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# **FCAI Submission to NTC The Regulatory Framework for Automated Vehicles in Australia**

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## Summary

The FCAI welcomes the opportunity to respond to the NTC's discussion paper on "the regulatory framework for automated vehicles in Australia". This response builds on our previous submissions. The points below summarise our views which are further expanded on in the following pages.

- Automated vehicles are being developed primarily in overseas markets where population volumes support the investment, it is these vehicles which may well be made available to Australian consumers should the overall Australian environment facilitate introduction. Australia needs to develop laws and regulations that are largely harmonised internationally and therefore needs to remain flexible in how we prepare for and implement our approach.
- For global automotive manufacturers to make automated vehicles available for Australia's small (by world standards) population they need:
  - Clarity of the laws and regulations that will apply,
  - Consistency of laws regulations across Australia as well as with those being developed internationally,
  - Certainty of regulation and the legal environment surrounding their introduction and deployment.
- Wherever it is possible FCAI recommends that a Complementary Law approach should be adopted to provide Clarity, Consistency and Certainty for Automated Driving System (ADS) manufacturers.
- Where necessary, State and Territory applied law can be adopted, however we recommend to NTC and the State and Territory Transport Ministers that there needs to be a body of work undertaken to align as much as is possible, road laws across jurisdictions and to minimise any potential derogations – this ensures consistency and minimises additional individual vehicle geographic programming for each Australian State and Territory.
- Automated Vehicles should only be allowed entry to Australia under the type approval process. Concessional entry pathways are unnecessary and introduce complexities that do not necessarily support the same levels of safety and obligations required of ADSEs under the type approval pathway. It also exposes Australia to used vehicle importation without the safety rigour of the type approval pathway.
- Current descriptions of the data sharing obligations on ADSEs would not comply with some existing laws such as the Australian Privacy Principles.
- FCAI recommends that the In-Service Safety Regulator needs to develop a "No fault – crash investigation" capability to support State and Territory crash investigators.
- FCAI supports a 3rd party interference offence, however we are concerned over the limited scope described by NTC. Automated vehicles are complex; to maintain in-service safety requires the development of:

- a national technician licensing system with ongoing training and educational requirements.
  - Certification of workshops.
- FCAI acknowledges the General Safety Duty (GSD) noting that that we do not agree that the GSD can operate regardless of the state and maintenance of the road and other infrastructure. A safe system requires safe vehicles, safe roads and safe road users with responsibilities applying to each.
- New processes will need to be adopted to institute road rule changes in a nationally consistent manner that considers a public consultation process that appropriately considers the cost benefit analysis. Of course, where changes are required, appropriate timeframes to implement hardware and software changes and cost allocations should be determined. Should rule changes be implemented that render an ADS inoperable, indemnification of the supplier will need to be applied.
- A new State and Territory policing philosophy will need to apply where ADS vehicles contravene road rules, the focus should not be punitive, it needs to be focused on the primary causal factors; this will require a complete rethink of the way local jurisdiction policing is undertaken.
- Australian Light Vehicle Standard Rules (ALVSR) are the rules that States and Territories use to ensure that the vehicle continues to comply with the ADRs that were applicable at first provision to the market throughout the service life of the vehicle, under several scenarios it is difficult to rationalise the interaction between the first supply obligations and the ongoing obligations of the ADSE.

## INTRODUCTION

The FCAI is the peak Australian industry organisation representing over 50 global automotive brands who design, manufacture, and sell light duty passenger vehicles, light commercial vehicles, and motorcycles in Australia.

FCAI member organisations, their parent entities and related supply chain partners are at the cutting edge of innovation. According to the US Auto Alliance, in 2018 global vehicle manufacturers invested more than US\$125 billion on automotive research and development in areas including safety, low emissions, connected vehicles and autonomy. This investment compares favourably with US\$22 billion invested in the aerospace and defence industries. It is this level of investment globally that continues to, amongst other priorities, significantly contribute towards the development of increasing levels of automation in vehicles.

It is the development of Advanced Driver Assistance Systems (ADAS) progressing to the increasing levels of automation that can reduce and ultimately eliminate driver error from the driving task. As a result, this can contribute substantially to driver support, and where necessary or desired, take control with the ultimate aim of improving road safety.

FCAI notes that Automated Vehicle (AV) technology development is still at the nascent stage with many overseas jurisdictions considering and debating the various regulatory options to manage these technologies with several different approaches being considered and, in some cases, commencing to be implemented. It is vitally important that as Australia progresses to develop regulatory options that close attention is paid to these developments and that Australia remains flexible in our regulatory approach enabling us to take advantage of these beneficial global developments.

**WILL THE PROPOSED END TO END REGULATORY FRAMEWORK FOR AUTOMATED VEHICLES ACHIEVE THE KEY NATIONAL OUTCOMES OF:**

- **BETTER ROAD SAFETY?**
- **A SINGLE NATIONAL MARKET FOR AUTOMATED VEHICLES?**
- **FLEXIBLE AND FUTURE PROOFED REGULATION FOR AUTOMATED VEHICLES?**
- **CLEAR RESPONSIBILITIES FOR REGULATORS, REGULATED PARTIES AND CONSUMERS?**

FCAI is concerned that there are several fundamental gaps with NTC's proposed framework that will potentially result in gaps in the key national outcomes desired.

1. NTC propose a range of regulations and changes aimed primarily at the manufacturers of Automated Vehicles (AVs) to ensure safe operation underpinned by a general safety duty. Naturally FCAI members who propose to bring AVs to the Australian market absolutely support the intent to bring these products to market in the safest possible manner. However, we are concerned that there appears to be little if any consideration on the changes that would be required from related parties that are necessary to support safe operation. In the National Road Safety Strategy (NRSS), it has long been acknowledged that a safe system involves several parties who are equally responsible; "Safe Vehicles, Safe Roads and Safe Drivers". We will only achieve "Better Road Safety" and realise the benefits of Automated Vehicles (AVs) if this is acknowledged, and the various parties equally held responsible with their role in contributing to the safe system.
2. FCAI considers that there needs to be a complete re-think on how road policing will be undertaken in the future. It is inappropriate to think that the current methods (that are designed to influence human behaviour) will just have to be adapted to work out how we apply them to AVs. The whole philosophy needs to change to embrace these vehicles considering how to develop a new system of management, and where when issues arise, how causal factor analysis can benefit not only the incident, but multiple jurisdictions, AV suppliers and consumers.
3. To obtain the most advantageous benefit from AVs, it will be necessary to ensure almost ubiquitous mobile telecommunications coverage on Australia's highways. This aspect is missing from the discussion paper which simply advises that if there is no telecommunications coverage, the ADSE is still responsible under the General Safety Duty (GSD). To achieve success in this area and ensure that objectives such as road safety are achieved the plan should look to develop a competitive environment for telecommunications coverage. This in turn could ally support with redundancy ensuring greater Operational Design Domain (ODD) coverage. Effective communications coverage along the road thoroughfares that we envisage AVs to operate on in

the future will yield the most optimal outcomes. The paper is currently silent on the critical role of the telecommunications industry.

