ACCC Quad Bike Safety Issues Paper

FCAI Response to Issues Paper December 14, 2017

Executive Summary

The Federal Chamber of Automotive Industries (FCAI) and the All Terrain Vehicle (ATV) companies it represents take ATV rider safety very seriously and have instigated a number of safety initiatives in order to improve safety outcomes which includes:

- The development of a new ATV Safety DVD, which is free at time of purchase and on-line;
- Establishment of a safety guide to assist consumers to select the most appropriate/fit for purpose vehicle, and to emphasise the known safety practices; available from ATV dealers and on-line;
- The development of an on-line safety course for new and existing riders that outlines potential risks to riders, and discusses strategies for reducing risks on farms;
- The development and release of an ATV-specific helmet, designed for Australian farmers and local conditions;
- The provision of a free helmet with every ATV/SSV sale in September 2017.

These initiatives follow the industry’s long term endeavours of promoting ‘known safety practices’ through education and training, dealer advice (ensuring that purchasers choose a vehicle that is fit for purpose), wearing protective riding gear, and following the manufacturers’ warnings and safe use recommendations.

Three coronial inquests looking at ATV fatalities have been held in QLD, NSW and Tasmania over 2015 - 2017. The coroners all identified a number of behavioural issues contributing to ATV fatalities, and recommended the mandating of the same ‘known safety practices’ as the industry promotes:

- Mandating helmets for all ATV riders
- Improving and mandating rider training
- Banning children under 16 years of age from riding adult size ATVs
- Banning passengers from riding on single seat ATVs

These measures are capable of immediately improving safety outcomes, but disappointingly, no state government or safety agency has followed up the coronial recommendations and introduced these measures. If the Quad Bike Safety Taskforce wishes to see immediate safety improvements it should encourage all state governments to adopt these coronial recommendations.
The coroners also recommended the development of a safety star rating and a quad bike standard. The ATV industry supports star rating systems that are evidence based, and currently distributes ATVs in Australia that meet the internationally accepted standard; ANSI/SVIA-1/2017.

The University of NSW Transport and Road Safety Group (TARS) proposed a number of vehicle tests and scoring criteria for achieving stars in their rating system (styled “ATVAP”). International ATV and off-road experts debated these proposals at the inquests, and did not agree with the TARS work, citing the following concerns:

- The preferred vehicle characteristics were merely the author’s personal opinions, and the system was not evidence based, thus raising concerns about unintended consequences;
- Methodology: The manner in which the tests were carried out, the surfaces tested on and reliability and reproducibility of the tests;
- The authors weighted the tests, and allocated points without knowledge of the comparative safety outcomes of these tests;
- The authors incorrectly based their preferred vehicle handling characteristics on passenger vehicles which may bear little similarity to off-road vehicle requirements.

After detailed debate the TARS authors conceded there were issues with their assumptions and tests, and the coroners agreed that ATVAP was not ready to be implemented.

So the FCAI is very surprised to see the same proposed TARS methods and suggested vehicle characteristics are being put forward again, without any improvements or revisions in response to the expert advice given at the inquests.

The FCAI is also very concerned that the time allocated to review the TARS work will not enable a thorough examination of their proposal, nor will the time be sufficient for adequate examination of alternate methods and criteria.

In summary, the ATV industry believes there is more safety benefit in ensuring that riders choose a ‘fit for purpose’ vehicle at the point of sale; this might not be an ATV depending on the tasks, terrain and people using it. And also by ensuring that riders are educated in safe vehicle use, and follow the manufacturers’ warnings and safety advice. The FCAI urges the Taskforce to recommend strongly that the coronial recommendations of mandating helmets and training; and of banning children under 16 years and passengers from riding on adult size and single seat ATVs are followed up by the respective state governments.

Alternatively, a poorly constructed star rating system based on unproven vehicle characteristics could create more harm through unintended consequences.
1) Can you provide additional data or information on costings of injuries and fatalities caused by quad bikes?

The FCAI does not have access to injury and fatality data related to ATV incidents, as this is restricted to a number of WHS agencies and research bodies. Limited access to data restricts the ability to determine the cost of injuries and fatalities; it also restricts the industry’s ability to understand the contributing factors to crashes and therefore its capacity to respond.

Further, when recording ATV incident data, the various terms “ATV”, “quad bike”, “quad”, and “utility vehicle”, are all used interchangeably, so there is doubt as to the actual type of vehicle involved. Therefore SWA, state safety agencies and hospital data often record the wrong type of vehicle involved in the incident. The costings for ATV related injuries and fatalities cannot be calculated accurately as long as different agencies use different names that may confuse or conflate ATVs with other kinds of vehicles.

