



Introduction	3
Our Vision	3
Centre Plan and Facilities	3
Access to the Centre	4
Confidential Information, Product and Data Security	5
Workplace Health and Safety	5
1. Hirer Obligations	6
2. Induction	6
3. Consequence of Breach	6
4. Personal Information	6
5. Conditions of Use	7
6. Weather	8
7. Alcohol, Substances and Fatigue	8
8. Traffic Control	9
9. Entering Training and Testing Zone Areas	9
10. Driver's Licence	10
11. Speed Limits	10
12. General Centre Obligations	11–12
13. Safety Obligations & Operating Procedures	13
14. Centre location – How to find us	14
15. Definitions:	15
16. Interpretation	15
Annexure – Noise Limits	16

Introduction

RACQ exists to make a positive difference to the lives of its members now and into the future. RACQ is committed to developing a community of safer drivers, in safer vehicles on safer roads.

The RACQ Mobility Centre (the Centre) will be positioned as a world class facility offering safe and reliable testing of connected and autonomous technology, product validation and certification, education and facilities to support future mobility innovation and research through collaborative industry and academic partnerships.

Our Vision

To be a globally recognised thought leader, and centre of excellence, for the development, testing and transition of technology and systems that promote safe and sustainable transportation solutions.

Centre Plan and Facilities

Located in Brisbane, Australia, the Centre offers facilities for performance and safety testing of connected and autonomous technology under controlled and realistic driving conditions. Embracing a safe systems approach, the Centre will also act as a testing ground for connected infrastructure whilst promoting safe driving behaviour.

The Centre is conveniently located at 1753 - 1799 Mount Cotton Road, Cornubia, Queensland 4130; only 45 minutes from the Brisbane Airport and the Port of Brisbane.

The Centre is spread across approximately 45-hectares with six purpose built driving zones, research and development facilities, garaging, administration offices as well as event and training facilities.



Access to the Centre

Access to the Centre and parts of the Centre is permitted only in accordance with a Hiring Agreement or approval granted by the Owner or Centre Management.

All vehicles must be parked at designated parking areas across the Centre. All Centre Users are to complete the relevant sign in process on arrival and sign out upon departure, unless otherwise specified by Centre Management. All Centre Users must complete the appropriate Centre induction requirements prior to utilisation of the facilities for their event/activities. Hirers are responsible to ensure that safety and induction briefs are provided to all Invitees taking part in their activity/event, prior to commencement.

Contact Person – Hirers must nominate a representative who will be:

- responsible to oversee its activities, personnel and attendees;
- able to act effectively in an emergency;
- present within the hired zones/areas for the full duration of any activities being conducted as part of the facility hire or event; and
- the primary contact for communications with Centre Management for the full duration of any activities being conducted.

Photography – Centre Users and Invitees may use photographic equipment, including but not limited to mobile phones, cameras and drones in connection with their own activities.

Photography or recording of others attending or using the facilities in any manner, including but not limited to equipment, product testing or development and corporate branding is strictly prohibited (other than if requested by or with the consent of the relevant party).

Photography or recordings of or containing RACQ branding is also prohibited, unless written approval has been obtained from the Owner.

Drones may only be used on site with the prior approval of Centre Management and will require provision of documentation relating to flight path, user licensing and intended purposes in accordance with CASA requirements.

RACQ Intellectual property

Centre Users (and Hirer's Invitees) are not granted any right by this Code of Conduct or by being permitted to access the Centre to use or publish and logos, trade marks or other intellectual property of the Owner or any member of the RACQ Group.

Confidential Information, Product and Data Security

The operational activities undertaken at the Centre are confidential in nature and it is a condition of use that confidentiality for all parties is maintained.

It is a condition of use of the Centre that security of these operations is maintained in both physical and electronic environments.

These provisions apply to the activities of all entities and persons operating at the Centre, and all users will respect the confidentiality of each operation.

Confidential information includes, but is not limited to:

- (a) product testing;
- (b) product development;
- (c) event and seminar content;
- (d) hiring/leasing or other arrangements between the Owner and a Centre User;
- (e) communications between the Owner a Centre User;
- (f) grievances, disputes, or concerns raised by a Centre User or the Owner

Health and Safety

All Hirers must comply with, and must ensure that their Invitees, comply with Workplace Health and Safety requirements, at all times whilst on site, including:

- (a) all applicable laws relating to occupational or workplace health and safety;
- (b) the occupational health and safety procedures relating to the Centre;
- (c) all reasonable directions of the Owner and the Owner's Personnel;
- (d) instructions of all signage whether temporary or fixed.