4. It is unlikely that there will be a single national market for AVs, NTC has previously undertaken some great work to facilitate national consistency in all the States and Territories, yet there are still significant and substantial variations between jurisdictions on particularly the road infrastructure and rules that apply. For every variation that exists between States and Territories, it is necessary to undertake and implement engineering changes (software or hardware) that requires validation and testing of vehicles specific to that geographic locality. Depending on the quantum of the task and the likely sales volume, FCAI expects that some AV suppliers will consider the commercial viability of making these products available in low vehicle sales penetration markets.
5. Current privacy laws are undergoing a review. The proposed data sharing arrangements would in some respects breach the current Australian Privacy Principles (APP), a body of work will be necessary to prosecute the data sharing concepts as proposed by NTC.
6. Used vehicle imports with ADS are not contemplated within the document, yet concessional import pathways which are the typical entry pathway for used vehicle imports introduces a range of considerable complexities and safety risks.

## ARE THERE ANY GAPS IN THE REGULATORY FRAMEWORK?

### Interaction between RVSA, AVSL and Light Vehicle Standards Rules (LVSr)

It appears to FCAI that there are gaps under the Road Vehicle Standards Act (RVSA) regulations and the obligations under the proposed Automated Vehicle Safety Law (AVSL).

Currently under the RVSA Type Approval pathway, approvals are time limited to 7 years (and can be extended) whereas under the AVSL, it is a requirement for self-selection, and this is the responsibility of the ADSE for the operational life of the AV (potentially substantially greater than 7 years). FCAI is of the opinion that there would be legal implications for the varying time limits between the two regulations.

In addition, under the Type Approval pathway, when a new ADR is scheduled for introduction (such as the recent expiry of the introduction period for the ADR on occupant protection) usually there are at least two obligations on importers to comply with:

1. The introduction timing for newly introduced vehicles to comply with the new ADR or,
2. The introduction timing and upgrading of existing vehicles to become compliant from a particular date.

#### In scenario 1.

- The type approval will be created and in the case of an ADS equipped vehicle, ADSE responsibilities will apply.

#### In scenario 2.

where there is an obligation to update the type approval to cater for a new (e.g. occupant protection) ADR:

- where an importer decides not to continue to import that vehicle, the type approval is generally surrendered and not extended to include the new ADR. Yet if the vehicle is fitted with an ADS,

there are still obligations for the ADSE over the operational life of the ADS – this has implications under the AVSL for ADSE compliance under these circumstances?

- Where an importer decides to extend the Type Approval, the AVSL ADSE obligations will clearly be catered for.

Australian Light Vehicle Standard Rules (ALVSR) are the rules that States and Territories use to ensure that the vehicle continues to comply with the ADRs that were applicable at 1<sup>st</sup> provision to the market throughout the service life of the vehicle, under the above scenarios it is difficult to understand the interaction between the first supply obligations and the ongoing obligations.

### **3.1.1 First supply framework for new automated vehicles - Type approval pathway for new automated vehicles**

In the three corporate obligations, Item 3 states:

*3. Ongoing data recording and sharing capability – the applicant must outline the ADS data it will record and how it will provide the data to relevant parties. Without limiting the data to be recorded and shared, the applicant must explain how it will ensure:*

- i. the vehicle can provide road agencies and **insurers with crash data***
- ii. relevant parties (including police) receive information about the level of automation engaged at a point in time if required*
- iii. **individuals** receive data to dispute liability (for example, data showing which party was in control to defend road traffic infringements and dispute liability for crashes) when the individual makes a reasonable request*
- iv. data is provided in a standardised, readable and accessible format when relevant*
- v. data is retained to the extent necessary to provide it to relevant parties (**the amount of time data is retained for may depend on the purpose(s) the information could be used for – for example, law enforcement and insurance**)*
- vi. data relevant to the enforcement of road traffic laws and the general safe operation of the ADS (including data relevant to crashes) is stored in Australia.*

There are various obligations in this area that require the sharing of data without limitation. Meeting the requirements of this obligation would currently breach The Australian Privacy Principles (APP) as some of the data will be considered “personal information”, therefore a review of the requirements will be necessary in respect of the APP’s and any revisions necessary from the reviews currently under way. Definitions such as “individuals” requires a proper legal definition as to who an individual is; such as owner, operator, driver passenger, other involved party etc.?

Item v is ill defined and problematic, The Data Storage System for Automated Driving (DSSAD) is a device that continually records and stores a set of data with timestamps of any vehicle equipped with L3/4/5 Automated Driving Systems. It is designed to provide a clear picture of the interactions between the driver and the ADS before and after (whenever possible) a significant safety event to establish:

- who from the driver or the ADS was requested to be in control of the driving task and,
- who from the driver or the ADS was performing the driving task.

Given that the data storage requirements will be considerable, it will not be possible to put a vague requirement on the retention of data, this will need to be aligned with international vehicle

developments and design requirements of international DSSAD systems – typically these systems will retain data for a period of around 3 months following which the data may be overwritten if the vehicle is continued to be used.

## HOW AUTOMATED VEHICLES WILL ENTER THE MARKET

### **Concessional entry approval pathway for new automated vehicles.**

FCAI does not agree that there will be a need for the concessional pathway option.

In the first instance we expect that ADRs will be developed in sufficient time for the deployment of newer technological developments; such as those that may be required for vehicles without steering wheels or similar developing technologies. Additionally, there are no full volume manufacturers that would use the concessional pathway due to the limitations that this process invokes.

However, we are most concerned that allowing for this process will enable the import of vehicles under Ministerial discretion bypassing several controls in place for type approval pathways. FCAI has raised considerable issues with DITRCD concerning vehicles imported to Australia under the concessional entry approval pathway which the department has been ill-equipped to deal with.

## LEGISLATIVE IMPLEMENTATION APPROACHES

FCAI only supports the Complementary Law approach for both first supply and in-service whilst we acknowledge that some obligations and offences must practically sit within the State and Territory laws; specifically access to the road through registration and offences in relation to third party interference. Wherever possible, the Complementary National Law approach should be adopted to prevent the possibilities and vagaries involved where derogation by States and Territories occurs. Manufacturers require a certainty in the legal environment with the least number of unique variations between States and Territories. For every variation that does exist, means that unique engineering changes (software or hardware) that requires validation and testing will be required to cater for these based on geographical indicators. It is important to understand the complexity that this creates not only from a product introduction perspective as well as for ongoing maintenance when changes are proposed and implemented. Already it is expected that the programming of automated vehicle will require a level of software coding that well exceeds that of an Airbus A380 by many orders of magnitude.

