

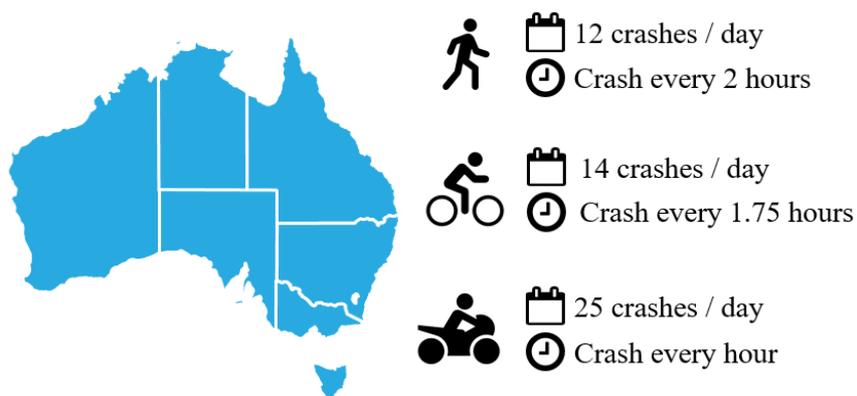


## VULNERABLE ROAD USERS (VRU) TECHNOLOGY SOLUTIONS REQUEST

<b>Title</b>	Vulnerable Road User: Problem Identification to Pilot Solutions
<b>Responses required by</b>	5pm Monday 18 <sup>th</sup> March 2019
<b>Points of Contact for Questions</b>	<p>David Kay, Projects Development Manager, iMOVE CRC Email: <a href="mailto:dkay@imovecrc.com">dkay@imovecrc.com</a>, Ph: +61 3 9948 0453</p> <p>Jeff Kasparian, Programs Director, iMOVE CRC Email: <a href="mailto:jkasparian@imovecrc.com">jkasparian@imovecrc.com</a>, Ph: +61 408 838 660</p> <p>Renaee Leeson, Programs Coordinator, iMOVE CRC Email: <a href="mailto:rleeson@imovecrc.com">rleeson@imovecrc.com</a>, Ph: + 61 3 9948 0459</p>
<b>Email completed Response Template to</b>	<a href="mailto:vrusolutions@imovecrc.com">vrusolutions@imovecrc.com</a>
<b>Website Registration and Updates</b>	<a href="https://imovecrc.com/vulnerable-road-users-eoi/">https://imovecrc.com/vulnerable-road-users-eoi/</a>
<b>Total Pages</b>	5

### OUTLINE

The iMOVE Cooperative Research Centre and a national consortium of government and industry organisations wish to undertake projects that benefit **Vulnerable Road Users**.



\*Data sourced from publicly available crash statistics

VRU's (pedestrians, cyclists and motorcyclists) are over represented in severity of incidents, and with emerging vehicular technologies it is important to ensure they are not overlooked. Great safety benefits are possible with early consideration and trialing of innovative technology for VRU's and their interaction within our road networks.

iMOVE and partners are looking for new technology applications that could improve the safety of VRU's, ultimately leading to saving lives and reducing injuries.

Following an iMOVE VRU national workshop in October 2018, attended by a variety of Australian government agencies, automotive clubs, insurance agencies, universities and industry, iMOVE sought and received feedback from the attendees interested in solving VRU issues.

The following main project areas of interest were identified:

- **Project Area 1:** VRU and vehicle interactions at intersections in urban environments
- **Project Area 2:** VRU and vehicle interactions on footpaths and driveways
- **Project Area 3:** Car and truck interactions with bicycles/motorcycles
- **Project Area 4:** Heavy vehicle (e.g. freight, construction, buses) and pedestrian/cyclist interactions at destination start/end points (e.g. construction sites, pick up and drop off points)

The four Project Area problem statements / possible use cases are provided in more detail in **ATTACHMENT 1 – PROBLEM STATEMENTS / USE CASES**. Applicants may suggest projects ideas that do not strictly fall within these main areas.