Centre Users other than Hirers must comply with the Owner's directions with respect to health and safety and must take reasonable steps to protect their own health and safety.

1. Centre User Obligations

- 1.1 It is a condition of entry to and use of the Centre and the facilities and equipment at the Centre that each Centre User reads and abides with this Code of Conduct and the Centre Procedures.
- 1.2 A Hirer must ensure that each of its Personnel (including any Instructors) and Invitees:
 - (a) have read and understood the Code of Conduct;
 - (b) is aware of their obligation to comply with the Code of Conduct and Centre Procedures;
 - (c) comply with the Code of Conduct and Centre Procedures; and
 - (d) signs all access and use notices upon request by the Owner.
- 1.3 A Hirer must ensure that their nominated contact person:
 - (a) provides Invitees with an induction and safety brief for the zones/areas being used;
 - (b) provides all Invitees with an overview of conduct expectations based on this document; and
 - (c) provides appropriate supervision of all Hirer Invitees' conduct during activities.
- 1.4 In the event of any inconsistency between this Code of Conduct, the Centre Procedures and a Hiring Agreement, the Hiring Agreement prevails. In the event of any inconsistency between this Code of Conduct and the terms on which the Owner makes an activity or access to the Centre available to a Centre User other than a Hirer, those terms prevail.

2. Induction

The Centre induction may include a specific Centre/work area, or the part/whole of a facility at the Centre. The Centre Procedures must also be understood by each Hirer and its Personnel who will access the Centre. All other relevant documentation reasonably required by the Owner, must be completed and, where requested by the Owner, provided to the Owner.

3. Consequence of Breach

3. The consequences of the Hirer or any of its Invitees breaching the terms of the Code of Conduct or the Centre Procedures are set out in the Hirer's Hiring Agreement.
- 3.2 The Owner or Centre Management may require that a Centre User (who is not a Hirer) who breaches the terms of the Code of Conduct or Centre Procedures to leave the Centre.

4. Personal Information

- 4.1 Centre Users acknowledge (and in the case of Hirers, must ensure that its Invitees acknowledge) that the Owner may collect Personal Information as part of the induction process and use of the Centre will be dealt with in accordance with the Owner's privacy policy, as amended from time to time. The Owner will comply with all laws in respect of the collection, handling, use and disclosure of Personal Information.

5. Conditions of Use

5.1 Where a Centre User uses the Centre facilities, the Centre User must ensure that:

- (a) any training aids or equipment provided by the Owner for use by the Centre User are accounted for, and returned to their designated locations after use;
- (b) any loss or visible damage to any training aids or equipment associated with the Centre is reported to the Owner immediately upon realisation of such loss or damage;
- (c) the Centre facilities are used in a hygienic manner, including being left in a clean and tidy state upon conclusion of their use;
- (d) any UHF Safety Radios provided by the Owner are:
 - (i) collected prior to commencement of any outdoor activity;
 - (ii) actively monitored for the duration of any outdoor activity;
 - (iii) used to respond, where required to radio calls for the duration of any outdoor activity; and
 - (iv) returned to the Mobility Hub at the conclusion of the hire when signing out; and
- (e) In the case of a Hirer, the Hirer's nominated representative complies with sign in and out procedures as directed by the Owner.

6. Weather

- 6.1 Adverse weather conditions including fog, thunderstorms, heavy rain, fire weather and total fire ban days may mean that activities at the Centre cannot be conducted.
- 6.2 The owner will consider instruction, advice and official warnings issued by relevant authorities, which may include the Bureau of Meteorology, Queensland Fire and Emergency Services, or Queensland Police.
- 6.3 Should any of these conditions present, the Owner, acting reasonably may:
 - (a) Restrict specific activities on site;
 - (b) Restrict specific areas of use;
 - (c) Provide ad-hoc and additional safety instructions, for example calling all persons onsite to the mobility hub to shelter in place;
 - (d) Close site with or without advance notice; and
 - (e) Evacuate the site at short notice.