For Australia to benefit from the advances automated vehicles can bring to the Australian environment, international manufacturers need a high degree of international harmonisation as well as consistent legislative certainty to be able to develop hardware and software for the vehicles in a uniform manner. Unfortunately, under the state and territory applied law approach there is significant potential for derogation or variations. At least initially, there will be limited volumes of ADS equipped vehicles retailed in the Australian market which would no doubt result in some manufacturers contemplating the business case for programming vehicles to cater for all individual state and territory variations. This might result in some manufacturers not making these systems available in those States and Territories

where the sales volume does not justify the additional expense of provision and consequently road safety advantages may not be realised for those jurisdictions.

## 2. CONTEXT – KEY PARTIES AND ELEMENTS OF THE FRAMEWORK

### 2.3.1 State and Territory roadside enforcement agencies

FCAI notes that NTC is proposing that crash investigations will be the responsibility of State and Territory roadside enforcement agencies. We are of the opinion that some of these types of crashes would be beyond the current capabilities of some these authorities. The traditional “driver fault” method of investigation would need a complete mindset change in approach where ADS equipped vehicles are involved. There would be merit in developing an agency that could undertake “No Fault Crash Investigations” such as those conducted in the case of aircraft investigations.

State and Territory enforcement agencies are usually focused on an enforcement regime that involves issuing infringement notices as a method to influence human behaviour. In the case of AVs where the ADS is in control, the approach needs to change to one that encourages identifying the root cause of the issue, enabling countermeasures that can be implemented promptly to ensure that the cause of the event(s) is corrected not only for the vehicle involved, but potentially correcting numerous AVs; this should involve but is not limited to:

- vehicle engineering changes (software or hardware) that requires validation and testing.
- road and road infrastructure changes.
- temporary road change notifications.
- mapping system updates.
- Operational Design Domain (ODD) updates.
- Identification of similar causal circumstances within the jurisdiction as well as in other jurisdictions.
- Sharing both domestically and internationally of identified issues.

## 5. MAINTAINING THE IN-SERVICE SAFETY OF AUTOMATED VEHICLES

### 5.1.2 Prescriptive duties to support the general safety duty

FCAI is generally understanding of the General Safety Duty (GSD) obligations as stated, noting that our understanding of the intention is that it is not a strict liability regime.

1. Strict liability means a party will be held liable even though they were not at fault – i.e., their actions were not intentional, reckless, or negligent.
2. The concept of strict liability isn't useful when considering the prescriptive duties which will support the general safety duty. Having said that, the first eight duties are qualified by the words, '*so far as is reasonably practicable*' which picks up on some concepts akin to negligence and suggests that these duties, at least, are not strict liability. The remaining 3 duties aren't qualified in the same way and could be seen to be strict liability.
3. It is worth noting that in section 9.8.2, footnote 89 says:



*'Unlike the general safety duty, the prescriptive duties and prescriptive requirements are specific offences that can be proven; that is, the offence was either committed or it was not.'*

4. This suggests that the NTC consider that a breach of the prescriptive duties as being a strict liability criminal offence regardless of fault which FCAI does not support.

### **5.1.3 Ongoing compliance with first supply safety criteria and obligations**

In the Australian context, the certification and approval of a vehicle make, and model provides for the vehicle type at the point of first provision to the market. It is at this point that the supplier testifies and guarantees that each vehicle it provides is compliant with the approval issued by the type approval authority, in this case the Commonwealth Government as regulator under the Road Vehicles Standards Act (RVSA).

Thereafter, the responsibility of ongoing compliance resides with the state and territories, effectively as the in-service regulators. Such ongoing compliance is in accordance with the Australian Vehicle Standards Rules (AVSRs), based on model law drafted by the NTC and which forms the basis for each state and territory to implement in their own state-based Vehicle Standards Rules. It should be noted that state and territories are under no obligation to adopt the model law absolutely, nor without modification. In addition, States and Territories are not prevented from implementing additional rules unique to their own jurisdiction. To overcome this issue, FCAI suggests that a collaborative approach between Commonwealth and State and Territory regulators with industry to achieve nationally consistent, timely implementation of AVSRs without local modification is a key element to the regulation of AVs in Australia.

The draft regulation ADR 90/01 considers only a single element of the system controlling in-service compliance, that being the vehicle itself. It does not recognize that other stakeholders with influence over elements outside the control of the vehicle provider and, importantly, not necessarily foreseeable to the vehicle provider at the time of certification, approval, or provision. These elements are equally as important to the ongoing compliance of the vehicle, its Automated Driving System (ADS) and the responsibilities of the Automated Driving System Entity (ADSE).

### **5.1.4 Prescriptive requirements to support enforcement**

FCAI is particularly concerned over the risks of introducing national inconsistencies through derogations within the State and Territory applied law approach under their responsibilities to amend subordinate legislation. Missing from the proposed use of ADR 90/01 is the obligation for other stakeholders to uphold a nationally consistent system of maintaining in-service rules, public consultation, and cost / benefit analysis on proposed changes. Once road rule changes are agreed, informing the ADSE of any changes to those rules with sufficient lead time to allow suppliers to guarantee ongoing compliance as well as understanding of the cost recovery proposal. This should be the role of a dedicated in-service regulator.

### **5.4 Third Party Interference**

FCAI support the introduction of an offence of third-party interference. It is important to understand that where interference or modifications are performed, so should the responsibilities under the AVSL for ADSEs. Whilst manufacturers can in many cases electronically confirm the integrity of the ADS, it

should be recognised that the operation of the ADS can be negatively influenced by physical or mechanical changes / accessory fitments – in a simple example, the fitment of larger diameter wheels will affect the ADS’s understanding of the vehicle speed and therefore ongoing compliance.

FCAI is also concerned about the capability of the States and Territories to practically manage third party interference as is the case presently with many vehicles being modified without qualification well beyond manufacturer’s original design intent. Manufacturers are more than prepared to build AVs that can reasonably detect third party interference electrically and electronically. However, there will be situations where aftermarket repairers conduct repairs or modifications to systems that are directly and indirectly related to ADS systems that can alter the dynamics or the operation of the vehicle without being able to be detected by the ADS or ADSE. FCAI recommends that a complete evaluation of the capabilities of the State and Territories as well as the role of, and regulation of the aftermarket in effecting repairs on these vehicles is required.

These ADS equipped vehicles are sophisticated and, in most States, and Territories there are currently no technician licensing systems and nor are business licensing systems in place.

We would not allow unlicensed businesses or technicians to conduct repairs to aircraft and nor should we allow unlicensed and unqualified operators to conduct any repairs to AVs.

