle will be garaged
Level of automation	According to SAE J3016 - automation capability and features

5.2 Compliance with vehicle standards

Is the vehicle(s) fitted with a compliance plate issued by the Commonwealth Department of Infrastructure, Transport, Regional Development and Communication (DITRDC)? If not, you must provide a report that details compliance against each applicable ADR. The report must indicate compliance or non-compliance for each ADR and may need to be completed by a certified Automotive Engineer familiar with vehicle certification in Australia. If you have compliance documentation from countries outside of Australia, please provide as evidence.

Contact TMR if you are unsure which vehicle type (ADR category) to assess compliance against.

5.2.1 Compliance

ADRs listed as compliant must be supported by evidence as outlined below:

- If based on ADR testing, you must provide a copy of the ADR test report, or

- If based on certification to an acceptable alternate standard (such as the United Nations Economic Commission for Europe regulations), you must provide a copy of the certification details including the approval number and the approval certificate.

5.2.2 Non-compliance

ADRs listed as non-compliant, must be supported by a statement detailing:

- the reasons for non-compliance, including why you believe the ADR may not be relevant
- the risk associated with non-compliance
- the treatments that will be applied to mitigate all risks associated with non-compliance, including for both use in automated and non-automated mode.

5.3 Import approval

If the vehicle(s) is not fitted with a compliance plate issued by DITRDC, you must provide a copy of the import approval for the vehicle/s.

The process of gaining import approval for non-compliant vehicles is managed by DITRDC and can take up to three months. This should be factored into your trial planning and schedule. Non-compliant vehicles requiring importation for the purpose of AV trials are generally considered test and evaluation vehicles. This requires TMR to provide a letter of in-principle support as part of the importation process. Contact TMR for further information and to arrange.

More information is available at www.infrastructure.gov.au/vehicles/imports.

To apply for a vehicle import approval, visit www.infrastructure.gov.au/vehicles/imports/how_to_apply.aspx.

5.4 Registration

Is the vehicle/s currently registered? If so, what is the registration number/s?

If the vehicle/s is not currently registered, TMR will need to make an assessment about whether registration is required and how the vehicle will be registered. It is important that you contact TMR for advice about registration options as early as possible in the process of your application.

Please note, non-compliant vehicles cannot be registered with standard registration. Depending on the vehicle type, non-compliant vehicles may be conditionally registered.

More information is available at www.qld.gov.au/transport/registration/register/conditional.

5.5 Technology

The questions below aim to assist TMR in understanding the AV technology proposed to be trialed. Please provide enough detail in your responses to allow a thorough assessment of technology and its appropriateness for the trial proposal, including location.

Pictures and diagrams are useful in describing key components such as sensors.

5.5.1 Connectivity

- Is the ADS equipped with V2X communication systems? If so, explain the systems' capabilities, including compliance standards (for example, European Telecommunications Standards Institute).

5.5.2 Obstacle Detection System

- What systems does the ADS utilise to detect obstacles? For example, Machine Vision, LiDAR, RADAR, Ultrasonic

- Please provide each of the systems' detection specifications. For example, in the case of LiDARs, how many layers does each LiDAR have and what is the detection range?
- Do these systems work independently, or do they fuse their data before processing?
- How does the detection system ensure there is redundancy?

5.5.3 Supervisory System

- Is the system able to detect loss of a sensor, malfunction of a critical computer, failure of communication linkages? Please explain the system's expected behaviours in such failures
- Following a malfunction, how is the system's robustness ensured prior to restarting?

5.5.4 Localisation

- What systems does the ADS use to localise itself? For example, GPS, RTK, IMU, Odometer, SLAM, Machine Vision, LiDAR
- Please provide each of the systems' specifications. For example, IMU – explain the type of IMU used such as MEMS based or FOG
- Do these systems work independently, or do they fuse their data before processing?
- How does the system behave when accuracy cannot be achieved?
- If the localisation system is dependent on SLAM, are there any infrastructure changes proposed?
- Does the localisation system use a prior map of the route? If so, how is the required data collected or obtained to develop map/s?
- Does the localisation system dependent on the quality and availability of a mobile phone network?

5.6 Operational Design Domain

Your Application must describe the ADS's ODD in detail. This is required to be precise as it will inform TMR's assessment of the suitability of the trial proposal. The ODD should specify the exact environment and conditions in which the ADS can be operated safely. For example, this could include, but is not limited to:

- Infrastructure requirements
  - Types of roads
  - Traffic conditions
  - Signs and line markings
  - Prior digital maps
  - V2I connectivity (for example, with traffic signals)
- Environmental requirements
  - Weather and visibility conditions
  - Maximum and minimum temperatures
  - Wind speed
  - Time of day limitations
- Other requirements
  - Geographic limitations, such as geofencing
  - Vehicle limitations (for example, must be unladen or cannot tow a trailer)

Provide information about how the ADS will be restricted to its ODD and how it will transition control to a human driver if it reaches the limits of its ODD.

If changes to the ODD are expected during the trial, provide information about how this will be managed, including communication with TMR. TMR must approve all ODD changes during the trial before they can be implemented.

5.7 Human machine interface

Your Application must outline how the Human Machine Interface (HMI) will facilitate safe interactions between the vehicle and vehicle supervisors, both within the vehicle and if monitoring remotely.

Consider how the HMI will:

- communicate to the vehicle supervisor when it is safe to engage automated mode.
- notify the vehicle supervisor when the vehicle is in automated mode.
- request the vehicle supervisor to take back control with enough time to respond.
- ensure the vehicle supervisor is fit, alert and able to take back control.
- inform the vehicle supervisor and vehicle occupants of the vehicle's current and intended actions.
- indicate whether the ADS is functioning properly or experiencing a malfunction.

5.8 Off-road testing

You must provide evidence of relevant off-road testing for the vehicle and technology in environments and scenarios equivalent to the proposed trial. Specific testing requirements will differ based on the vehicle/s and technology being trialed. TMR may request additional evidence of off-road testing during the assessment process. As a principle, off-road testing should demonstrate the vehicle and technology's capability to safely undertake the Dynamic Driving Task (DDT) maneuvers expected during the trial.