2) Would design changes to quad bikes be likely to reduce the number of injuries and fatalities caused by quad bikes in Australia?

There is no evidence to support such a claim.

A number of vehicle performance testing standards intended to result in design changes which were advocated as potential safety improvements were put forward at the NSW and QLD Coronial Inquiries by the University of NSW Transport and Road Safety Group (TARS).

However, after very detailed specialist debate it was concluded by the international engineering experts who gave evidence that there is nothing more than the opinions of the TARS authors to support any supposed efficacy or relevance of these proposed testing standards, and that there was no actual scientific evidence that they would reduce ATV incidents or injuries. During questioning at the NSW Coronial Inquest on August 7, 2015, Professor Grzebieta made a number of significant concessions regarding the TARS star rating proposal (ie ATVAP):

- That there aren’t any data to support the assumption that static stability, dynamic handling and crashworthiness each make an equal contribution to improved safety outcomes.
- That none of the measures proposed by the TARS team as indicating improved safety of ATVs have been correlated against statistical data for safety outcomes.

The TARS authors based their preferred performance characteristics on passenger car principles; they tested the ATVs on a bitumen surface and assumed the handling characteristics they measured would be replicated when these vehicles were operating instead on lower-friction, off-road surfaces. Moreover, they had not considered any of the unintended consequences that design changes resulting from their suggestions could have on safety outcomes.

Throughout the engineering debate at the QLD and NSW inquests, it became apparent that the TARS group was relatively inexperienced in their vehicle dynamic knowledge, their understanding of off-road handling characteristics and vehicle testing methodologies. This became more apparent when the coroner heard contrary evidence from the international experts assembled at the inquest. As the international expert engineers disagreed with the TARS methods and findings, the Quad Bike Safety Taskforce is encourage to read:

2. Annexure D of FCAI submission to NSW Coroner. Why further development is necessary prior to implementation of any star rating safety system for ATVs or SSVs.

For example, when R. Grzebieta was asked about a leading expert’s opposing view on attempting to transfer on-road passenger car handling principles to the off-road environment he conceded: “I do think a lot more work needs to be done in this area. Obviously I do accept the arguments that
he (Dr Gillespie) is presenting in terms of there are differences and whether you can actually predict them from carrying out tests on the smooth and bitumen surfaces I think that’s still up for debate and I think we still need a lot more work in this area.” (Evidence of Prof Grzebieta, 6 August, 2015). That work still remains to be done.

After listening to this evidence, NSW Deputy Coroner Freund found that development of a star rating system was not going to be straightforward noting that: “… some of the aspects of the proposed TARS rating system remain highly contentious…”, and “It is also clear from the evidence that the process of developing and establishing any star safety rating system will take some years.”

QLD Deputy Coroner Lock noted of the TARS work: “More work needs to be done before it can be properly implemented.” Coroner Lock recommended that; “The TARS team’s proposed quad bike and side by side star rating program should be considered as a good start for consideration of the program so long as it is ensured that it is evidence based (in consultation with the industry).”

All of that work still remains to be done. In the absence of such work and analysis, mandating design changes to ATVs or other vehicles via section 104 of the Australian Consumer Law carries a very high risk of causing unintended consequences adversely affecting the safety, handling, performance, and utility of the vehicles.

Consequently, the ATV industry is extremely concerned that the current timeline set out by the IDC to evaluate and develop a safety star rating will not allow serious consideration of the methodology, the proposed scoring of various characteristics, and the lack of evidence behind the TARS proposal. Indeed, the coroners voiced those same concerns.

Instead, as a starting point, the FCAI would like to see the American National Standards Institute / Specialty Vehicle Institute of America (ANSI/SVIA) Standard or equivalent standard mandated in Australia in order to ensure all ATVs brought into the country meet an internationally established standard.

Finally, it should be borne in mind that any mandatory safety standard may consist only of such requirements as to design (and other matters) as are “reasonably necessary to prevent or reduce risk of injury to any person”, and that this essential criterion for a safety standard can be satisfied only by evidence and not merely by expressions of speculative opinion, no matter how well-intended.