7. Alcohol, Substances and Fatigue

- 7.1 While driving or operating any vehicle / machinery / equipment at the Centre, blood alcohol limits are to be zero for all persons.
- 7.2 A person must not drive or operate any vehicle, machinery or equipment at the Centre if affected by drugs, unduly fatigued or otherwise unable to operate the vehicle, machinery or equipment in a safe and responsible manner.
- 7.3 Hirers are responsible for ensuring that their Invitees adhere to fatigue management guidelines.
- 7.4 No dangerous drugs as defined in section 4 of the *Drugs Misuse Act 1986* (Qld) including those listed in Schedules 1 and 2 of the *Drugs Misuse Regulation 1987* (Qld) may be brought to or consumed at the Centre. Any person found to be in possession of a dangerous drug will be referred to the Queensland Police Service.

- 7.5 A person must not operate any vehicle, machinery or equipment at the Centre if they have taken any prescription or non-prescription medicine which may impair their ability to operate the vehicle, machinery or equipment unless that person has a medical certificate confirming that the person is able to safely operate the vehicle, machinery or equipment. The Owner reserves the right in their sole discretion to refuse to allow a person to operate a vehicle, machinery or equipment irrespective of a medical certificate.
- 7.6 The Owner may require any person making use of the Centre who the Owner suspects, on reasonable grounds, is under the influence of alcohol, affected by drugs or medication, unduly fatigued or otherwise unable to operate the vehicle, machinery or equipment in a safe and responsible manner, to immediately vacate the Centre. The Owner may also require any person making use of the Centre facilities to submit to drug and alcohol testing if required by the Owner (or its independent contractors).
- 7.7 Centre Users acknowledge and agree (and Hirers must ensure that their Invitees acknowledge and agree) that the outcome of any drug or alcohol test undertaken by the Owner (or its independent contractors) may be given to the Hirer (if applicable), any insurer of the Hirer (if applicable) or Owner, the Queensland Police Service, Work Health and Safety Queensland and any other relevant regulator in the event of an accident and/or incident where permitted or required by law.

8. Traffic Control

- 8.1 All persons at the Centre must observe all Centre traffic and pedestrian management plans provided by Centre Management. Additionally, all Queensland road laws apply on our site, including normal requirements of any road laws that would apply were the vehicles being driven on a public road except to the extent permitted by the Owner.
- 8.2 A driver's primary responsibility is always to maintain control of the vehicle whilst at the Centre. The driver must not be required to operate beyond their capability or be subjected to personal risk. **No person is to perform any task that they do not wish to or feel confident to undertake, or that could be considered detrimental to the appropriate use of the Centre and its Facilities.**
- 8.3 All persons must:
 - (a) only walk on designated pathways & pedestrian access points in the Mobility Hub precinct and relevant test areas. Pedestrian access is prohibited between testing zones/ areas;
 - (b) only drive vehicles on designated circuits and follow approved routes;
 - (c) not board or leave a moving vehicle or moving equipment or ride on fenders, running boards or anywhere outside the regular driver or passenger position for the vehicle;
 - (d) use safety equipment in the manner it was designed to be used, including but not limited to correct wearing of helmets, seatbelts and or safety harnesses.
- 8.4 Hirers are responsible for ensuring any vehicle operated within or outside the Centre in relation to its use of the Centre is registered.
- 8.5 Test vehicles are permitted to operate in training or testing zones at the Centre without being registered, where permitted in accordance with the Hirer's Hiring Agreement or approval of the Owner however, basic safety checks (i.e. lights and brakes) must be carried out on the test vehicle prior to use, and the safety of the vehicle in operation remains the responsibility of the Hirer.