Some indicative examples of off-road tests are included below. These are not intended to be reflective of the broad range of tests required for all AVs.

5.8.1 Trajectory and maneuvers

- Track a route with a similar trajectory as the trial route.
- Undertake maneuvers as required along the trial route (for example, turning, navigating intersections, overtaking).

5.8.2 Stopping

- Stop safely in the following scenarios:
  - A controlled deceleration due to object detected at a distance.
  - Emergency stopping due to object detected a close range.
  - Emergency stopping if vehicle supervisor or passenger provides an emergency stop signal.
  - Within a predefined or marked stopping area.

5.8.3 Detection and response

- Detect and respond in a safe and predictable way:
  - To other road users (for example, other vehicles, pedestrians, cyclists, motorcyclists).
  - To common obstructions (for example, fallen tree branches parked cars, toys).
  - If vehicle connectivity is lost.

5.8.4 Speed

- Detect and obey speed limits.
- Reduce speed by a defined amount within a defined area.

5.8.5 Accessibility

- Public passenger vehicles must be able to be boarded, travelled in and alighted comfortably and safely by a range of users who may require mobility assistance. This includes:
  - manually operated wheelchair users
  - motorised wheelchair users

- mobility scooter users
- passengers with a mobility device (crutches, walking stick, walking frame)
- passengers with a visual or auditory impairment
- passengers with a seeing eye dog
- passengers with a pram

6. Managing risk

Trial risk management is undertaken by considering, assessing and treating risks using two separate risk assessments. The general trial risk assessment is a broad assessment that treats risks associated with safety, emergencies and traffic. The route crash risk assessment is a specific assessment of the trial route, detailing the risk of different types of crashes along the route.

6.1 General trial risk assessment

TMR requires a comprehensive Risk Assessment, which includes a Safety Management Plan, Emergency Management Plan and Traffic Management Plan. See the first worksheet of **Attachment 4** for a guide on how to use the General Risk Assessment Template.

6.1.1 Safety Management

The Risk Assessment includes compulsory safety management sections. The Risk Assessment includes details from the NTC's Guidelines for Trials of Automated Vehicles, and considers:

- Security risks (e.g. cyber and physical security)
- Risks to other road users (e.g. pedestrians, cyclists, motorcycles and people with disabilities)
- Risks to road infrastructure
- Risks of system(s) failure
- Appropriate transition processes
- Whether there is a human driver and/or operator
- Pre-trial testing
- Training provided for the driver or operator
- Fitness for duty
- Vehicle identifiers
- Occupant safety.

6.1.2 Emergency Management

The Risk Assessment includes compulsory emergency management sections, including:

- how the vehicle interacts with different emergency vehicles
- how the vehicle interacts with emergency personnel
- how emergency personnel respond if the vehicle is involved in a crash (may be additional risks to responders' safety due to the batteries).

6.1.3 Traffic Management

The Risk Assessment also includes compulsory traffic management sections, including:

- access requirements
- infrastructure, line marking and signage requirements
- operational hours
- irregular and unexpected events
- vehicle requirement to abide by road rules
- on board signage

- AV speed on the route
- speed of other traffic on the route
- traffic density
- technology requirements.

6.2 Route crash risk assessment

The route crash risk assessment is a requirement to determine the risk of different types of crashes along the route(s) chosen. Any potential routes you present to TMR will require a route crash risk assessment. See the first worksheet of **Attachment 5** for a guide on how to use the Route Crash Risk Assessment Template.

Crash types include:

- Run off road
- Head on collision
- Intersections
- Pedestrians
- Cyclists
- Motorcyclist
- Other
- In the 'Other' category, you may wish to consider other vulnerable road users or crashes unique to your use case, vehicle or route.

7. Additional information

Please provide additional information in support of your Application in a clear and logical order, set out under headings where appropriate. Contact TMR to determine what additional information might be required.

8. Understanding your responsibilities

It is important to understand the responsibilities of relevant parties if your Application is approved. This section provides a high-level overview of the roles and responsibility of the two key parties to an AV Trial: the permit holder and vehicle supervisor/s.

This section is intended to be indicative only and TMR reserves the right to include other obligations as part of the issuance of an AV Trial Permit, as required and relevant to the proposed AV trial. The specific obligations on the permit holder and vehicle supervisor/s will be contained in the final approved AV Trial Permit.

8.1 Permit holder

The permit holder will be the nominated trial entity listed at Section 4.1.1 of this Guide. The permit holder is responsible for the overall safety and management of the trial. Specifically, this includes:

- ensuring the safe operation of the trial so that there are no adverse safety impacts on any person who interacts with the trial.
- identifying and mitigate all risks to an acceptable standard for the duration of the trial.
- complying with all reporting obligations (see Section 9 of this Guide).
- overseeing and managing the vehicle supervisor/s to ensure that they are appropriately trained, licensed and authorised and comply with the vehicle supervisor responsibilities set out below.

8.2 Vehicle supervisor

The vehicle supervisor/s is the person/s nominated at Section 4.1.4 of this Guide. The vehicle supervisor/s is responsible for the safety of the vehicle and vehicle occupants during the trial. Specifically, this includes:

- being appropriately licensed and authorised.
- monitoring the vehicle's automated functions.
- being fit and alert and able to take back control at all times.
- responding to the requests of authorised officers.
- providing support to passengers requiring mobility assistance (if operating a public passenger service).

9. Reporting requirements

If your Application for an AV Trial Permit is approved, you will be required to comply with mandatory reporting requirements for the duration of the trial. An overview is included below for background, specific reporting requirements will be contained in the final approved AV Trial Permit.

9.1 Incident reporting

- Serious incidents must be reported to TMR by phone and email as soon as practicable and a written report must be provided within seven days
- Non- serious incidents must be reported to TMR within 48 hours by phone and email and a written report must be provided within seven days.