3) If you answered ‘yes’ to question 2, what design changes do you consider would have this effect? Which design features, if any, should a safety standard mandate or prohibit? In particular the ACCC is interested in understanding design changes that are likely to reduce:

Although the FCAI did not answer ‘yes’ to question 2, the FCAI nonetheless submits the following information.

a) injuries and fatalities caused as a result of quad bike rollover

As the ATV is a ‘ride on’ type of vehicle, it is designed with rounded edges and minimal sharp projections to help the rider separate from the ATV in a roll over incident. Van Ee et al (“ATV Rollover, Rider Response, and Determinants of Injury; In-depth Analysis of Video-documented ATV Rollover Events”; Traffic Injury Prevention, 11 Oct 2014) described that over 63% of riders attempted active dismount during an incident, and 72% of those were successful in separating without injury. Overall, 15% of riders attempting active dismount were injured, compared to 32% of riders not attempting active dismount.

b) injuries and fatalities caused to children

As the coroners have recommended, and the ATV industry have communicated for many years, children under 16 years of age should be prohibited from riding adult size ATVs. State
governments should follow up on the coroner’s recommendations and legislate this requirement immediately.

The most effective design feature to reduce children from being injured is the ignition key, but it only works when the key is removed from the vehicle. In order for this design feature to work effectively there needs to be a change in user behaviour. The coroners identified that nearly all the children killed on adult size ATVs and SSVs had their parent’s permission to ride the vehicle, which underscores that any proposed “child proof” mechanisms may be disabled, removed, or over-ridden in many instances.

As a behavioural control, state governments should carry out the coronial recommendations to ban children under 16 years of age from riding adult size ATVs. As one in five ATV fatalities are children riding an adult size ATV, this would reduce fatalities by approximately 20%.

If Australia were to adopt the ANSI/SVIA Standard, there are provisions and requirements for Age-Appropriate ATVs for children.

c) injuries and fatalities caused to riders being carried on quad bikes not designed to carry passengers.

The ATV seat is designed with a long smooth surface and well-rounded edges to allow the rider to shift their body forward, backward and to each side, depending on the terrain and the riding activity being undertaken. Active riding is an important part of riding a straddle-seat type vehicle.

There have been prior inquiries (for example, in CPSC proceedings relating to ATVs) as to whether the relative length of some ATV seats might encourage passengers to ride on the back; however, this was never the intention of ATV seat design, which is necessary to accommodate the rider-active nature of the vehicles, and there are warning labels on all ANSI/SVIA or EN 15997 standard ATVs indicating that single seat ATVs are only suitable for one rider.

Shortening the seat in order to restrict passenger access would restrict the operator’s ability to shift his or her weight. Placing obstructions on the seat back or on the carrying racks to stop passengers could also restrict the ability of the operator to separate during an incident. Smooth surfaces and unobstructed panels improve separation and therefore reduce injuries.

Passengers should be prohibited from riding on single seat ATVs, and this is in alignment with the coronial recommendations from QLD, NSW and Tasmania. State governments should carry out the coronial recommendation to ban passengers from single seat ATVs.

4) If your view is that design features should be mandated or prohibited to increase quad bike safety, could the regulation be designed to encourage innovation rather than prescribing particular products or technical solutions (for example by ensuring fitting points or attachment mechanisms to allow the development of improved CPDs or ROPSs or by prescribing performance-based outcomes rather than technical designs)?

As a more general proposition, it is preferred to have performance-based outcomes in a standard instead of specific features, in order to encourage innovation.

As to the given example: this hypothetical question about CPD (also called “OPD” or “ROPS”) fitment assumes they would reduce more injuries than they would create. Many different designs of CPDs and ROPS have been evaluated on ATVs. All of them have been found in computer simulation studies to cause approximately as many or more injuries than they prevent. (“Updated Injury Risk/Benefit Analysis of Quadbar Crush Protection Device (CPD) for All-Terrain Vehicles”), DRI-TR-12-06-3, 8 August 2016. A recent study by UNSW-TQuad Bike and OPD Workplace Safety Survey Report: Results and Conclusions, 31 May 2017) also found that OPDs increased serious injuries slightly, but this result was not statistically significant.
In fact, the U.S. Consumer Products Safety Commission (CPSC) has studied CPDs and, to date, has rejected all proposals that they be required for ATVs.

The industry is unaware of any reliable research to show CPDs as being effective in reducing injuries. The industry has already developed a vehicle that has ROPS (the SSV), but that vehicle is specifically designed for the ROPS to be integrated into the design. It would be highly problematic if aftermarket CPDs were required to be fitted to ATVs as these could increase injuries, reduce the rigidity and integrity of the vehicle, and have other adverse unintended consequences.

5) If any or all of these design changes were implemented in Australia, are you able to estimate the additional cost that would be imposed on Australian suppliers?