9. Entering Facilities

- 9.1 Facilities at the Centre are not to be entered, without:
 - (a) The person seeking entry having a UHF Safety Radio (or the person in charge of the activity); and
 - (b) The person seeking entry, being party to an active hire booking for the date and time or having been provided with prior approval and consent from the Owner to access the specified area.
- 9.2 Access to Centre facilities is limited to staffed hours of the Mobility Centre unless preapproval from the Owner or Centre Management has been obtained. Standard hours of operation for training and testing areas are 8.15am – 4.45pm daily.
- 9.3 Extreme care must be exercised whenever entering or exiting facility areas:
 - (a) stop and ensure the area is clear from pedestrians, vehicles, and animals;
 - (b) check direction of travel; and
 - (c) give way to approaching traffic.
- 9.4 Any signage indicating the state of a facility must be adhered to.
- 9.5 Hirers or persons in charge of activities must conduct a low speed clearing run (being a visual assessment) of a facility, to familiarise itself, and ensure there are no previously unidentified hazards or changes within the controlled area.
- 9.6 All gates at entry and exit points (if any) of the applicable facilities in use:
 - (a) Must be closed during the use of the applicable facilities,
 - (b) Have signage activated for the duration of use; and
 - (c) Be closed with signage reconfigured at the conclusion of the use of the applicable facilities.

10. Driver's Licence

10.1 Any person who is operating a vehicle at the Centre must:

- (a) hold a valid Australian drivers' licence; and
- (b) comply with any restrictions or conditions of that drivers' licence including relation to class of vehicle being operated.

10.2 A person may operate a vehicle on a valid International or Foreign Country Drivers Licence at the discretion of the Owner. Centre Users and Hirers:

- (a) warrant that:
 - (i) if the Centre User, or in relation to the Hirer, any of its Invitees, are driving on an International or Foreign Country Drivers Licence, the International or Foreign Country Drivers Licence is valid and has not been suspended or cancelled; and
 - (ii) any infractions for failure to comply with any road rule have been disclosed; and
- (b) must ensure that if any of its Invitees are driving on an International or Foreign Country Drivers Licence, the Invitee complies with any restrictions or conditions of the drivers' licence including in relation to class of vehicle.

11. Speed Limits

11.1 All persons operating vehicles at the Centre must comply with all speed limits detailed below (or as otherwise signed), unless otherwise permitted in writing by the Owner, on the:

- (a) Internal Access Road speed limits:
 - (i) 20km/h in the vicinity of the Mobility Hub precinct (all roadways extending from the speed bump to the east of the building to the fuel facility between the west of the building and LVMA, including access to and from the 4WD training area)
 - (ii) 40km/h on all other general access roadways;
- (b) Road Circuit :
 - (i) speed limits range from 40km/h to 80km/h, as signed;
- (c) Skid Pan:
 - (i) maximum speed on the Skid Pan must not exceed 40km/h;
- (d) LVMA:
 - (i) speed limits range from 40km/h to 80km/h, as signed;
- (e) VMA / MMA:
 - (i) speed limits range from 40km/h to 60km/h;
- (f) 4WD Track:
 - (i) maximum speed on the tracks/trails must not exceed the lesser of the speed signposted or notified by Centre Management for the relevant section, the speed at which driver is confident driving in the relevant section, the speed at which the vehicle is capable of driving in the relevant section and 30km/h.