#### **5.7.1 Road Infrastructure**

AVs are very dependent on the road infrastructure to assure safe operation and just applying a broad general safety duty to ADSEs regardless of road conditions and standards of maintenance is somewhat naïve. Manufacturers can of course use multiple points of reference to determine that road conditions support ADS operation and under certain conditions cease operation of ADS operation. However, in some conditions it may not always be possible especially where unannounced changes have occurred suddenly. We do not agree that under a GSD, ADSEs are wholly responsible regardless of the state of the road and infrastructure requirements that ADS products rely on. A Safe Systems approach (enshrined in the national road safety strategy) understands the differing roles of the various actors, requiring each party to be fully responsible for their role.

## **6. DRIVING AND ON-ROAD INTERACTIONS**

### **6.2 Obligations on human drivers**

FCAI agrees that within the current federal system, obligations on human drivers need to be implemented at the state and territory level consistent with general obligations regulating human users.

However, there will be new obligations that directly relate to the interaction between the human user and the ADS, an example of which may be the time periods in which the human driver is required to resume control based on a request by the ADS.

Where these new ADS specific laws are required, we will require consistency across jurisdictions without the capability for derogation to occur. Whilst challenging for regulators it is necessary for clarity, consistency, and certainty in support of safety.

### 6.3 Obligations of Automated Driving System Entities.

Whilst FCAI understands the intent of this section, there is going to be a large amount of work required between the in-service regulator and the state and territory regulators to implement and agree processes required to implement road rule changes, the document states:

*To ensure ADSEs can comply with this obligation, there may need to be processes for States and Territories and/or the in-service regulator to clearly communicate relevant changes to the road rules.*

What will be required is a formal process for:

- Road Rule change recommendations to be made.
- Consideration as to the national application of the proposed rule.
- Consideration of the implication of such a change in a single jurisdiction and the interaction with other jurisdictions.
- If the proposed rule change requires significant engineering changes (software or hardware) that requires validation and testing of the existing fleet in some way or if additional hardware would be required, then an industry consultation process needs to be instigated that considers the cost benefit analysis and the responsibility for the costs of adjustment.
- Notification to all the ADSE's of the specific requirements of the road rule change along with the proposed implementation timing that considers the practical elements that would be required to undertake reengineering changes (software or hardware) that requires validation and testing or physical alteration of the existing fleet of vehicles equipped with ADS.
- A practical amount of time to enable the hardware / software to be installed in the population of vehicles equipped with ADS.
- Indemnification of a supplier if a change to the rules renders a product unusable.

### 6.4 Obligations of remote drivers

FCAI agrees that obligations on remote drivers needs to be considered in line with international developments. It will be interesting to consider how this will be implemented in the situation where a remote driver is operating in a different state or territory or potentially internationally to the location of the vehicle being controlled. In the first instance it may be more appropriate for a complementary law approach to be implemented. How this interacts with the individual state and territory law approaches still requires further consideration. There may need to be consideration of international law approaches as well.

## 7. ADSEs LEAVING THE MARKET AND TRANSFERRING THEIR RESPONSIBILITIES

The issues raised previously in “**Interaction between Road Vehicle Standards Act (RVSA), Automated Vehicle Safety Law (AVSL) and Light Vehicle Standards Rules (LVSr)**” equally apply in this scenario, even if the ADSE transfers ADSE responsibility to another entity, it may not be possible to undertake this if the vehicle was imported under the type approval pathway. FCAI understands that type approvals cannot be transferred between entities and even if that were possible, there would be no capability for the new entity to update the type approval to cater for other ADR changes that may become necessary and applicable to that series of vehicles notwithstanding the intent to transfer ADSE responsibilities.

## 8. MODIFYING AN AUTOMATED VEHICLE

### 8.1 Modifications to an in-service automated driving system

FCAI supports the concept ADSEs being permitted to make minor modifications to the in-service ADS without notifying the in-service regulator noting the ADSE overall responsibilities to ensure the safe operation of the automated vehicle.

The definition of a “minor”, “significant modification” “functionality” will need to be discussed and agreed as clarity on the boundaries will be required. However, in general terms we agree that a major modification would be defined as:

- Increasing the automation level of the ADS.
- Significantly increasing the operational design domain, or
- Otherwise significantly alters the functionality of the in-service ADS.

### 8.2 Modifications to a new ADS under an existing type approval

FCAI is supportive of this approach, close collaboration between the first supply regulator and the in-service regulator will be essential to ensure consistent and efficient operation.

### 8.3 Modifications to a new type-approved automated driving system before first entry to the market.

FCAI is supportive of this approach.

### 8.4 Modifications and repairs made to vehicle hardware in service

FCAI agrees that there are significant implications for repairers who undertake repairs that may adversely affect the ADS and we further agree that States and Territories will need to amend laws governing “in-service safety” responsibilities.

Specifically, there will be a need for States and Territories to amend their laws to prohibit hardware or software repairs or modifications that affect the operation of an ADS and of course this needs to be consistent across jurisdictions given that the vehicles can traverse state and territory borders. However, we do not agree that it would be possible to consider that the general safety duty obligations which are to:

- provide education and training to relevant parties such as users of its ADS, so far as is reasonably practicable or,
- make efforts to ensure that the ADS cannot be interfered with by third parties, so far as is reasonably practicable.

could reasonably be extended and applied to general repairers as described in this section.

The complexities of the undertaking as described by NTC is extraordinary when you consider that in most States and Territories (except NSW and WA) there are no obligations or qualifications required to be met for most automotive service and repair businesses and nor is there any licensing regime for automotive technicians.

These new automated vehicles are complex products that are orders of magnitude more complex than some of the latest aircraft. To expect that untrained and unqualified personnel would be permitted to

undertake any work on these vehicles introduces an unacceptable level of risk. As stated earlier, we would not allow untrained and unqualified personnel to undertake repairs or modifications to aircraft and nor should we contemplate it on these extraordinarily advanced products.

States and Territories will need to develop a qualification and certification level that supports service and repairs on these advanced products. This will need to be undertaken both from a business level and at a trained technician level and FCAI would be more than prepared to engage with Governments to consider how a regime might be developed.

Again, whilst we understand that these licensing and regulation requirements would need to be developed under State and Territory law, this should most appropriately be directed through a national model law approach to drive a level of consistency in qualification across Australia.

Of course, manufacturers are more than prepared to provide general product warnings, that we understand and believe is the intent of the General Safety Duty in so far as is reasonably practicable. We do not agree to have the responsibility for complete advice to anyone that modifies the non-ADS hardware of a vehicle as to the potential impact on the ADS. There needs to be a responsibility on third parties to ensure that their activities do not impact the ability of the ADSE to satisfy the first supply and in-service obligations of the ADSE in any way. If they can't ensure that this is the case, then they should not alter the vehicle in any way or find some other party to take ADSE and GSD responsibility.