9.2 Other reporting

- Monthly reports about the trial must be provided to TMR for the duration of the trial
- A final report about the trial must be provided to TMR within 30 days of the conclusion of the trial
- Provide unedited data in a format by request including but not limited to:
  - location
  - automation status
  - vehicle information
  - traffic and environmental conditions
  - sensor information
  - incident information if applicable (type and description)
  - video footage
  - driver information.
- Other ad hoc reporting must be provided to TMR, if requested in writing. So far as reasonably practicable, ad hoc reporting requests should be actioned within 48 hours.

10. Privacy statement

TMR collects information from an AV Trial Permit Application for the purposes of assessing and managing AV Trial Permits in Queensland. TMR or its agents/contractors may use the information collected in its communications with you and, where relevant, may give some of the information to vehicle insurers, statutory entities, insolvency entities, lawyers, persons involved in vehicle incidents/accidents, vehicle manufacturers, third parties who are involved in or intend to commence legal proceedings, tolling entities, law enforcement agencies and interstate transport authorities.

TMR may use information provided to confirm the validity and currency of driver licences, operator accreditations and driver authorisations. TMR may contact nominated stakeholders (including local council/s and public passenger providers) to confirm their support for the proposed trial.

Personal information will not be disclosed to any other third party without consent, unless authorised or required to do so by law. Providing false or misleading information or documents is a serious offence under the *Transport Operations (Road Use Management) Act 1995* and can result in serious penalties. Any permit issued as a result of providing false or misleading information or documents, will be instantly revoked and have no effect.

11. Declaration

Your Application must contain the following declaration. Please copy and paste the declaration below into your Application and ensure the trial entity representative listed at Section 4.1.2 of this Guide signs before submitting. Applications submitted without this declaration will not be accepted.

Declaration

The trial entity makes the following warranties:

1. The trial entity agrees to comply with any reasonable request by TMR to provide additional information to enable it to assess the Application.
2. The trial entity has undertaken the appropriate pre-trial testing of the AV, the automated driving system and system failure warning relevant to the risks of the proposed trial.
3. The trial entity has identified all relevant safety risks for the trial and has made proper allowances for how those risks may be mitigated or eliminated which are outlined in the Application.
4. The trial entity has undertaken appropriate system security testing and has made proper allowance for regular system security checks and updates to mitigate or eliminate those system security risks.
5. The trial entity has, or will be able to, obtain all the necessary permits, approvals, accreditations or consents necessary to conduct the trial.
6. The trial entity is not insolvent within the meaning of s.95A of the Corporations Act 2001 (Cth) or an externally administered body corporate within the meaning of the Corporations Act 2001 (Cth).
7. The trial entity agrees to indemnify the State of Queensland, acting through TMR, its officers, employees, agents and contractors (including sub-contractors) from and against all actions, proceedings, claims, demands, costs (including all reasonable legal costs and all reasonable costs associated with defending those indemnified), losses, damages and expenses, and any direct, indirect, incidental or consequential loss or damage which may be brought against or made upon those indemnified and which those indemnified may incur on their own behalf or sustain as a result of a third party claim arising out of any breach of an AV Trial Permit or any willful unlawful or negligent act or omission.

By signing this Application, I certify, in my personal capacity, as well as on behalf of the trial entity, that the information provided in this Application is true, correct and complete.

Signed by the Trial Entity Representative

Name: _____

Position: _____

Signature: _____

Date: _____

Witness

Name: _____

Position: _____

Signature: _____

Date: _____

Attachment 1
DEPARTMENT OF TRANSPORT AND MAIN ROADS
AUTOMATED VEHICLE TRIAL PERMIT

Transport Operations (Road Use Management—Accreditation and Other Provisions) Regulation 2015

Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010

Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010

PART 1 – PERMIT DETAILS

Permit holder **(the permit holder)**		
Authorised persons for this permit	Vehicle supervisor(s) – see **Schedule 1**	
Trial details **(the trial)**	*Name:*	
	Location:	
Vehicle details **(the vehicle)**	*Make:*	
	Model:	
	Date of manufacture:	
	VIN:	
	Plate:	
Permit details	*Number:*	
	Effective date:	
	Expiry date:	
Permit holder contact details		
Department of Transport and Main Roads contact details		

The Department of Transport and Main Roads (TMR) reserves the right to ***suspend***, ***cancel*** or ***vary*** this permit at any time.

The permit holder may request a variation or ***extension*** of this permit in writing to DTMR. The terms of the permit are only varied if written confirmation is provided by DTMR to the permit holder.

If at any time the permit holder, or their agents, are unsure of the authority of this permit and/or what they are legally entitled to do under the terms of this permit, they must contact TMR immediately.

All reports, requests, notifications, contact and questions to TMR, required under this permit, must be referred to the TMR contact listed above.

This permit ***expires*** on expiry date or the date that the permit holder advises DTMR in writing that the trial is completed, whichever comes first.

PART 2 – EXEMPTIONS

This permit provides the following authorisations and exemptions for the operation of the vehicle, subject to the conditions detailed in **Part 3**.

Transport Operations (Road Use Management – Road Rules) Regulation 2009
Pursuant to section 128 of the *Transport Operations (Road Use Management – Accreditation and Other Provisions) Regulation 2015*, authorised persons for this permit are granted an exemption (Special Circumstance Permit) from the following provisions of the *Transport Operations (Road Use Management – Road Rules) Regulation 2009* in relation to the operation of the vehicle in ***automated mode***:

-
-
-

Road rules requiring exemption will be listed here. All risks associated with exemptions must be treated.

Transport Operations (Road Use Management—Vehicle Standards and Safety) Regulation 2010
Pursuant to section 14(1)(b) of the *Transport Operations (Road Use Management - Vehicle Standards and Safety) Regulation 2010*, the vehicle is permitted to operate, with exemptions from the Australian Design Rules (ADR) created under the *Motor Vehicle Standards Act 1989* (Commonwealth) as follows:

-
-
-

ADRs requiring exemption will be listed here. All risks associated with exemptions must be treated.

Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010
Pursuant to section 107 of the *Transport Operations (Road Use Management - Vehicle Registration) Regulation 2010*, the permit holder is authorised to use the vehicle/s listed in **Part 1** on a road without vehicle registration.

Authorisation to use an unregistered vehicle on a road will only be provided if vehicle registration is not possible.

PART 3 – CONDITIONS

The exemptions provided for in **Part 2** are subject to the following conditions. These conditions must be read in conjunction with the Glossary of Terms at **Schedule 4**.

This permit may be subject to immediate suspension and cancellation if any condition(s) listed below are not complied with.

Example conditions are provided below, however TMR reserves the right to add or subtract conditions relevant to specific AV trials as needed.

General

The permit holder must:

1. agree to an overriding obligation to ensure the safe operation of the vehicle and must take all reasonable steps to ensure that the safety of any persons interacting with the vehicle or the trial is not adversely impacted.
2. obtain all relevant permits, approvals, accreditations and consents prior to conducting the trial and ensure that these remain in place when the vehicle is in operation.
3. ensure that the operation of the vehicle and the trial complies with the safety management plan and other supporting documentation that were submitted and approved as part of the permit application. This includes an obligation on the permit holder to conduct all pre-trial testing and maintain all risk treatments to an acceptable standard.
4. have comprehensive insurance prior to the commencement of the trial, including public liability insurance for at least AUD$20 million and appropriate product liability insurance. Insurance policies must expressly cover personal injuries and death as well as property damage caused by, or in relation to, the use of the vehicle on both private and public land and roads. Insurance policies must remain in force for the duration of the trial and include the State of Queensland as a named party on the insurance certificate(s).
5. agree to indemnify the State of Queensland, acting through TMR, its officers, employees, agents and contractors (including sub-contractors) from and against all actions, proceedings, claims, demands, costs (including all reasonable legal costs and all reasonable costs associated with defending those indemnified), losses, damages and expenses, and any direct, indirect, incidental or consequential loss or damage which may be brought against or made upon those indemnified and which those indemnified may incur on their own behalf or sustain as a result of a third party claim arising out of any breach of this permit or any wilful unlawful or negligent act or omission.
6. make available relevant contact details in a public manner to enable community members to ask questions or make complaints about the operation of the vehicle.
7. grant access to TMR officers to the vehicle and trial locations at any time for the purposes of monitoring compliance with this permit. TMR may conduct any test on, or make any assessment of, the vehicle to determine that it can be operated safely. The nature of these tests or assessments can be determined by TMR given the relevant circumstances.

Passenger Transport

The permit holder must:

8. hold a valid passenger transport Operator Accreditation for the duration of the trial and must display the Operator Accreditation Number on the vehicle so that the number is:
    a) preceded by the letter 'Q';
    b) is securely fixed to the bottom left-hand side of the rear of the vehicle, or the bottom left-hand side of the vehicle's rear window, or both ends of the vehicle if it moves in both directions; and
    c) is clearly legible at a distance of 4.5 metres away from the vehicle.
9. ensure that the vehicle, trial premises and any infrastructure associated with the trial complies with the Commonwealth *Disability Standards for Accessible Public Transport 2002*.

Reporting

The permit holder must:

10. notify a ***serious incident*** to TMR by phone and/or email as soon as practicable and provide a ***written report*** within 7 days.
11. notify a ***non-serious incident*** to TMR within 48 hours by phone and/or email and provide a ***written report*** within 7 days.
12. provide ***monthly reports*** about the trial to TMR.
13. provide a ***final report*** at the conclusion of the trial to TMR.
14. provide TMR copies of any additional reports related to the trial or operation of the vehicle.
15. provide TMR unedited data in a format by request including but not limited to:
    a. location
    b. automation status
    c. vehicle information
    d. traffic and environmental conditions
    e. sensor information
    f. incident information if applicable (type and description)
    g. video footage
    h. driver information.
16. provide other ad hoc reporting to TMR, if requested in writing to do so by TMR. So far as reasonably practicable, ad hoc reporting requests should be completed within 48 hours.

Operation of the vehicle in automated mode

The permit holder must:

17. test the vehicle in ***automated mode*** on the Approved Trial Route(s) with appropriate traffic controls in place prior to commencing the trial. Only vehicle supervisor(s) and employees and contractors of the permit holder are permitted to be inside the vehicle/s during this testing.
18. ensure that only the vehicle supervisor(s) listed at **Schedule 1** are permitted to operate the vehicle in ***automated mode***. The permit holder must notify TMR in writing of any additional vehicle supervisor(s). Additional vehicle supervisor(s) cannot operate the vehicle in ***automated mode*** until written confirmation is provided by TMR.
19. ensure that the vehicle supervisor(s), while operating the vehicle in ***automated mode***:
    a) has been adequately trained for the safe operation of the vehicle,

b) is on board the vehicle,
c) holds a valid open class 'C' driver licence (or equivalent) and complies with any relevant conditions of that licence,
d) complies with the no blood alcohol limit (no presence of alcohol in a breath or blood sample),
e) is not under the influence of any drug, and has no presence of any illicit drug in a saliva or blood sample,
f) complies with all relevant conditions of the permit, and
g) keeps the vehicle under ***appropriate control***.

20. ensure that when the vehicle is operated in ***automated mode*** it is operated only in a manner that is consistent with the level of automation (level 4 - SAE J3016) as detailed in the permit application.

Operation of the vehicle at all times

The permit holder must:

21. ensure that the vehicle is not used or operated on a public road until written approval is provided by TMR for the public road trial to commence. TMR will not provide written approval for the public road trial to commence until it is satisfied that all conditions listed in **Schedule 3** have been fulfilled to an acceptable standard.

22. ensure that the vehicle supervisor(s) carries a copy of this permit while the vehicle is in operation. This permit must be produced at the request of an ***Authorised Officer***.

23. ensure the vehicle is registered with conditional registration in accordance with the *Transport Operations (Road Use Management—Vehicle Registration) Regulation 2010*.