12. General Centre Obligations

12.1 All persons accessing the Centre must:

- (a) if observing or spectating, remain within designated observation or spectating areas. The Owner reserves the right to limit or exclude spectators from any event;
- (b) only smoke (including the use of e-cigarettes or vaping devices) in designated areas and in accordance with applicable laws and dispose of any cigarette butts or other smoking paraphernalia in the designated receptacles provided. The Owner may be required to ban smoking and naked flames in areas of the Centre, including designated smoking areas, based on fire weather forecasts, advice or warnings provided by the relevant authorities and the Hirer must comply (and ensure that its Invitees comply) with any such direction;
- (c) dispose of all general waste in the appropriate receptacles provided;
- (d) respect wildlife/fauna while noting that animals may appear unexpectedly and may cross access roads and testing areas - if you require assistance where an animal is injured contact "1300 ANIMAL" on 1300 264 625 and appropriately advise the Owner of the incident;
- (e) not bring any animal to the Centre (other than an assistance animal, as defined in the *Disability Discrimination Act 1992* (Cth));
- (f) avoid contact with animals at the Centre and do not provoke them;
- (g) not injure, kill, frighten, or feed the local wildlife, encourage the local wildlife with food or shelter or seek to do any of the foregoing;
- (h) not deliberately or negligently damage, kill or remove any plants or flora through any act or omission;
- (i) not bring plants or plant material to the Centre;
- (j) not ingest any plant material from the Centre;
- (k) report damage to plants or trees resulting from an accident to Centre Management;
- (l) ensure that all vehicles brought on to the Centre are free from mud, dirt and other potentially weed/seed carrying materials;
- (m) not deliberately or negligently damage by act or omission any of the fixtures, fittings, or infrastructure at the Centre;
- (n) be polite, courteous and respectful of all persons at the Centre, at all times;
- (o) refrain from the use of profanity, derogatory or inappropriate speech;
- (p) report any visible damage observed to property or any injury to person immediately to the Hirer who must advise the Owner as soon as practicable;
- (q) report any dangerous, reckless, or irresponsible behaviour observed immediately to the Hirer who must advise the Owner as soon as practicable;
- (r) refrain from creating undue noise, including but not limited to the playing of loud music unnecessary or excessive revving of engines, intentionally squealing tyres;
- (s) ensure vehicle noise does not exceed the noise levels set out in the Annexure (provided that for Centre Users participating in activities conducted by the Owner, the Owner will be responsible for monitoring those noise levels);
- (t) not intentionally or recklessly place the vehicle into a state of uncontrolled motion or otherwise endanger the safety of the vehicle or participants in the activity, including drifting or maneuvers to intentionally lose traction for enjoyment other than as reasonably required for the legitimate training purposes of instructing participants in the activity how to avoid or correct such uncontrolled motion; and
- (u) Decant or transfer fuel to or from containers unless within authorized areas.

12.2 The following rules are to be used in conjunction with any industry specific safety regulations including any safety regulations issued by an organisation using the facilities across the Centre.

- (a) **Safety Belts** - must be worn at the Centre at all times by all drivers and passengers in all vehicles unless an exemption is given in writing by the Owner. Certain types of testing may be exempt, written confirmation is required from the Owner prior to undertaking testing.
- (b) **Crash Helmets** – use of a crash helmet by Hirer's Invitees within a vehicle is at the discretion of the Hirer in accordance with their Risk Management Plan. Use of crash helmets by other Centre Users within vehicles is in accordance with the Owner's instructions. Helmets are to comply with the current Australian Standards. Crash helmets must be worn when operating a motorcycle.
- (c) **Electric Cars** - should an electric or alternatively fueled vehicle be involved in an incident, always take extreme caution in assessing the scene prior to taking the appropriate action.
- (d) **Headlights** – should be illuminated on all vehicles travelling within and between activity zones within the Centre to improve vehicle movement visibility.

- (e) **Hazard Lights** - must be used whenever vehicles across the Centre markings of any roadway and/or are involved in an incident that requires additional support i.e. vehicle towing, emergency service etc.
- (f) **Mobile Phones** - are not to be used by the driver of any vehicle, while the vehicle is in motion, to the extent of current Queensland Road Laws.
- (g) **Electrical Equipment** - all visible defects in electrical equipment and tools supplied by the Centre must be reported as soon as practicable and must not interfere with including by modifying, removing or tampering with any electrical tags or electrical equipment.
- (h) **Vehicles** - must comply with all vehicle manufacture requirements, be Australian Design Rules compliant and be registered (except as otherwise allowed under this Code of Conduct in relation to vehicles being used for defined and documented vehicle testing purposes).

Centre Users acknowledge and agree that the Owner and the Owner's Personnel and other representatives of the Owner may observe activities of the Centre User and Hirers' Invitees whilst at the Centre.