ATVs are generally manufactured in compliance with the ANSI/SVIA or EN 15997 standards, which apply to the rest of the world market. Any significant mandatory vehicle design changes implemented in Australia alone could be cost-prohibitive. These increased costs would necessarily be passed onto Australian individuals and businesses who use the vehicles.

6) To what extent does the US Standard satisfactorily address design features that ensure quad bikes are safe for use? Do you consider that Australia should adopt a mandatory safety standard similar to the US Standard? To what extent would this option impose additional costs on Australian suppliers or create barriers to trade?

The ANSI/SVIA Standard has been developed and enhanced over many years with input from the U.S. CPSC, leading ATV manufacturers, and other stakeholders.

The ANSI/SVIA Standard addresses the following design and safety areas:

1. Service Brakes
2. Parking Brake/Parking Mechanism
3. Mechanical Suspension
4. Engine Stop Switch
5. Manual Clutch Control
6. Additional Clutch Control for Utility ATVs
7. Throttle Control
8. Drive Train Controls
9. Neutral Indicator
10. Reverse Indicator
11. Electric Start Interlock
12. Carry Bar
13. Flag Pole Bracket
14. Manual Fuel Shutoff Control
15. Handlebars
16. Operator Foot Environment
17. Lighting Equipment
18. Spark Arrester
19. Tyre Marking
20. Tyre Pressure Gauge
21. Security
23. Vehicle (ATV) Identification Number

The ANSI standard addresses vehicle design both in terms of utility and safety as these two parameters cannot be considered independently; change one and the other is affected.
The benefits of utilising the ANSI standard are:

- The standard is already reviewed and updated regularly by others (which incurs a large cost).
- North America is the largest ATV market in the world:
  - so more research and development is undertaken within that jurisdiction,
  - a large riding population allows the capture of huge amounts of data which influences research and design changes,
  - the engineering expertise in the USA is best qualified to consider design changes (This off-road vehicle engineering expertise does not currently exist in Australia).
  - This is an expensive process that does not require duplication in Australia.

If Australia decides to adopt the ANSI/SVIA and/or EN 15997 standard, it should be mandated in order to ensure a minimum standard for all vehicles imported into the country.

The ANSI/SVIA standard, which is reviewed and updated at least every five years, is believed to have played an important part in the steady decline in ATV related fatality rates in the US.

The graph below shows the U.S. ATV fatality rate in comparison with other vehicle types up to 2011 (the last year for which data is available). The trend for ATVs is similar to that of passenger cars and light trucks which have also seen substantial improvements over this time period.
7) Are consumers currently getting adequate information at the purchase point about quad bike use and limitations or safety information and equipment? Should there be additional warnings or instructions displayed at the point of purchase or provided with the sale of quad bikes?

The FCAI and industry partners have made a concerted effort to provide improved safety information and materials to their customers over many years. Safety materials incorporate both the industry’s known safety practices, and more recently, information about the factors contributing to incidents, which were gleaned from the coronial inquests into ATV incidents.

FCAI member companies also supply:

- A vehicle selection matrix and safety guide. The matrix allows potential ATV customers to select an appropriate vehicle suitable for the tasks, terrain and people using the ATV. After consultation with the dealer, it may be decided that an ATV is not the most appropriate vehicle for that particular person’s situation. Safe use tips are also included. Advice on selecting the most appropriate vehicle for each case is of more safety value than the proposed star rating system.
- A manufacturer’s owner manual that outlines safe use practices, guidelines and manufacturer’s advice on correct use of the vehicle.
- Each purchaser receives a free copy of the FCAI’s ATV Safety DVD
- Information on the importance of rider training including details of local trainers
- Details of the industry’s on-line Safety Course.
- Advice on protective gear and availability of helmets etc.
- Explanations by dealers of the permanent safety warning decals on the ATV and about the load carrying limits of each vehicle.
- A risk assessment guide and solution measures for all people using ATVs in the workplace (to be released in early 2018).

State government safety agencies could support these activities by increasing the number of workplace safety inspections and following up on the coronial recommendations that cover the ‘known safety practices’ (helmets, kids, passengers and adherence to safe use warnings).
a) What form should the warnings or instructions take?

The FCAI believes the methods outlined above generally cover the point of sale. WHS QLD and the FCAI have also promoted a number of additional safety materials at dealerships, farm expos and field days in an effort to improve communication directly and through farm businesses.