24. ensure that the vehicle is operated in accordance with all provisions of the *Transport Operations (Road Use Management – Road Rules) Regulation 2009*, unless specifically exempted under this permit in **Part 2**.

    Note: for the purposes of compliance with this condition, the definition of 'driver' within the *Transport Operations (Road Use Management) Act 1995* includes the person in charge of a vehicle. This would include the vehicle supervisor(s).

25. ensure that the vehicle is only operated along the Approved Trial Route(s) as described in **Schedule 2**.

26. notify TMR in writing of any proposed changes to the Approved Trial Route(s) and must not operate the vehicle outside of the Approved Trial Route(s) until written confirmation is provided by TMR.

27. ensure that the operation of the vehicle is limited to a maximum speed of X km/h.

28. ensure that a vehicle supervisor(s) that is not seated in the vehicle's driver seat has access to the vehicle's steering, braking and emergency stop functions.

29. ensure that the vehicle is not operated with more than X passengers on board, including the vehicle supervisor(s).

PART 4 – ISSUANCE

This permit has been issued by an appropriate delegate of the Director-General of TMR.

ISSUED IN BRISBANE ON DD MM YYYY.

Delegated Person
Executive Director (Policy, Safety and Regulation)
Delegate of the Director General

SCHEDULE 1 - VEHICLE SUPERVISOR(S) DETAILS

Name	Driver Licence number	Jurisdiction/Country of Issue

All vehicle supervisor/s must be listed in the AV Trial Permit.

SCHEDULE 2 – APPROVED TRIAL ROUTE(S)

Trial Route Details

For the purposes of the trial, the vehicle is approved to operate along the route encompassing….

The specific approved trial route/s must be described in detail. A map outlining the approved trial route/s will likely be included to assist understanding.

SCHEDULE 3 – PRECEDENT CONDITIONS FOR ON-ROAD TRIAL COMMENCEMENT

Specific precedent conditions, including testing requirements, will be listed here. There will be determined based on the particulars of the trial proposal and may include requirements to provide evidence to TMR of vehicle details, insurance, infrastructure works and off-road testing.

SCHEDULE 4 – GLOSSARY OF TERMS

Appropriate control means in compliance with the automated driving system's manufacturer specifications and able to take manual control at any time to avoid a collision with another road user or roadside furniture.

Authorised officer means a person who is an authorised officer under the *Transport Operations (Road Use Management) Act 1995*.

Automated mode means a mode of operation in which the ***dynamic driving task*** is being performed wholly by the vehicle's automated driving system.

Cancel, in relation to permit, means the permit becomes invalid and ceases to have any legal effect as at the date listed in a relevant cancellation notice issued by TMR.

Dynamic driving task means all of the real-time operational and tactical functions required to operate a vehicle on a road, and includes: turning, lane keeping, lane changing, accelerating, braking, monitoring the driving environment and providing appropriate signals.

Expire, in relation to the permit, means the permit becomes invalid and ceases to have any legal effect.

Extension, in relation to the permit, means prolonging the validity and legal effect of the permit for the period stated in a relevant extension notice issued by TMR.

Final Report means a report provided within 30 days of the conclusion of the trial detailing the outcomes of the trial, including but not limited to:

a) observations of passenger behaviour,
b) observations of other road user behaviour (pedestrians, cyclists, drivers),
c) observations of general community acceptance,
d) any issues identified with the operation of the vehicle and its interaction with other road users,
e) patronage volumes (total passengers and average passengers per trip),
f) customer surveying results,
g) details of any serious and non-serious incidents,
h) details of any actions taken to rectify identified issues, and
i) other information as agreed to by the permit holder and TMR.

Monthly Reports means reports submitted to TMR at the end of each month detailing a summary of trial activities for the month, including but not limited to:

a) patronage volumes (total passengers and average passengers per trip),
b) details of any serious and non-serious incidents,
c) details of any actions taken to rectify identified issues, and
d) other information as agreed to by the permit holder and TMR.

Non-automated mode means a mode of operation in which the ***dynamic driving task*** is being performed wholly or partly by a human driver.

Non-serious incident means:

a) an incident resulting in the vehicle supervisor(s) undertaking emergency intervention in the operation of the vehicle that did not result in any injury or death (for example, using the emergency stop function to avoid a collision),
b) a fault or suspected fault to the vehicle's automated driving system that will impact the safe operation of the vehicle on a public road,
c) an event that has the potential to impact the safety of any person resulting from the expected performance of the vehicle and that had not previously been documented in the permit application risk assessment, and
d) receipt of a formal complaint from a member of the public regarding the performance of the automated vehicle.

Serious incident means:

a) a crash involving the vehicle, that results in property damage or personal injury/death to any person,
b) an event involving the vehicle, that results in property damage or personal injury/death to any person (for example, vehicle failure resulting in sudden and unexpected braking causing injuries to vehicle occupants), or

c) an alleged offence involving the vehicle, where the permit holder, the vehicle or the vehicle supervisor(s) is alleged by an ***authorised officer*** to be at fault.

Suspend, in relation to the permit, means the permit becomes invalid and ceases to have any legal effect for the period listed in a relevant suspension notice issued by TMR.

Vary, in relation to the permit, means a modification to the effect of the permit in a way as described in a relevant variation notice issued by TMR.

Written report means a detailed overview of the incident and outcomes, results of any investigations, including contributing circumstances, and planned remedial actions to avoid subsequent incidents occurring.

Attachment 2

Automated Vehicle Trials in Queensland
Quick Reference Guide

Consider the issues below before applying for an automated vehicle trial permit.

Select the right vehicle

Different vehicles have different use cases. Use of non-compliant vehicles will be limited to specific environments with restrictive conditions. Talk to the vehicle supplier as early as possible to understand limitations.

Safety by design

Safety management is a critical component of automated vehicle trials. You must demonstrate how all risks will be identified and mitigated. A detailed route safety assessment will be required. Trials must not pose a risk to road users, including pedestrians and cyclists, or trial participants.

Will you be providing a public passenger service?