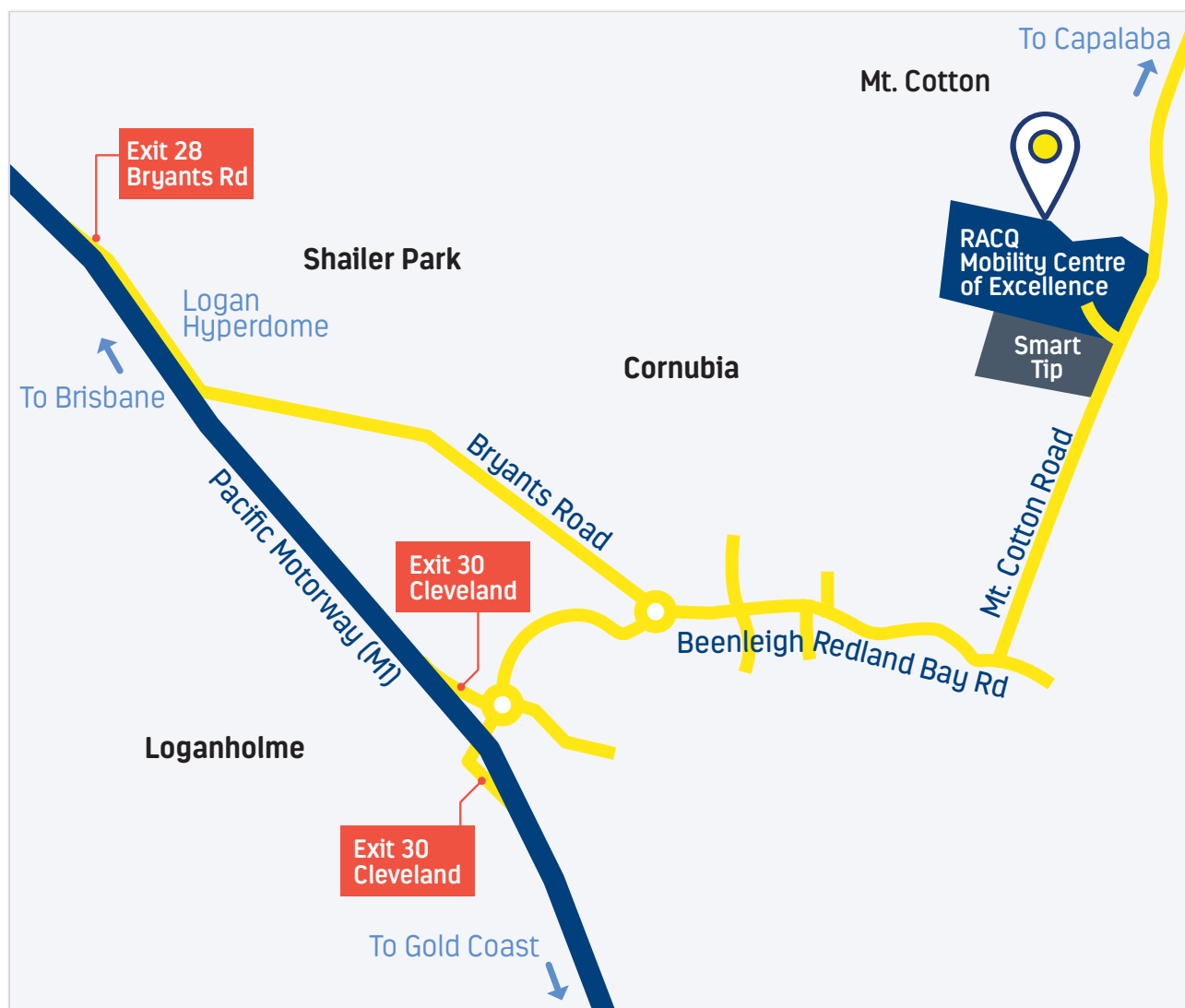
13. Safety Obligations & Operating Procedures

- | | |
|---|--|
| <p>13.1 All persons accessing the Centre must:</p> <ul style="list-style-type: none"> (a) comply with this Code of Conduct; (b) comply with all procedures and policies in force in relation to the Centre (as modified or varied from time to time) to which the Centre User has been given notice; (c) follow all safety directions given by or on behalf of the Owner and its Personnel and emergency services. (d) Electronic devices/tools/sources of ignition must not be within 15 metres of the fuel facility or areas where transferring or decanting of fuel is occurring. Electronic devices include but not limited to mobile phones, radios. | <p>13.2 It is recommended that all Hirers have an appropriate first aid kit and emergency plan relevant to the activities that are being undertaken in any of the outdoor areas.</p> <p>13.3 First Aid Kits and Automated External Defibrillators (AED) are also strategically located across the Centre at the following locations:</p> <ul style="list-style-type: none"> (a) the Administration Building (First Aid Kit and AED); (b) the Road Circuit A and B Driver Exchange (First Aid Kit and AED); (c) the LVMA Driver Exchange (First Aid Kit and AED); (d) the Skid Pan Driver Exchange (First Aid Kit and AED); (e) the Oasis Building (First Aid Kit and AED); and (f) the 4WD Driver Exchange (First Aid Kit only). |
|---|--|

14. Centre location – How to find us

Street Address:

1753 – 1799 Mount Cotton Road, Cornubia QLD 4130



15. Definitions:

Centre means the RACQ Mobility Centre.