Safety materials combined with state government support for the coronial recommendations to mandate helmets and training, and to ban children under 16 and passengers from riding inappropriate vehicles, are anticipated to have a positive, cumulative effect to change the ATV culture and improve safety.

The ANSI/SVIA standard requires hang tags, vehicle labels and owner’s manuals at the point of sale. These materials presumably have also played a part in the continued improvement of U.S. ATV-related fatality rates.

b) What costs would be imposed by the requirement for further warnings or instructions?

This depends on the type of additional materials and advice being considered. The ATV industry is currently funding the development and communication of safety practices to users.

Manufacturers of non-ANSI/SVIA compliant ATVs would incur an additional expense to ensure these materials were provided to their customers.

c) What benefits might the warnings or instructions have in reducing quad bike related deaths and injuries?

The safety information supplied and discussed at member dealerships is important for improving safety outcomes for riders. This advice would be more effective if federal and state WHS agencies also encouraged/enforced riders to follow the known safety practices recommended by the three coronial inquests held, including:

- Mandating helmets for all ATV riders
- Banning children under 16 years from riding adult size ATVs
- Prohibiting passengers from riding on single seat ATVs.
- Mandating training for all ATV riders.

8) In relation to the option of a consumer safety rating system:

a) What testing criteria should be specified?

This question was comprehensively debated at the QLD and NSW Coronial Inquests. After hearing expert evidence, each of the coroners recommended that any proposed vehicle performance characteristics to be included in a safety star rating system must have evidence-based proof that any design change made to meet those characteristics will improve safety outcomes.

At the inquests, the FCAI provided highly qualified engineering experts who had considerable experience with star rating systems, ATV safety and off-road vehicle handling characteristics. On the basis of their expert advice, the FCAI proposes that:

- ATVs and SSVs should not be compared within the same star rating system, because they are different types of vehicles. No other NCAP type rating compares different vehicles within one safety rating system (i.e. SSVs and 4WD cars may appear to be similar vehicles, but they would never be rated within the same safety rating system).
- Any proposed changes must be backed with scientific evidence demonstrating they will improve safety outcomes, and not cause more injuries. As shown in the inquests, the
TARS proposals are not evidence based and could in fact have negative outcomes that the authors have not tested or even considered.

- Any vehicle tests that may be utilised must be able to predict how an ATV would respond in off-road riding conditions. The TARS testing was carried out on bitumen surfaces with the authors assuming the ATV would handle in a similar way in a lower friction off-road situation. (As noted above, the TARS authors conceded during the NSW coronial inquest that further testing is required in this respect, amongst others.)

- Any testing regimes that may be utilised are repeatable (same result from multiple tests with very small test to test variations) and reproducible (same result at different test facilities with very small variations). There was significant variation in some of the dynamic test results of the TARS work.

- It be ensured that he required outcomes don’t change vehicles in such a way that there may be other non-intended consequences. For example, the TARS bump test favours heavier vehicles. If this was ever to become part of a safety standard, that test would encourage manufacturers to build heavier vehicles. But that could lead to unintended consequences and could in fact worsen safety outcomes.

- Only those criteria that have a known safety benefit should be included. At the moment, such criteria are not known, but a methodology for evaluating proposed criteria has been developed by the U.S. CPSC in the 1980s. In that research, the CPSC conducted a study to evaluate factors associated with improved safety. They found several rider factors associated with improved safety, and they evaluated Kst, a measure of static lateral stability as well. However, they found no statistically significant effect on safety of Kst differences between 4-wheel ATVs.

b) how should test results be displayed?

It is premature to consider display options until valid and meaningful testing data are developed.

c) what costs might be imposed by requiring the testing of vehicles and displaying the test results?

For the same reasons, at this stage, such costs are unknown.

d) what benefits might a consumer safety rating system have in reducing quad bike related deaths and injuries?

It is unknown what benefits might be realised if there is a consumer safety rating for ATVs based on the TARS proposed system.

Secondly, star ratings for cars outline the likelihood of a crash, but more importantly the likely level of injury from being involved in a crash. In relation to ATV crashes and injury outcomes, behavioural factors such as helmet wearing, following manufacturer’s advice, child operators, permitting passengers and excessive loads will continue to influence safety outcomes, regardless of the number of handling characteristic stars a particular vehicle may have.