#### **8.5 Individuals modifying, repairing, or installing an ADS**

FCAI is supportive of this approach except that the extent should be expanded to include anything that may interfere with the ADS operation.

#### **8.6 Data flows**

FCAI has no issue with communicating with operators of the ADS to inform them about modifications the ADSE is making to the ADS, including over the air software updates.

However, we do not agree with NTC's concept that ADSEs will be responsible for educating the broader market about safely modifying the ADS, noting that the education would be limited in scope to authorised dealers and repair agents concerning servicing, repairing, and maintaining ADS equipped vehicles.

Furthermore, manufacturers are not in the business of assessing aftermarket modifications for suitability of fitment to ADS equipped vehicles just as we do not do so now on non-ADS equipped vehicles. Manufacturer's engineering resources are focused on developing advanced automotive products bringing them to market to the benefit of society through advancing safer and more convenient mobility solutions.

Whilst FCAI acknowledges the necessary data flows necessary, and the current role of NEVDIS, we would question whether the role and functions of NEVDIS should be reviewed in totality. The previous decision to have NEVDIS operate the RAV was not subject to a public tender process, and this has ended up with

a premium priced compliance system. To further extend the role of NEVDIS using expensive external software / hardware advisor is inappropriate without public consultation of other options.

## 9. COMPLIANCE, ENFORCEMENT AND LIABILITY

FCAI is concerned that insufficient consideration has been made within this document that addresses the changing roles of law enforcement at all levels of enforcement in respect of vehicles equipped with an ADS.

Current enforcement focuses on:

1. Identification in the first instance of a vehicle not complying with the road laws that apply in the location of the transgression.
2. Road authorities then identify the driver who was in control.
3. Then a range of penalty actions are introduced which are designed to be punitive and primarily encourage drivers through these range of actions to modify the driver's behaviour.
4. The range of penalty actions are commonly:
  - a. Fines
  - b. Penalty points
  - c. Entitlement to drive withdrawn
  - d. Entitlement to register withdrawn
  - e. Entitlement to freedom withdrawn

In the case of ADS equipped vehicles under ADS control, the primary focus needs to change substantially as follows:

1. Identification in the first instance of a vehicle not complying with the road laws that apply in the location of the transgression.
2. Road authorities then identify the driver who was in control.
  - a. If the human driver was in control, the traditional system can apply.
  - b. The ADS was in control

If the ADS was in control, revised principles need to apply as follows:

1. The primary function of the investigation should be to determine what was the "root cause" of the incident or what were the circumstances that contributed to the vehicle not complying with the road rules.
  - a. Using the traditional penalty regime under these circumstances would be an inappropriate method to deal with these issues.
2. The focus should now be developing a full understanding of all the contributing factors:
  - a. Vehicle design / programming / software or hardware status etc.
  - b. Road conditions / infrastructure
  - c. Other contributing factors
  - d. The vehicle
3. Based on the root cause analysis, countermeasures can be developed to prevent recurrence
4. Depending on the countermeasures necessary, determine whether it is necessary to apply them to:

- a. Other vehicles.
  - b. Other road conditions / infrastructure.
  - c. Other factor implications as appropriate.
5. Naturally, there will need to be regime where both companies and responsible authorities are encouraged to undertake these remedial actions in a timely and appropriate manner – noting that this will not always be the responsibility of ADS equipped vehicle importer.
6. A national reporting system should also be developed that allows for cross sharing of information across all parties including the States and Territories to ensure that learnings in one case are shared across all jurisdictions. This would allow a shared understanding nationally to permit all participants to assess and evaluate the likelihood of occurrence in their spheres of influence.

## **9.1. Compliance and Enforcement under the RVSA**

### **9.1.2 Recalls**

FCAI members have demonstrated over a long period of time their responsibilities as manufacturers to utilise the voluntary recall system now administered through the RVSA. In line with these responsibilities, FCAI has developed updated guidance for members through a Code of Practice. FCAI is concerned that the recall powers under the RVSA currently does not apply to aftermarket products approved for installation by the in-service regulator and we encourage further work to regulate these products under the RVSA.

Additionally, FCAI is equally concerned with the responsibilities and capabilities of low volume vehicles imported to Australia under the concessional arrangements permitted under the RVSA to undertake vehicle recalls. This will be increasingly important as the potential for overseas vehicles with ADS capabilities increases especially in the used vehicle space.

## **9.2 Compliance and Enforcement under the AVSL**

### **9.2.2 Interaction between the enforcement powers of the first supply regulator and the in-service regulator**

Subject to seeing what the memorandum of understanding would say, this proposal seems appropriate.

### **9.2.3 Key differences depending on the legislative implementation approach**

FCAI considers that the complementary law approach is the most appropriate.

## **9.3 Enforcement under State and Territory legislation**

It will be important to ensure that regulators have in place a procedure to determine any responsibilities at the boundaries to ensure that both the ADSE and the driver are not potentially responsible for the same offence (or that neither is).

### **9.3.2 Interaction of current road safety laws with AVSL**

FCAI agrees that the AVSL will provide obligations for ADSEs at a National level.

### 9.3.3 On road interaction with automated vehicles

FCAI concurs with NTC that roadside enforcement issues are complex and that there will need to a substantive body of work to be undertaken from several perspectives.

Whilst we accept that States and Territories will need to undertake a review of existing powers currently available to identify gaps, we are concerned that these authorities will still be focused on an outdated philosophy attempting to translate current activities (based on human behaviour motivation) and applying them to ADS equipped vehicles.

A constructive approach would be to engage in proactive discussion with the automated vehicle industry to understand how this very different philosophy will be required, resulting in structural change in enforcement approach in relation to AVs.

FCAI agrees with the key areas that need to be addressed so enforcement officers can undertake their safety and enforcement roles when automated vehicles start operating on our roads which include:

- safely intervening and interacting with automated vehicles on the road when required.
- identifying an automated vehicle's level of automation and whether it is under ADS or driver control.
  - Data Storage System for Automated Driving (DSSAD) will be able to provide details of which responsible entity was in control at any point in time and this information will need to be made available to law enforcement at any interaction, requiring road law development to accommodate.
  - Law makers need to consider the implications of court actions that may require vehicle manufacturers to be available to present in court that the vehicle systems download was verified – this would potentially inappropriately tie up manufacturer's resources unnecessarily for routine vehicle accident matters, this needs to be a declaration that is accepted nationally.
- applying road rules to automated vehicles
  - AVs are designed to comply with road rules, however there are instances where road rules will need to be broken where it is safe to do so – perhaps passing a garbage truck that requires permitting the crossing of road lane markings or similar – in these instances the question is not who should be fined, it is what caused the violation; was it reasonable or does it require further investigation?
- accessing data for crash investigations and reporting<sup>1</sup>
  - FCAI consider that in this area, we need to consider what is the appropriate level of information made available at the roadside whilst accepting that more detailed information may be provided at a later period depending on the circumstances and requirements.
  - Additionally, it will be necessary to determine rights of access and which details what will be available, to whom and for what purposes, in line with Australian legal frameworks.