Centre Management means the Manager of the Centre and such other persons authorised to act in such capacity by the Owner.

Centre User means a Hirer or a person accessing the Centre at the invitation of the Owner (including to undertake activities at the Centre conducted by or on behalf of the Owner).

Instructor means an instructor provided by the Hirer at its own cost in order to run an activity at the Centre and who holds the relevant qualification and has requisite experience to run the activity.

Invitee with respect to a Hirer means a person present at the Centre:

- (a) at the invitation of the Hirer;
- (b) by association with a person present at the Centre by invitation of the Hirer; or
- (c) by association with the Hirer or its Personnel, including:
- (d) Personnel and volunteers of the Hirer;
- (e) Participants;
- (f) Instructors; and
- (g) Spectators and guests of any of the foregoing.

Hirer means a person who is a party to a Hiring Agreement.

Hiring Agreement means a hiring agreement between the Owner and a person with respect to the facilities at the Centre.

Owner means RACQ-Queensland Driving Excellence Centre Pty Ltd.

Participant means a participant in an activity who is at the Centre at the invitation of the Hirer.

Personnel in relation to a party means the party's officers, employees, agents and contractors.

Personnal Information has the meaning given in the *Privacy Act 1988* (Cth).

16. Interpretation

A reference to:

- (a) any document (including this Code of Conduct) includes references to the document as amended, consolidated, supplemented, novated, or replaced; and
- (b) a statute includes a reference to all enactments amending or consolidating the statute and to an enactment substituted for the statute and any subordinate legislation, including regulations; and
- (c) nothing in this Code of Conduct limits the obligations of a party under a Hiring Agreement.

Annexure – Noise Limits

Nothing in this Annexure limits any obligations with respect to noise imposed by law (including local Council laws).

Noise level limits (as recorded at the Centre boundary):

- Before 7.00am on any day if the use causes audible noise; or
- From 7.00am to 10.00pm on any day if the use causes noise of more than 70 dB(A) LAeq, 15min.
- From 10.00pm until midnight on any day if the use causes noise of more than the lesser of 10dB(A) above background level and 50dB(A).

(The extended hours described in this Annexure do not provide the Hirer any right to access the Centre outside the normal operating hours.)

If noise levels at the Centre boundary from an activity reaches 65-69 dB(A) LAeq, for 15min at any time (as monitored by Centre Management or other person authorised by Centre Management to do so), Supplementary Stationary Testing must be undertaken.

Hirers and Centre Users (other than Centre Users undertaking an activity conducted by the Owner) must be aware of, and comply with:

- ADR 83/004 – External Noise (or other relevant Australian standard or guideline with respect to noise as advised by the Owner).
- The stationary measurement methodology set out in the ADR 83/00 – External Noise.

As detailed in the ADR 83/00, the following noise limits apply for Stationary Testing and Supplementary Stationary Testing for each cylinder type in revolutions per minutes (rpm):

- Motor vehicle exceeding 90 decibels (db)(A);
- Motorcycle exceeding 94 db(A);
- Or exceeding the noise signature level as stipulated by the manufacturer.

Any vehicle which emits noise exceeding these limits during Stationary Testing or Supplementary Stationary Testing must not be used at the Centre unless the Owner provides an exemption. Such an exemption will detail the control measures required to restrict the operator to driving in a manner (e.g. at a lower rpm) to not exceed the prescribed noise limits. Excessive and/or extended revving of vehicle engines increases noise emissions from the Centre and should be avoided. Repeated revving is only permitted during Stationary Testing).

Stationary Testing should be conducted, in the first instance, in accordance with the rpm criteria recognised by the ADR 83/00 Standards, being:

- 5 cylinders or less @ 4000 rpm
- 6 cylinders @ 3500 rpm
- 8 cylinders @ 3500 rpm
- More than 8 cylinders @ 4300 rpm
- Rotary engine @ 4500 rpm