This is why the FCAI has developed a better vehicle selection option encouraging ATV customers to make informed purchasing decisions based on ‘Fit for Purpose’ criteria. This system currently operates as the ATV industry’s Selection Matrix and encourages purchasers to buy a ‘fit for purpose’ vehicle based on the:

- tasks to be carried out (loads, mustering/inspection/transport requirements and speeds)
- terrain to be ridden on
- people to ride the vehicle and their ability to be rider active

A farmer may choose a five star vehicle (as proposed by TARS) that is totally unsuited to his or her workplace simply because it has five stars. If they require a:

- general transport vehicle but don’t often carry loads
- operate on environmentally sensitive areas (muddy, grassed areas, etc)
• work alone and don’t take passengers or
• muster in tightly treed areas and slippery terrain, operating over many fenced paddocks; then a side by side vehicle is not the right choice, and instead an ATV would be better suited to these conditions. However, the TARS star rating proposal would recommend a SSV for every situation ignoring important task, terrain and people considerations.

Another farmer may carry loads and people every day, or be incapable of being rider active. The FCAI selection matrix in this case would recommend the purchaser buy a SSV, and not an ATV.

The Fit for Purpose selection criteria will pick the most appropriate vehicle for the situation. This is why the selection matrix is more suited than a star rating that pushes riders into SSVs when they may not be suited at all.

Anecdotal evidence is showing that farmers are adapting poorly-suited SSVs to their situation by:
• removing doors designed to keep them in the SSV because they are a hassle when moving in and out of the vehicle frequently (e.g., on a dairy farm)
• not wearing seatbelts (and overriding any interlock devices) for the same reason
• not wearing helmets as they mistakenly believe it is not necessary inside a rolncage

Vehicle selection matrices are better able to ensure the vehicle is suited to the operator’s needs. The TARS proposed star rating system does not do this.

9) If your view is that regulation is needed to reduce the number of injuries and fatalities caused by quad bikes in Australia, how should these be implemented? One proposed option is to prohibit or mandate particular design features; another is to increase consumer information, including through a consumer safety rating system; a third option is a combination of both:

The QLD, NSW and Tasmanian Coroners have each already recommended regulations that are required in order to improve ATV safety. State governments, however, have been slow to act on those recommendations.

Regulations could improve ATV safety in Australia. There is no disagreement among qualified experts that helmets are probably the most effective countermeasure to reduce severe injuries and fatalities. A regulation that requires helmet usage could immediately reduce fatality rates by approximately 30% (based on NSW, QLD and Tasmanian coronial data).

One in five fatalities seen on ATVs in Australia are children under 16 years riding adult ATVs. A regulation prohibiting children from riding these vehicles could have an immediate effect (up to 20%).

Another 10% percent of fatalities are due to alcohol consumption. A regulation prohibiting alcohol and drugs could have a substantial immediate effect.

Similarly, passengers riding on single seat ATVs account for 10% of fatalities, so prohibiting this activity could have a substantial effect, and combining the benefits outlined above would see very substantial reductions in fatalities.

The FCAI believes a multi-pronged approach is needed; rider education outlining these known safety practices, and these practices encouraged through state government regulation and WHS agency inspections and enforcement.

A regulation requiring accredited training could also have a positive effect. Very few riders in Australia have taken any official training courses.

The ANSI/SVIA standard is believed to have contributed to the declining fatality rates in the US. Although most of the ATVs currently sold in Australia currently comply with the ANSI/SVIA standard, there are substantial numbers of ATVs imported to Australia that do not meet this standard.
a) What are the comparative benefits and costs of these approaches?

Following up on the coronial recommendations as outlined above would require legislation to mandate these safety measures. The cost of wearing helmets would be borne by the users. Requiring training would also impose costs, but these costs would be incurred only once or perhaps once every several years, depending on the regulation.

Implementing the ANSI/SVIA and EN 15997 standards as a mandatory requirement for selling ATVs in Australia would be an immediately effective standard affecting vehicle design, and have the added benefits of being the least expensive and least disruptive regulatory approach.

If users were required to wear helmets, complete training, keep children and passengers off adult-size and single seat ATVs, there would be a cost to each state safety regulator to enforce these safety measures.

10) If the ACCC recommends a mandatory safety standard for quad bikes:

a) should the standard apply differently to quad bikes used for different purposes, for example agriculture, sports, recreation, tourism and commercial hire?

The ANSI/SVIA standard is used for all types of ATVs in the US and 30 other countries around the world. The ANSI standard considers Type I, Type II and Age Appropriate models. EN 15997 is a similar standard and accepted in approximately 34 countries.

There are no known differences between the safety requirements for ATVs used for these different purposes.

In Australia, there are 3 distinct types of ATV sold. These are generally designated, respectively, “Agriculture/Utility”, “Sport” and “Fun” (ie, youth).