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<sup>1</sup> This includes event data recorder information on the vehicle's location, speed, brake activation and acceleration, and information on the circumstances that may have caused or contributed to a crash.



- Vehicle Event Data Recorders (EDR) record a substantial amount of data some of which will be personal information and will therefore need to be treated accordingly.
- communicating with automated vehicles.

FCAI agrees that there will need to be development of the necessary powers to:

- intercept an AV and disable the ADS.
- the power to access relevant data from an AV at the roadside and during investigations.

#### **9.4 Road Rule Breaches**

FCAI agrees that there is a role for the In-Service Regulator for providing expertise to the investigation where the ADS was clearly engaged at the time of the breach.

Given that each ADS will be fitted with a DSSAD there should be no doubt as to whether the ADS is engaged or not. If the ADS requests a driver to resume control and no action is taken the AV will transition to a Minimum Risk Manoeuvre (MRM). Each of these events will be recorded and time stamped by the DSSAD and made available for confirmation for typically 3 months. FCAI re-iterates those systemic breaches should be the prime focus of attention for authorities and specifically the in-service regulator who should have Australia wide visibility.

#### **9.5 Crash Investigations**

FCAI supports the concept of the In-Service Regulator providing a degree of expertise to crash investigations to state and territory police who will no doubt require considerable support especially whilst the level of competency in investigating these instances is being developed. FCAI is also supportive of a broader systemic no fault accident investigation function to be undertaken by an independent investigator.

#### **9.7 Consumer Law**

FCAI concurs with NTC's assessment of the applicability of the Australian Consumer Law (ACL), and we look forward to considering the outcomes of further work undertaken by NTC.

#### **9.8 Penalties**

FCAI agrees with there being categories of offences with differing penalties applying, depending on the seriousness of the non-compliance and the consequences.

However, FCAI is concerned that the NTC is suggesting that in regard to executive officers, the breaches will focus on the culpability of the offender and the level of risk and not the actual consequences or outcomes of the breach. In other words, if there was a high level of risk that did not eventuate, so there was no impact, the executive officer could face a significant penalty, including jail. This seems to be unreasonable. Surely the impact of the non-compliance would be a relevant consideration.

#### **9.9 Data Flows**

Figure 12 provides the key information flows for in-service compliance and enforcement for automated vehicles. However, it is extremely simplistic and does attempt to convey the level of complexity that

would be required to be considered for AVs. As previously stated, a Safe Systems approach would require all actors to be represented and considered in the key data flows.

The flow chart does not include:

- the role of road operator's information, both public and private.
- The role of the in-service regulator in providing information concerning aftermarket or concessional approvals.
- Austroads should be identified given the central role played by NEVDIS.
- The potential for an independent no-fault crash investigation.

Given the potential for cyber-attacks, the Australian Communications and Media Authority (ACMA) should be required to take a pivotal role.

### **9.9.5 Data Flows for Recall Notices**

Under the RVSA, data flows exist for voluntary and mandatory recall notices and FCAI does not consider that there is a need for additional data streams outside of this process although there is a need to modernise data flows in line with contemporary requirements at State and Territory registration authorities as well as NEVDIS.

## **10. ESTABLISHING AND MAINTAINING THE PROPOSED IN-SERVICE FRAMEWORK**

FCAI understands the need to establish an in-service regulator to manage the AVL. AVs are expected to create enormous savings for governments over time in a broad range of areas at all governmental levels. AVs could reasonably be expected to save in the following areas:

- Reduce costs from a reduction in motor vehicle accidents.
  - Healthcare
  - Road Safety promotion
  - Legal costs resulting from above
- Reduce the costs of Motor Accident Injury Insurance (MAII)
- Reduced costs for road policing operations.
- Reduced government bureaucracy to support vehicle operations especially if a Complementary Law approach is adopted that minimises or eliminates the substantial duplication of resources so commonly observed in our federal system of government.
- Motor vehicle related taxes have for a long period of time contributed more than required to fund vehicle related operations with a large portion of these funds contributing to consolidated revenue.

It is these savings that should be used primarily to fund the in-service regulator noting that the government may have to re-distribute some funding to commence operations given the limited volume of AVs expected to begin with.

FCAI believes the most pragmatic solution for the In-Service regulator is to operate alongside or as a section within the same Commonwealth department that manages first supply obligations. Primarily this would provide synergies and consistency in relation to first supply and in-service obligations over the full life cycle of the AV as well as providing direct links to ACMA located within DITRDC. Additionally, it would allow DITRDC to manage the corporate requirements of HR, Finance, IT, Legal as well as a general

range of management functions without the need for unnecessary duplication. We consider that the regulator should retain the capability to scale up over time as the needs arise.

#### **10.3.1 Key Differences depending on legislative implementation approaches**

We support a national Commonwealth legislative approach as the value of a nationally consistent approach will remove the inefficiencies and cost that would otherwise eventuate. The essence here is the maintenance of a safe vehicle operating environment, and if either approach can achieve this then adopt the one that provides maximum benefit.

#### **10.4 Review of the AVSL**

A review of the AVSL will be an important element especially in a field of emerging technology such as AVs.

It will be important to ensure that any review looks at the international environment to assess best practice approaches that have been adopted by other countries or regions. Of course, one measure might be to consider the penetration of AVs in these countries and compare them with Australia. If the environment in Australia has been too restrictive, then the penetration of AVs into the small Australian market may be limited.

It is unclear to FCAI why NTC have proposed that considering our Motor Accident Injury Insurance environment, why a review that considers whether the AVSL should provide injured persons with a statutory cause of action against an ADSE for breaches of the general safety duty – this seems counter-productive to encouraging AVs to the Australian market to support the National Road Safety Strategy objectives through to 2050.