If you intend on carrying passengers, consider public passenger requirements. Your trial may be restricted to specific areas or routes. You may need accreditation as a public passenger operator.

Ensure you are providing an accessible service

If your trial is a public passenger service, it must comply with relevant disability accessibility requirements*. Ask the vehicle supplier for evidence of compliance as these requirements cannot be exempted.

You will need insurance

You must obtain comprehensive insurance for at least AU$20 million, including public and product liability. The State of Queensland must be an insured party. Talk to your insurer to find out what products are available.

Local government support

You must have written support from the local government/s in the area/s where you propose to conduct the trial. Talk to the local government/s as early as possible to inform your proposal.

More information is available at

Online: www.business.qld.gov.au/automated-vehicles

Email: automatedvehicleregulation@tmr.qld.gov.au

Queensland Government

* *Disability Standards for Accessible Public Transport 2002 (Commonwealth)*

Attachment 3 - Disability Standards for Accessible Public Transport 2002 **(DSAPT)**

If you intend on carrying passengers, your trial may be considered a public passenger service. Public passenger services are subject to passenger transport requirements which cannot be exempted, varied or limited by an AV Trial Permit. All public transport operations must comply with the Commonwealth Government's *Disability Standards for Accessible Public Transport 2002* (DSAPT). DSAPT establishes minimum accessibility requirements in relation to vehicles and infrastructure, including issues such as access paths, manoeuvering areas, ramps and boarding devices, allocated spaces, handrails, doorways, controls, symbols and signs, the payment of fares and the provision of information. TMR strongly advises trial applicants to seek legal advice on how DSAPT applies to the automated vehicle trials.

This document outlines the specifications of DSAPT requirements in totality and is not limited by conveyance. TMR can provide advice on meeting DSAPT requirements and support consultation with accessibility experts. Please contact TMR's AV Regulation team to discuss accessibility at AutomatedVehicleRegulation@tmr.qld.gov.au.

Conveyance

You need to consider conveyance to understand the requirements of your trial.

A ***conveyance*** includes any of the following, to the extent that they are used to provide a public transport service:

(a) aircraft;

(b) buses or coaches;

(c) ferries;

(d) taxis;

(e) trains, trams, light rail, monorails, rack railways;

(f) any other rolling stock, vehicle or vessel classified as public transport within its jurisdiction by regulation or administrative action of any Government in Australia.

Specifications applicable to your conveyance should be met as a minimum. The table below are the specifications you need to consider in relation to the vehicle, infrastructure and premises of your service. If the below specifications cannot be met for the trial, equivalent access without discrimination as far as possible should be provided and detailed.

Equivalent access is a process, often involving the provision of direct assistance, under which an operator or provider is permitted to vary the equipment or facilities that give access to a public transport service, so long as an equivalent standard of amenity, availability, comfort, convenience, dignity, price and safety is maintained. Equivalent access does not include a segregated or parallel service.

Direct assistance to make the service accessible to a person with a disability by a vehicle supervisor when the infrastructure or conveyances do not fully comply with DSAPT may achieve equivalent access. Direct assistance is help given by an operator or provider: (a) to make public transport accessible to a person with a disability when premises, infrastructure or conveyances do not fully comply with these Standards; or (b) to provide non-discriminatory access on request.

The table below can be used to assess DSAPT compliance. To adequately respond to DSAPT requirements, you must consider your conveyance and infrastructure. You must access the DSAPT standard and address those requirements specifically.

Requirements	Compliant? (Yes/No/Not Relevant)	Treatment for non-compliance to achieve equivalent access/Reason for 'not relevant'
Access paths • Unhindered passage • Continuous accessibility • Path branching into two or more parallel tracks • Minimum unobstructed width • Poles and obstacles, and other		
Manoeuvring areas • Circulation space for wheelchairs to turn in • Access for passengers in wheelchairs, and other mobility devices and aids • Limited on-board manoeuvring		
Passing areas • Minimum width • Two-way access paths and aerobridges		
Resting points • When resting points must be provided		
Ramps • Ramps on access paths • Boarding ramps • Minimum allowable width • Slope of external boarding ramps • Slope of ramps connected to pontoon wharves		
Waiting areas • Minimum number of seats to be provided • Minimum number of allocated spaces to be provided		
Boarding • Boarding points and kerbs • When boarding devices must be provided • Use of boarding devices • Hail-and-ride services • Width and surface of boarding devices • Maximum load to be supported by boarding device • Signals requesting use of boarding device • Notification by passenger of need for boarding device		
Allocated space • Minimum size for allocated space		

• Minimum number of allocated spaces to be provided • Minimum head room • Number of allocated spaces to be provided – buses • Number of allocated spaces to be provided – ferries • Number of allocated spaces to be provided – train cars and other • Consolidation of allocated spaces • Allocated spaces in aircraft and coaches • Use of allocated space for other purposes • International symbol of accessibility to be displayed • Movement of mobility aid in allocated space		
Surfaces • Compliance with Australian Standard		
Handrails and grabrails • Compliance with Australian Standard – premises and infrastructure • Handrails to be provided on access paths • Handrails on steps • Handrails above access paths • Compliance with Australian Standard • Grabrail to be provided where fares are to be paid • Grabrails to be provided in allocated spaces		
Doorways and doors • Doors on access paths • Compliance with Australian Standard – premises and infrastructure • Weight activated doors and sensors • Clear opening of doorways • Vertical height of doorways • Automatic or power-assisted doors		
Lifts • Compliance with Australian Standard – premises and infrastructure		
Stairs • Stairs not to be sole means of access • Compliance with Australian Standard – premises and infrastructure • Compliance with Australian Standard – conveyances • Compliance with Australian Design Rule 58 – conveyances Toilets • Unisex accessible toilet – premises and infrastructure • Location of accessible toilets • Unisex accessible toilet – ferries and accessible rail cars • Requirements for accessible toilets – ferries and accessible rail cars		

