

# SAFER ROAD INFRASTRUCTURE THROUGH A RISK MANAGEMENT APPROACH



It is the Australian Road Research Board's (ARRB), mission to provide all sectors of Government, industry, and the community with the tools, knowledge, and evidence-based support for ethical and economical decision making that drives the Nation's road toll toward zero by 2050. Achieving this goal will require leadership and a commitment to a different approach to delivering safer road infrastructure.

Increasingly, road managers are finding that the greatest impact on safety will be achieved through the integration of risk management principles across road planning, design, construction, asset management, operation, and maintenance activities.

## KNOWLEDGE AND LATEST THINKING

Our links to leading road agencies in Australia and overseas sees our team involved in developing the latest thinking in road safety and traffic engineering. We work with the nation's road agencies to review existing practices, pilot new techniques and develop new processes for improving road infrastructure focussing on tomorrow's transport challenges for today.

# ROAD SAFETY MANAGEMENT SOLUTIONS

## STRATEGIC ROAD SAFETY PLANNING

With limited road space, it is essential the often-competing needs of all road users are managed systematically, effectively, and equitably. Strategic planning is centred in the effective identification and evaluation of network risk; identifying crash hot spots and locations where crashes are likely to happen.

Under the Safe System approach, a pro-active understanding of where crash risk exists on your network is as important to developing treatment programs as the traditional Black Spot approach and it assists the integration of road management functions such as asset management, construction, operations, and maintenance.

## PREDICTIVE MODELLING



ARRB's team have been working with Councils across Australia to understand road safety risk on their networks and to advise on solutions that reduce the likelihood of road trauma in a cost effective, pro-active, and sustainable way.

Knowing the risk across a network allows Councils to:

- Pro-actively identify and prioritise locations or mass treatments that are required to reduce crash risk and severity
- Input into and better align with Asset Management and Capital Works programs
- Assist in harmonising a road safety culture across departments within Council
- Input into a LGA road safety plan/strategy
- Engage the community, Councillors and Council officers in a discussion about road safety and the need and priority for investment in local road infrastructure.

For over 20 years ARRB has led research to identify the contribution of infrastructure to road crashes, and importantly what action is most effective at reducing the potential and severity of them. This research has seen ARRB lead the development of infrastructure risk modelling in Australia and contribute to the global iRAP (International Road Assessment Programme) initiative that has seen over 1 million kilometres of roads assessed across 102 countries.

In Australia, the model is known as AusRAP, the Australian Road Assessment Program. ARRB has completed numerous network-level road condition surveys and road safety infrastructure risk assessments by applying AusRAP Star Ratings. An AusRAP Star Rating:

- is internationally recognised for consistently evaluating the safety risk on roads
- is based on Australian and international research
- assesses the road attributes that are known to impact the likelihood and severity of a crash
- calculates the individual risk for vehicle occupants, motorcycle, pedestrian and bicycle crashes
- results in an easy to communicate Star Rating.



The Star Rating of roads is a direct indicator of road safety and with the potential for assessing different investment programs; Star Ratings can provide Councils with an insight to where risk is highest and what road safety initiatives can improve crash outcomes. Star Rating maps allow practitioners to focus on lengths of road that will improve a road's Star Rating to pro-actively reduce road safety risk to road users including passenger vehicle, motorcyclist, pedestrian and bicyclist road user groups.

Similar in concept to vehicle star ratings, AusRAP Star Ratings range from 1-Star (least safe) to 5-Stars (safest). Star Ratings provide a relative measure of road safety and helps illustrate the effect of improving road infrastructure-based risk factors. iRAP research indicates the individual risk of a fatality or serious injury (FSI) is halved with each increment in Star Rating (iRAP 2020).



Source: OECD (2016)

ARRB is the recognised leader in the development of the Safe System vision for road transport in Australia. As Australia's AusRAP Centre of Excellence has an AusRAP accredited team that have been working with national, state and local government practitioners across Australia.

ARRB has the tools, the expertise, and the experience of working with road practitioners to provide Councils with the guidance necessary to develop and deliver an effective road infrastructure safety strategy by undertaking:

- **Road infrastructure risk assessments** – identifying where risk is and what is contributing to it (AusRAP Star Ratings or ANRAM assessments)
- **Star rating of road designs** – giving you insight to how new road infrastructure will contribute to a safer network before it is built.
- **Safer Road Investment Planning** – providing advice about improvement program options that optimise safety and identify the reduction in risk, the lives saved, and serious injuries prevented through development of a Safe System
- **Star Rating for Schools** – working with all sectors of Government and school communities to assess road safety risk to pedestrians around schools
- **CycleRAP (under development)** - is an innovation project and the model is designed to evaluate risk, irrespective of the type of facility (or whether it is on or off road) and for all crash types relating to bicyclists and light mobility vehicles



## THE ARRB DIFFERENCE

We have national experience and are connected to global experts in road safety, bringing the best people together to support your challenges. We offer countless solutions for your bespoke needs.

Our experience working with national, state, territory and local governments means we understand your policy development needs and we can help deliver an integrated approach to ensure the network provides a **safer** and more **cost effective** environment for all road users.

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