**Attachment:** Enforcement customer journey maps FCAI edit July 2021



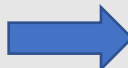

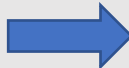

END OF SUBMISSION

**Customer Journey Map – Traffic law breach: speeding vehicle**  
*from the perspective of state and territory road agencies (including police)*

**Narrative of events**

- A police agency receives data (including registration data) from a speed camera that a vehicle was speeding at 57 km/h in a 50 km/h speed zone. The police agency checks the registration data, and accesses state registration system data to match the vehicle’s registration number to the registered owner. It then authorises an infringement notice to be sent to the registered owner.
  - **Given that the DSSAD data will be available to owners, there should be a requirement that the owner can only nominate the ADS if confirmed by the DSSAD.**
- The police agency receives a response to the infringement notice from the registered owner which nominates the ADS as the driver of vehicle at the time of the speeding offence. The agency obtains the details of the ADSE from the state registration system ~~and sends the infringement notice to the ADSE.~~
  - **The infringement system should cease when an ADS is in control – another system needs to be developed that allows the police agency to inform the ADSE that a non-compliance occurred that requires investigation.**
- The police agency is contacted by the in-service regulator requesting relevant data to determine whether the ADSE has breached its general safety duty. The in-service regulator explains it has received relevant data from the ADSE relating to the speeding infringement and is now seeking additional data to complete its investigation. The police agency provides relevant data available to it.
- The relevant state road agency receives notice from the in-service regulator that while, based on its investigation, the ADS was in control at the time of the speeding offence, it could not find a breach of the general safety duty. In the notice, the in-service regulator recommends the state road agency may need to consider the matter further.
- The state road agency visits the site where the speeding fine was issued. It notes that the speed sign closest to the site has some graffiti on it and could potentially be read as ‘60’ rather than ‘50’, especially by an ADS camera rather than a human driver. The state road agency takes action to remedy this issue.

**Diagram**

								
Phase	Detection of speeding vehicle			Investigation by in-service regulator		Site investigation		
<b>State and territory road agencies (including police)</b>	Receives registration data of speeding vehicle from speed camera	<ul style="list-style-type: none"> <li>• Matches registration data to registered owner</li> <li>• Authorises infringement notice to be sent to registered owner</li> </ul>	Obtains details of ADSE from registration system and <del>sends infringement notice to ADSE</del>		Provides relevant data to the in-service regulator	Receives notice from in-service regulator recommending further consideration of matter	Visits site where speeding fine was issued and detects issue with speed sign	Takes action to remedy the issue with the speed sign
<b>Touch points</b>		Registered owner	ADSE		In-service regulator			
<b>Actions by other entities</b>		Registered owner receives infringement notice and nominates ADS as the driver	ADSE gathers relevant vehicle data and sends report to the in-service regulator	In-service regulator: <ul style="list-style-type: none"> <li>• starts investigation regarding general safety duty breach</li> <li>• requests relevant data from police</li> </ul>	In-service regulator completes investigation and determines: <ul style="list-style-type: none"> <li>• ADS was in control</li> <li>• no breach of the general safety duty</li> </ul>		<b>Root cause investigation required.</b> <b>Is there secondary sign?</b> <b>Is mapping correct to location?</b> <b>Why graffiti exists?</b> <b>Inspection regime?</b> <b>Cleaning regime?</b> <b>Other signs?</b> <b>Other jurisdictions?</b>	Remedial actions

## Customer Journey Map – Persistent offending by an ASDSE

*from the perspective of the in-service regulator*

FCAI Comment – A number of these journey maps need to be developed to consider the implications, it seems extraordinary that anyone would consider 1 incident as a formal warning and a subsequent occurrence as an enforceable undertaking. FCAI believes that workshops could be arranged to consider all of these journey maps.

### Narrative of events

*This scenario assumes that: (1) the ADSE is Macey Pty Ltd; (2) Macey only has one type of ADS and it operates at Level 3 automation; (3) the ADS was engaged at the time of each incident; (4) the vehicle with Macey's ADS is at fault.<sup>1</sup>*

- The in-service regulator is notified by a state and territory road agency that a vehicle with Macey's ADS failed to give way to another vehicle (incident 1).
- The in-service regulator considers Macey may have breached its general safety duty and contacts Macey. Macey explains there was a minor glitch following a software update, which it has now remedied. As Macey has not been the subject of prior compliance or enforcement action, the in-service regulator issues a formal warning. **Seems extreme action.**
- One week later the in-service regulator is notified by a police agency about a minor collision between a vehicle with Macey's ADS and another vehicle (incident 2).
- The in-service regulator considers this is further evidence that Macey may have breached its general safety duty. The in-service regulator again contacts Macey. Macey explains that its prior action did not fully remedy the issue. Macey provides documentation showing how it has now remedied the issue and offers an enforceable undertaking that all future software updates will go through more rigorous checks and balances, such as independent expert testing prior to release. As Macey appears to be cooperating, the in-service regulator accepts the undertaking.
- One month later the in-service regulator uses its audit powers to see whether Macey is complying with its undertaking and to assess the robustness of Macey's safety policies and procedures. Macey cannot provide evidence of compliance and no longer wants to cooperate with the in-service regulator. At the same time, the in-service regulator is notified by a police agency about a major collision between a vehicle with Macey's ADS and another vehicle (incident 3). No-one is seriously injured but some vehicle occupants sustain minor injuries.
- The in-service regulator now has a strong evidence base that Macey breached its general safety duty. Noting the three incidents, the severity of the consequences and Macey's unwillingness to cooperate, the in-service regulator considers it insufficient to apply to the court just to enforce compliance with Macey's undertaking. Instead, the in-service regulator:
  - suspends the operation of Macey's ADS until Macey resolves the safety issue (Action 1)
  - considers it appropriate to bring criminal prosecution against Macey for breach of the general safety duty (Action 2)
  - considers there may have been a breach of Macey's first supply obligations, so reports the matter to the first supply regulator (Action 3).

### Differences between legislative implementation options

#### Action 1

- Macey decides to apply for judicial review of the in-service regulator's decision to suspend the operation of its ADS

#### *Commonwealth (complementary) law*

- Macey applies for judicial review to the Federal Court

#### *Applied law*

- Macey can apply for judicial review to the Supreme Court of every state and territory. Macey is unsure which court to choose, so decides to make multiple applications. The in-service regulator is now required to defend multiple applications in different courts.

#### Action 2

- All three incidents occurred in different states (WA, Victoria and NSW) and Macey's Australian headquarters are in the ACT.

#### *Commonwealth (complementary) law*

- Macey has potentially breached one Commonwealth law. All evidence nationally can be considered.
- Macey is prosecuted in a state or territory court exercising federal jurisdiction. The Commonwealth prosecutor chooses the ACT court because Macey's Australian headquarters are there.
- The same interpretation Act and rules of evidence apply irrespective of which state or territory court is picked to hear the federal case. This ensures the national law is applied consistently over time.

#### *Applied law*







- Macey has potentially simultaneously breached the law in multiple states and territories (depending on whether all jurisdictions have applied the law). Because of the doctrine of double jeopardy and the fact that the general safety duty is focused on risk and not the resulting harm, it can only be prosecuted in one state or territory.

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<sup>1</sup> Crash investigations are considered in a separate customer journey map.