• Accessible toilet to be provided – aircraft • Stops to be offered if accessible toilet not provided – coaches		
Symbols • International symbols for accessibility and deafness • Compliance with AS2899.1 (1986) Public Information System Signs • Accessibility symbols to incorporate directional arrows • Accessibility symbol to be visible on accessible buses • Accessibility symbol to be visible on accessible doors		
Signs • Height and illumination • Location – premises and infrastructure • Location – conveyances • Destination signs to be visible from boarding point • Electronic notices • Raised lettering or symbols or use of Braille • Taxi registration numbers		
Tactile ground surface indicators • Location • Style and dimensions • Instalment at accessible bus boarding points • Instalment at railway stations • Instalment at wharves		
Alarms • Emergency warning systems		
Lighting • Illumination levels		
Controls • Compliance with Australian Standard – premises and infrastructure • Passenger-operated devices for opening and closing doors • Location of passenger-operated controls for opening and locking doors • Signal devices for conveyances that stop on request		
Furniture and fitments • Tables, benches, counters, and others • Information desks, check-in counters, and others – airports • Accessible sleeping berths – ferries and trains • Accessible sleeping berths – ferries • Accessible sleeping berths – trains		

• Accessible sleeping berths to be connected to access path – ferries and trains		
Street furniture • Seats		
Gateways • Gateways and checkouts		
Payment of fares • Passengers to pay fares • Fare payment and ticket validation systems • Vending machines • Circulation space in front of vending machine		
Hearing augmentation – listening systems • Public address systems		
Information • Access to information about transport services • Direct assistance to be provided • Size and format of printing • Access to information about location		
Booked services • Notice of requirement for accessible travel • Period of notice of requirement for accessible travel • Location of carers, assistants and service animals • Accessible seats to be available for passengers with disabilities		
Food and drink services • Equal access to food and drink services • Distance around accessible tables • Space for passengers using mobility aids		
Belongings • Disability aids to be in addition to baggage allowance		
Priority • Priority seating • Information to be provided about vacating priority seating		
Adoption • Effect and application of these Standards • Manufacture to be completed before target dates		
Compliance • Date for compliance with these Standards – conveyances, premises and infrastructure in use at target dates • Equivalent access		

• Consultation about proposals for equivalent access • Equivalent access without discrimination • Direct assistance • Exceptional cases – unjustifiable hardship		
Review • Timetable for review		

Attachment 4 - General Risk Assessment

Trial name:		**Applicant name:**	
Prepared by:		**Preparation date:**	
Approved by:		**Approval date:**	

No.	Initial Risk Assessment							Mitigated Risk Assessment					Acceptance		
	Risk Category	Hazard	Example of Risk	Risk	Consequence	Likelihood	Initial Risk Rating	Example Mitigation Treatments	Mitigation Treatments	Consequence	Likelihood	Mitigated Risk Rating	Applicant	Local Council	TMR
Example	System Failure	Hardware failure	LiDAR sensor fails	Vehicle unable to localise and detect hazards resulting in collision with other road users.	Major	Unlikely	**Medium**	- System fuses inputs from several sensors to localise and detrect hazards. - Vehicle performance (e.g. speed) is automatically adjusted based on system confidence in sensor inputs. - System reports on sensor status in real time, vehicle supervisor able to take back control at any time.		Moderate	Rare	**Low**	Y	Y	Y
1	Security	Hacking of the system to take control of the vehicle	External source takes over control of vehicle causing crash					Warnings to alert the operator							
2	Security	Access to personal information	Personal information is released to unapproved parties					Process for tightening security and improving staff training							
3	Security	Security of the vehicle	Vehicle is vandalised					Lockable storage							
4	Security	Security of staff	Staff members' personal security is compromised					Safe parking place Contact for support if required							
5	Security	Security of passengers	Passengers' personal security is compromised					Safe pick up and drop off areas							
6	Road Users	Drivers	Drivers interact with the vehicle in a way that causes harm or damage					Community consultation Signs to remind drivers of AV trial							
7	Road Users	Motorcycle Riders	Motorcycle Riders interact with the vehicle in a way that causes harm or damage					Community consultation Signs to remind riders of AV trial							
8	Road Users	Cyclists	Cyclists interact with the vehicle in a way that causes harm or damage					Community consultation Signs to remind riders of AV trial							
9	Road Users	Pedestrians	Pedestrians interact with the vehicle in a way that causes harm or damage					Community consultation Signs to remind riders of AV trial							

10	Road Users	Passengers	Passengers interact with the vehicle in a way that causes harm or damage					Community consultation Signs to remind riders of AV trial									
11	Road Infrastructure	Impact on existing infrastructure	Vehicle damages existing infrastructure					System redundancy									
12	System Failure	Hardware failure	Vehicle sensors fail					Fallback options									
13	System Failure	Software failure	Vehicle computer fails					Warnings to alert the driver/operator of malfunctions									
14	System Failure	Software errors	Vehicle computer requires patches for errors					Warnings to alert the driver/operator of malfunctions									
15	System Failure	Human errors	Vehicle computer is ooperated incorrectly					Warnings to alert incorrect use									
16	Transition processes	Vehicle operator distraction	Vehicle operator is distracted while vehicle requires take over					Minimise distraction by alerting passengers to role of vehicle operator									
17	Transition processes	Lack of time for vehicle operator to respond	Vehicle operator is distracted while vehicle requires take over					Ensure vehicle is travelling at appropriate speed for vehicle operator to respond									
18	No fallback-ready user	No human intervention	There is no intervention when vehicle requires					Vehicle must be programmed to pull over into safe space									
19	Training for fallback-ready user	Lack of training	Vehicle operator is not trained adequately to perform role					Ensure training of vehicle supervisor is provided and updated									
20	Training for fallback-ready user	Lack of practice after training	Vehicle operator has no operational experience to perform role					Ensure vehicle supervisor has adequate opportunity to practice aspects of training									
21	Training for fallback-ready user	Lack of understanding how to respond to safety issue	Vehicle operator is unable to respond to safety issue					Ensure vehicle supervisor can demonstrate how to respond to safety issues									
22	Training for fallback-ready user	Lack of understanding to take back control	Vehicle operator is unable to take back control					Ensure vehicle supervisor can demonstrate how to take back control									