The parties involved in identifying the problem statements have indicated a willingness to co-fund iMOVE project(s) in the form of discovering and piloting current and emerging technology solutions or research in response to these topics.

iMOVE VRU projects are expected to take a national approach by looking at problems identified that are not jurisdiction or locality based, but rather have an Australia wide positive safety impact.

To allow for innovative concepts to be considered, a discovery phase is proposed. This consists of a competitive design process, culminating in a pitch contest with potential funding to proceed to test ideas, develop solutions, pilot trials and implement solutions. The intent is to invite interested parties to propose solutions in any (one or more) of the project areas. iMOVE and funding partners will then provide funding to progress successful pitched solutions to a point where iMOVE pilot project(s) can be formed with relevant solution and funding partners.

The project areas / problem statements are intentionally broad to not narrow the field of potential solutions to a known technology or option. Likewise, the format of the solutions pitched is not restricted to a particular type of organisation, (for example; university or industry), or type of solution (for example; physical product or behavior study).

The selected solution providers should be available to pitch their ideas and technical solutions in March 2019.

## **OBJECTIVES**

The objective of this initiative is to pilot one (or more) solutions, co-funded by iMOVE and partners that:

- Improves safety and movement of VRU's
- Considers existing and emerging solutions available to assist VRU's, vehicles and smart infrastructure
- Provides solutions related to one (or more) of the project areas, attending to the broad problem statements

The objective of the competitive design process is to discover, develop and pilot innovative and novel solutions that contribute to the improved safety of VRU's on Australian roads. It is desirable that the solutions consider the national landscape, interoperability with existing systems and collaboration across jurisdictions.

## PROCESS AND TIMELINES

Possible VRU solutions, can be submitted for consideration as either:

1. Solutions requiring **development** prior to trial; or
2. Solutions ready for direct deployment at **trial**

Timeline Schedule Stages & Important Dates	
8 February 2019	VRU Technology Solutions Request announced. Open to interested parties including universities and technology providers.
3:30pm – 4:30pm (AEDT) 18 February 2019, <b>or</b> 11:00am – 12:00pm (AEDT) 20 February 2019	Information sessions to give applicants an opportunity to ask questions. Two date options are available.  Go to iMOVE website for teleconference details: <a href="https://imovecrc.com/vulnerable-road-users-eoi/">https://imovecrc.com/vulnerable-road-users-eoi/</a>
18 March 2019	Response applications close
Late March 2019 (to be advised)	Shortlisted candidates attend a Pitch Contest to present their solutions to a VRU Committee Panel hosted in Brisbane (online available) (1 day)
Early April 2019	Successful pitches notified



Successful Solution Development Candidates	
April 2019	Contract agreement preparation
May 2019	Commence development work

Successful Solution Trial Candidates	
April 2019	Contract agreement preparation
May 2019	Commence demonstration pilot
By end 2019	Piloting and testing phase completed. Report on findings



Solution Development Presentations	
Sept 2019	Development work completed. Presentation of developed solutions to a VRU Committee Panel and others (1 day) for consideration to proceed to trial



Successful Presentations Proceeding to Trial	
Sept 2019	Contract agreement preparation
Oct 2019	Commence Demonstration Pilot
By March 2020	Piloting and testing phase completed. Report on findings

## UTILISATION OF OUTCOMES

The ownership and ongoing use of the technology solutions (and IP) created from funding and piloting trials will be agreed by the relevant parties.

Solutions are encouraged to be implementable nationally; and as Australia is not unique in their VRU problems, the solutions could be exported internationally.

## RESPONSE INSTRUCTIONS

Organisations intending to respond to this request for solutions should register at <https://imovecrc.com/vulnerable-road-users-eoi/> to keep abreast of any updates of this initiative.

To submit a response, please download the **VRU TECHNOLOGY SOLUTIONS RESPONSE TEMPLATE** from <https://imovecrc.com/vulnerable-road-users-eoi/>, and return the completed Template to email: [vrusolutions@imovecrc.com](mailto:vrusolutions@imovecrc.com) by **5pm Monday 18 March 2019**.