Agriculture/Utility vehicles are predominantly purchased by agricultural users and are generally characterised by having front and rear racks for carrying small loads. They are used on farms and in other workplaces for a wide variety of tasks including (but not limited to) personal transport, mustering, fencing, feral animal control and spraying.

Sport category vehicles are primarily used for recreation, including racing and are the type more likely to be found in the designated recreational off-road areas. They are not generally designed to have load or towing capabilities and are thus usually limited to carrying only the rider.

Fun (youth) category vehicles are specifically designed for younger riders between the ages of 6 and 16. These vehicles are speed limited and designed without provision for towing or carrying loads other than the rider. They are purely recreational in nature.

Any recommendation that the ACCC may make with respect to a mandatory safety standard may relate only to “consumer goods”, as defined in the Australian Consumer Law (section 2). Of the 3 types of ATV described above, Sport and Fun (youth) ATVs are “consumer goods”, whereas Agriculture/Utility ATVs are not.

b) should the standard apply differently to quad bikes designed for use by children?

The standards mentioned above include requirements for child age-appropriate ATVs. These should be adopted in Australia.

c) should the standard apply to SSVs as well as quad bikes, and if so how should the vehicles be defined?

No. SSVs have very different operating features and characteristics, and the safety strategies that apply to ATVs do not apply to SSVs. For example, ATVs are straddle seat vehicles steered with handlebars, and SSVs typically have bucket seats and are steered with a steering wheel. As a
result, for example, there is a different U.S. voluntary standard governing SSV (ANSI-ROHVA 1-2016).

Regarding safety strategies, ATVs are designed to facilitate separation between the rider and the vehicle in a rollover accident, while SSVs are designed to restrain the rider with a seatbelt and doors or other barriers inside the roll cage.

For these reasons, the ANSI/SVIA and EN 15997 standards should be adopted for ATVs. There are already a number of standards that are currently used for SSV around the world:

ANSI/ROHVA 1-2-16 Recreation Off-Highway Vehicle Association (ROV)
ANSI OPEI B71.9-2016 Multipurpose Off-Highway Utility Vehicles (MOHUV)
SAE J2258 Light Utility Vehicles
SAE J2358 Low Speed Vehicles

\( \text{d) when should the standard commence?} \)

The ANSI/SVIA, EN 15997 and ROHVA standards could be adopted relatively quickly, because the standards already exist.

As noted above, any Australia-specific standards that impose significant additional or varying requirements for the vehicles could be cost-prohibitive from a manufacturing standpoint and will result in increased prices for the purchaser of the vehicles.

The standard’s commencement date, however, must be tied to a future vehicle model year (e.g., model year 2020 ATVs) in order to accommodate design, production, and distribution in Australia.

\( \text{e) should the standard include a transitional provision?} \)

A long transitional period would not be required if the currently accepted ANSI/SVIA, EN 15997 and ROHVA standards are adopted. As noted above, however, the commencement date must be tied to a vehicle model year, not a calendar month or year.

\( \text{f) should the standard have an expiry date?} \)

The internationally accepted standards mentioned above are approved and must be regularly reviewed and, if appropriate, updated every five years. In turn, the ACCC would need to establish an appropriate mechanism to incorporate the revised versions of the standards.

\( \text{g) should the standard apply to both new and second hand vehicles, or be limited to new quad bikes sold after the transitional date?} \)

It would be impractical for second hand vehicles to be retrofitted or modified to meet internationally recognised standards. Therefore if any such standards did apply to second hand vehicles, the practical effect would be to ban them after the transitional date, which would be quite costly to current owners. This is why vehicle standards typically apply prospectively only.

\( \text{11) What is the life cycle of quad bikes in Australia? For example, on average how long do consumers use quad bikes before the vehicle is retired? How long might it take before the current stock of 380,000 quad bikes is replaced by new stock that satisfies requirements of a safety standard, if imposed?} \)

The typical age of an ATV prior to retirement is not very well known, and hence the size of the parc and the length of time before all current ATVs will be out of service is difficult to calculate. For instance ATVs used in wet, muddy terrains like dairy farms are unlikely to last as long as an ATV used in drier situations.
12) Please provide any other information you consider may be relevant to the ACCC’s consideration of these issues.

The Issues Paper (at page 32) lists a number of specific “Design features” which it suggests could potentially increase quad bike safety. Many of the listed design features have been addressed in FCAI’s answers to the foregoing questions. FCAI provides the following additional information in response, but emphasizes the information below is not exhaustive:

In addition to requiring confirmation that lateral stability is in fact correlated to increased safety, a lateral stability specification would have to be based on the rider-active nature of the vehicle and the low friction (as compared to bitumen) off-road surfaces on which the vehicle is intended to be operated.