23	Fitness-for-duty	Vehicle operator doesn't hold appropriate license	Vehicle operator has restrictions on license					Vehicle operator must hold appropriate license									
24	Fitness-for-duty	Vehicle operator does not maintain a zero blood alcohol limit at all times	Vehicle operator has history of alcohol use while driving					Vehicle operator must maintain zero blood alcohol limit at all times									
25	Fitness-for-duty	Vehicle operator is affected by medication or drugs	Vehicle operator has history of drug use while driving					Vehicle operator must not be affected by medication or drugs									
26	Fitness-for-duty	Vehicle operator is fatigued	Vehicle operator works outside required work/rest hours					Vehicle operator must not be fatigued, and must adhere to work/rest hours									
27	Fitness-for-duty	Vehicle operator is distracted	Passenger talks with vehicle operator, leading to distraction					Vehicle must display notice to passengers not to distract vehicle operator									
28	Fitness-for-duty	Vehicle operator has a medical condition that affects the driving or monitoring tasks	Vehicle operator has a medical condition that affects the driving or monitoring tasks					Vehicle operator must disclose medical conditions that affect driving or monitoring tasks and vehicle must not be operated by that									
29	Vehicle identifiers	Identifiers are not clear enough to other road users	Vehicle identifiers are too small for other road users to view whilst travelling					Vehicle must have vehicle identifiers clear to other road users									
29	Vehicle identifiers	Audio identifiers cease working	Audio identifiers cease working					Audio identifiers must be checked									
30	Emergency Management	Vehicle interaction with emergency vehicles	Vehicle needs to pull over for emergency vehicle to pass					Vehicle supervisor takes back control									
31	Emergency Management	Vehicle interacts with emergency personnel	Emergency personnel require vehicle to pull over					Vehicle supervisor takes back control									
32	Emergency Management	Emergency personnel need to respond in crash involving vehicle	Emergency personnel need to understand how to respond to crash involving vehicle					Vehicle has Quick Response (QR) code to explain where it is safe to cut an occupant free without impacting vehicle battery									
33	Access Requirements	Access to commerical and residential areas	Garbage pick up and residential driveways may increase risk of incident					Access times are managed to reduce interaction with garbage pick up and peak travelling times in residential areas									
34	Use Case Requirements	Infrastructure and signage requirements	Infrastructure or signage may be required or require removal					Infrastructure will be amended in line with local council support									

35	Use Case Requirements	Operational hours	Increased traffic during peak periods, increased risks in or near school zones					Trial will operate outside peak periods									
36	Use Case Requirements	Irregular events	Construction, road detours, flooding					Trial operators will work with local council to understand constructution and detours. Other irregular events will be managed on an ad hoc basis									
37	Vehicle requirements	Abiding by road rules	Vehicle fails to abide by road rules					Vehicle operator will take back control if vehicle fails to abide by road rules									
38	Vehicle requirements	Predictability to other road users	Vehicle is not predictable to other road users, causing confusion					Vehicle will have signage to ensure other road users understand the AV may respond differently to other vehicles									
39	Vehicle requirements	On board signage	It is not clear to other road users that the vehicle is a trial AV					Vehicle will have signage to ensure other road users understand the vehicle is an AV									
40	Route requirements	Speed of AV compared with other traffic	AV travels too slow compared with other vehicles					Vehicle will have signage to ensure other road users understand the vehicle will travel slower than the speed limit									
41	Route requirements	Speed of other traffic impacts AV	Speed of other traffic increases risk to AV passengers					AV travels at slower speed limit									
42	Route requirements	Traffic density	Traffic density increases risk to AV passengers					AV travels outside peak periods									
43	Infrastructure Requirements	New signage	AV trial requires new signage that impacts other traffic					AV trial operators take advice from road engineers to ensure signage does not increase risk to other road users									
44	Infrastructure Requirements	Technology	AV trial requires technology installation that impacts other traffic					AV trial operators take advice from road engineers to ensure technology installation does not increase risk to other road users									
45	Infrastructure Requirements	Line markings	AV trial requires line markings that impacts other traffic					AV trial operators take advice from road engineers to ensure line markings do not increase risk to other road users									

Attachment 5 - Route Crash Risk Assessment

Trial name:		**Applicant name:**	
Prepared by:		**Preparation date:**	
Approved by:		**Approval date:**	

Segment of road/intersection	**Initial Risk Assessment**										**Mitigated Risk Assessment**										**Acceptance**		
	Risk		**ROR**	**HO**	**Int**	**Oth**	**Ped**	**Cyc**	**MC**	**Initial Risk Rating**	**Mitigation Treatment**		**ROR**	**HO**	**Int**	**Oth**	**Ped**	**Cyc**	**MC**	**Mitigated Risk Rating**	**Applicant**	**Local Council**	**TMR**
Example: 1 - 45 Maryanne Street (northbound) Insert pictures if relevant	Narrow seal does not allow for two vehicles to pass each other safely without leaving the seal. For vehicles leaving the road there are a number of hazards close to the road that may be a hazard, including pedestrians walking next to the road.	Consequence	Major	Major	Major	Insignificant	Major	Major	Major	**High**	- Remove hazards within 4m of seal edge. - Install signage warning other road users to look out for passing vehicles. - Reduce speed limit to 40km/h.	Consequence	Minor	Minor	Moderate	Insignificant	Minor	Minor	Moderate	**Low**	Y	Y	Y
		Likelihood	Rare	Rare	Rare	Rare	Possible	Possible	Unlikely			Likelihood	Rare	Rare	Rare	Rare	Unlikely	Unlikely	Rare				
		Risk per crash type	Medium	Medium	Medium	Low	High	High	Medium			Risk per crash type	Low	Low	Low	Low	Low	Low	Low				
		Consequence										Consequence											
		Likelihood										Likelihood											
		Risk per crash type										Risk per crash type											
		Consequence										Consequence											
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