- The in-service regulator needs to consider which state or territory court to prosecute the matter in and refer the matter to the relevant prosecuting agency. Given all incidents occurred in different states and Macey is headquartered in the ACT, the choice is not immediately clear.
  - Despite the risk-based nature of the general safety duty, providing evidence of incidents may strengthen the case. It may be challenging for the prosecution to obtain this evidence from incidents occurring in jurisdictions other than where Macey is being prosecuted.
  - Each jurisdiction has a separate interpretation Act and there may be some variation in the rules of evidence applied by state and territory courts. It may be possible to ‘forum shop’ to find the best jurisdiction, which will likely contribute to inconsistent application of the national law over time.
- Prosecutors have prosecutorial discretion. If they consider it difficult to put forward a case against Macey because, for example, it may be challenging to obtain evidence, they may decide not to prosecute at all.

**Diagram**

									
Phase	Incident 1			Incident 2			Audit + Incident 3		
<b>In-service regulator</b>	Notified of potential breach by ADSE (Macey) (failing to give way) by S+T road agency	Contacts Macey	Issues formal warning to Macey	Notified of potential breach by Macey (minor collision) by S+T police agency	Contacts Macey	Accepts enforceable undertaking from Macey	<ul style="list-style-type: none"> <li>• Audits Macey’s compliance with undertaking</li> <li>• Notified of potential breach by Macey (major collision) by S+T police agency</li> </ul>	<ul style="list-style-type: none"> <li>• Suspends the operation of Macey’s ADS</li> <li>• Considers it appropriate to bring criminal prosecution against Macey for breach of the general safety duty</li> <li>• Considers there may have been a breach of Macey’s first supply obligations and reports to first supply regulator</li> </ul>	
<b>Touch points</b>	S+T road agency	Macey	Macey	S+T police agency	Macey	Macey	<ul style="list-style-type: none"> <li>• Macey</li> <li>• S+T police agency</li> </ul>	<ul style="list-style-type: none"> <li>• Macey</li> <li>• Prosecuting agencies</li> <li>• Federal Court <u>OR</u><sup>2</sup> state and territory Supreme Courts</li> <li>• State or territory court exercising federal jurisdiction <u>OR</u> separate state or territory court</li> <li>• First supply regulator</li> </ul>	
<b>Actions by other entities</b>	S+T road agency determines Macey at fault and in control at time of incident and notifies in-service regulator	Macey explains there was a minor glitch following a software update, which it has now remedied		S+T police agency determines Macey at fault and in control at time of incident and notifies in-service regulator	Macey provides documentation showing how it has remedied issue and offers an enforceable undertaking covering future software updates		<ul style="list-style-type: none"> <li>• Macey refuses to cooperate with in-service regulator’s audit</li> <li>• S+T police agency determines Macey at fault and in control at time of incident and notifies in-service regulator</li> </ul>	<ul style="list-style-type: none"> <li>• Macey disengages all ADSs. Consumers cannot operate their vehicles with Macey’s ADSs in automated mode.</li> <li>• Macey applies for judicial review of decision to suspend operation of its ADS; matter heard by Federal court <u>OR</u> state and territory Supreme Courts</li> <li>• State or territory court exercising federal jurisdiction <u>OR</u> separate state or territory court hears criminal prosecution against Macey (brought by relevant prosecuting agency)</li> <li>• First supply regulator considers whether Macey has breached its first supply obligations and any action needed</li> </ul>	

**Customer Journey Map – Crash**







**Investigation**

**Narrative of events**

<sup>2</sup> All references to ‘OR’ in the table are alternatives based on the choice of legislative implementation method – the Commonwealth (complementary) law approach is first and the applied law approach is second.

- An automated vehicle collides with another vehicle on a public road resulting in a damaged ADS that can no longer operate. There are no serious injuries as a result of the collision. The police are notified about the incident and arrive at the scene. Police undertake an on-site investigation of the crash and acquire a copy of relevant Event Data Recorder (EDR) Data Storage System for Automated Driving (DSSAD) data from the automated vehicle. The site is then cleaned up and normal traffic is resumed.
- The police continue their investigation to determine the cause of the accident. At this time, the police notify the in-service safety regulator (ISSR) of the crash and investigation.
- Police interviews with the passenger and initial review of DSSAD & EDR data by the police suggest that a fault with the ADS was the cause of the accident. Police inform the ISSR and request technical expertise to review the ADS DSSAD & EDR data and confirm initial Police assessment.
- The ISSR reviews the **data in conjunction with the importer** and determines that a defective software update **may have** caused the crash. The ISSR considers that the software error may pose a serious and imminent danger to people and directs the ADSE to suspend operation of its ADS fleet immediately while it addresses the error. The ISSR notifies Police.
  - **The importer and manufacturer jointly investigate the issue to understand the root cause of the incident.**
- The ISSR also considers the rollout of the software could be a breach of the general safety duty and investigates whether to take further action against the ADSE for breach of the duty.
- The ADSE resolves the software issue, notifying the ISSR of the action taken and providing evidence. The ISSR reviews the action taken and, satisfied that the issue is resolved, permits the resumption of operation by the ADS. The ISSR informs Police of this outcome and that the ISSR intends to prosecute the ADSE for a breach of the general safety duty. Police do not consider that there are any prosecutable offences outside of a breach of the general safety duty and conclude their own investigation. The ISSR continues its enforcement action against the ADSE.

#### Diagram

								
Phase	At crash site			Post-crash investigation				Post-police investigation
<b>Enforcement agency</b>		Enforcement agency conducts roadside investigation and assessment	Crash site cleared for traffic to resume and police collect DSSAD & EDR data for review	Enforcement agency inspects DSSAD & EDR and reviews collected data. Notifies ISSR for technical expertise.	Enforcement agency (with ISR assisting) investigates to determine if result of crash was due to ADS.			Police cease investigation.
<b>In-service regulator (ISR)</b>					ISR assists with initial investigation.	ISR reviews evidence and also considers whether a breach of the general safety duty has occurred.  Cause of crash considered to be software error. ISSR directs ADSE to switch-off ADS fleet while safety issue rectified.  ISR notifies Police of enforcement action under AVSL.	ISR removes suspension and permits ADS to be engaged. ISSR notifies Police.	ISR inform Police of breach of GSD by ADSE and continues enforcement breach against ADS.
<b>ADSE</b>	ADS is involved in a crash		ADS sends crash notification data to ADSE			ADSE temporarily suspends ADS and addresses software issue.	ADSE resolves issue	
<b>Touch points</b>	Road user contacts enforcement agency				ISR/Police agency consultation	ISR/Police/ADSE and manufacturer involvement in investigation.	ISR and ADSE on rectification of safety issue.	ISR and police engagement about enforcement action under AVSL.

Root cause investigation required.