Active stability controls that can automatically take control of the vehicle could, depending upon how abruptly and under what circumstances they engage, lead to a loss of control by the operator and a subsequent accident and injury.

Audible slope or potential rollover warnings could be annoying to operators and then ignored when a rollover does not occur. Further, relying on an audible warning could lead to poor decision-making, as operators could exceed their skill levels driving on a slope until the audible warning arrives too late.

Minimum suspension requirements are included in the ANSI and EN 15997 standards. Independent rear suspension requirements would eliminate most sport ATVs used for recreation or racing.

There is no direct, consistent correlation between open differentials and rider safety. With respect to open differentials, the CPSC concluded that an open differential would “reduce some of the understeer where that exists, and would probably reduce some of the oversteer due to roll, in that it would lessen the need for roll as a steer input”. Open differentials also cause less damage to riding surfaces and, in sub-limit operation on stable, level surfaces, can reduce rider steering inputs and fatigue.

However, the CPSC has also suggested that an open differential was not desirable for riding on uneven terrain at higher speeds, concluding that:

“… the off-road use of the ATV makes it quite undesirable to have an automotive type differential. Where the differential allows one wheel to increase speed significantly over the other, for instance in uneven or slippery terrain, or where the vehicle rolls to the side enough to lift a wheel, that wheel will be spinning much faster than the other when it regains traction, and will cause the ATV to lurch sideways.

“This is a very important reason not to put a differential on the ATV.”

Additionally, when climbing a steep grade on a vehicle with an open differential, if one tyre slips, the vehicle may lose all forward drive and fail to climb, and in near-limit cornering the outer wheel may stop spinning and unexpectedly gain traction. The CPSC goes on to say that “automotive type differentials have been tried on ATVs, and there are slow-speed utilitarian uses where it is helpful.” This is because an open differential will result in less slip between the tires and the riding surface during turns on smooth terrain, which prevents damage to lawns or other sensitive surfaces.

Current transmissions and power trains are not designed to withstand the added torque/load of dual wheels that would feedback through the drive train. Also, dual wheels would make the vehicle wider and heavier and could adversely affect vehicle manoeuvrability, utility and functionality for its intended purposes as well as increase rider fatigue.
Falling object protective structures raised the same issues and concerns as ROPS.

Increasing wheel track width and/or wheel base length and lowering the centre of gravity could adversely affect vehicle utility and functionality for its intended purposes.

Fitting lights, mirrors and horn could serve to encourage on-road operation, which presents an increased risk of injury.

Start-up systems (including seat weight sensors) intended to prevent operation by young children would raise concerns that children would learn to defeat the device, on their own or with assistance, and that the device could prove to be a substantial annoyance to adult operators, as well as something for which they object to paying the resulting increased cost.

Weight sensors which would not allow the vehicle to start if above a certain weight would present the possibility of mechanical malfunction that could prevent vehicle operation with normal loading and present a safety risk if in a remote or dangerous location. More complex systems introduce more potential failure points.

Redesigning carrying racks to restrict the ability to carry passengers could present obstacles to safe operator dismount and separation in the event of an accident or rollover. It could also adversely affect vehicle utility and functionality for its intended purposes. Modified seats to limit space could restrict rider active movement and thereby lessen operator control.

Requirements for foot well design are included in the ANSI and EN 15997 standards.

**Accuracy of Factual Information in the ACCC Issues Paper**

The FCAI would like to bring the ACCC’s attention to some inaccuracies within the issues paper:

- The Global Market Insights incorrectly reports the total number of ATVs in the parc (p. 11) and how ATVs are used in Australia.

- The combined total of 20.2% for Agriculture and Forestry is not correct, agriculture continues to represent one of the primary uses of ATVs in Australia (p. 11).

- The recording of vehicle type in hospital data is highly problematic as many different types of vehicles are counted as a ‘Quad Bike’.

- Page 24 states that the FCAI objections to the TARS Project have received criticism and cites a 2013 paper by Wordley and others. But this paper predates even the TARS project (2015) let alone any criticisms made of it, so could not possibly have contained criticisms of the FCAI objections.

- Page 25 ‘Industry Initiatives’ appears to have omitted many of the industry initiatives that have been undertaken in the last few years. These initiatives were presented to the ACCC on November 2, 2017.