This VRU technology request is a competitive process, and applications will be treated as **commercial in confidence** and will be assessed against the following **evaluation criteria**:

### 1. Solution addresses the problem's challenges

- How well does the proposed solution address the problems identified?
- How innovative is the proposed solution – new to market, or novel application of existing technology?
- How feasible is the proposed solution when scaled to address the problems identified?

### 2. Capability to deliver

- Does the applicant have the experience, skills and capacity to deliver the solution?
- Does the applicant have access to any necessary intellectual property?
- How viable is the development and supply of the proposed solution within the timeframes?

### 3. Viability and deployment potential

- Is there a credible pathway to transition from pilot deployment to broad uptake of the solution?
- Does the solution appear financially and commercially viable for broad deployment?
- How viable is the identified route to implement the proposed solution?

Note that at this stage **we are seeking a summary of technology, approach, methodology and experience** rather than detailed project pilot information. The intention is to receive proposals of potential VRU solutions, however you are welcome to include any information you think supports your response. If successful, candidates will be required to provide further details that form the basis for a project agreement that will be negotiated between the parties.

Responses can be proposed in your own right or in collaboration with other research or industry partners.

## ACKNOWLEDGEMENT

iMOVE acknowledges the support of the following state-based VRU Committee Panel members:

- Queensland – Mark McDonald, TMR
- New South Wales – Peter Ellis, RMS
- Victoria – Elvira Lazar, RACV
- South Australia – Joanne Murray, DPTI
- Western Australia – Sarah Macaulay, RAC
- Tasmania – Will Oakley, RACT

## **ATTACHMENT 1 – PROBLEM STATEMENTS / USE CASES**

### **VRU Project Area 1: VRU and vehicle interactions at intersections in urban environments.**

#### Why

- Reducing incidents between VRU's and vehicles at urban intersections
- Increasing the safe and efficient movement of pedestrians in urban areas
- Detecting, monitoring and predicting VRU movements and alerting VRU's and vehicles to potential incidents

#### What

- What intersection types, infrastructure and surrounds are to be explored e.g. include railway crossings and platform entries/exits
- Exploring the behavior and psychology of pedestrians
- Could we expand this to other VRUs including small personal electrical vehicles (e.g. scooters)
- Using the AIMES test bed for monitoring VRU's at intersections
- What current or emerging solutions are available to assist

### **VRU Project Area 2: VRU and vehicle interactions on footpaths and driveways**

#### Why

- Reducing incidents between VRU's and vehicles on footpaths
- Increasing safety for VRU's from accidents with drivers entering and leaving driveways, including large residential and commercial buildings

#### What

- Investigating motorcycle and other delivery methods using footpaths
- Investigating electric bikes and electric scooters using footpaths
- Investigating cyclists and pedestrians using footpaths
- Investigating driver's interactions with VRU's at driveway and footpath intersections
- What current or emerging solutions are available to assist

### **VRU Project Area 3: Car and truck interactions with bicycles/motorcycles**

#### Why

- Reducing incidents between four-wheel and two-wheel vehicles
- Increasing safety for two-wheel vehicles from single vehicle accidents and collisions with other vehicles

#### What

- Interactions and behaviors of two-wheel vehicles
- Investigating trucks and cyclist's interactions
- Investigating collision avoidance
- Fleets and buses interactions with two-wheelers
- Using a C-ITS test bed for trials
- Investigating motorcycle single vehicle accident safety
- What current or emerging solutions are available to assist

### **VRU Project Area 4: Heavy vehicle (e.g. freight, construction, buses) and pedestrian/cyclist interactions at destination start/end points (e.g. construction sites, pick up and drop off points)**

#### Why

- Reducing incidents between heavy vehicles and cyclists/pedestrians at pick-up and drop-off points
- Increasing safety for pedestrians and cyclists from heavy vehicles in low speed restricted areas

#### What

- Heavy vehicles and pedestrians/cyclists near construction sites
- Fleets and buses interactions with pedestrians/cyclists
- Heavy vehicles home deliveries interactions with pedestrians/cyclists
- Heavy vehicles and pedestrians/cyclists interactions at intersections
- What current or emerging solutions are available to assist