



ACRI Rail Knowledge Bank update

Developed and maintained by the ARRB Group under the National Interest Services (NIS) program, the ACRI Rail Knowledge Bank is a managed online resource for the rail industry.

For more information, visit the ACRI website at www.acri.net.au, or you can [click here](#) to visit the Rail Knowledge Bank page directly.



New to the ACRI Rail Knowledge Bank

If you would like your name/organisation added to the ACRI Rail Knowledge Bank alert list, simply email rail@arrb.com.au with your request.

The primary, although not exclusive, focus is material relevant to an Australasian audience and is updated monthly. The Rail Knowledge Bank has grown in a range of subjects, including:

Environment

[Rail transport and environment: facts & figures](#)

This booklet aims to support decision makers with comprehensive data on the environmental impact of the different transport modes. It demonstrates that rail is an enabling factor for sustainable mobility.

Freight

[Understanding the Queensland freight challenge and why our national highways will continue to be an essential part of the overall freight solution](#)

Major **rail** infrastructure investment continues to be aimed at increasing required capacity

of the links to Hay Point, the Port of Brisbane and the Port of Gladstone, mainly on the back of the future demand for coal. This report leverages off prior studies and publically available information to develop a greater understanding of the challenges facing the freight industry in Queensland.

Innovation

[Urban Rail Transit](#)

Urban Rail Transit is a new peer-reviewed, international, interdisciplinary and open-access journal that provides a platform for scientists, researchers and engineers of urban rail transit to publish their original, significant articles on topics in urban rail transportation operation and management, design and planning, civil engineering, equipment and systems and other related topics to urban rail transit.

Communicating transportation: government social media trends in the United States (ARRB Group, Australia)

The National Interest Services (NIS) program has organised a free webinar with presenter Lloyd Brown, Director of Communications for the American Association of State Highway and Transportation Officials (AASHTO), who will provide insight into current communications practices in US transport agencies, especially the use of social media and new technologies. Due to Lloyd Brown's schedule and time zone differences, the webinar is scheduled for 9am on Thursday 22nd October AEST.

[Click here to register for the webinar](#)

Level Crossings

[Direct observations of pedestrian unsafe crossing at urban Australian level crossings](#)

The number of pedestrian victims at Australian and foreign level crossings has remained stable over the past decade and it continues to be a significant problem. To examine the factors contributing to pedestrians' unsafe crossing behaviours, direct observations were conducted at three black spot urban level crossings in Brisbane for a total of 45 h during morning and afternoon peak. Contrary to previous findings, younger adults were the most frequent transgressors. School children and elderly were most likely to transgress in groups. Potential directions for future research and more effective measures are discussed.

[Driver's behavioural changes with new intelligent transport system interventions at railway level crossings: a driving simulator study](#)

This study aims to assess the effectiveness of three emerging ITS that the rail industry considers implementing in Australia: a visual in-vehicle ITS, an audio in-vehicle ITS, as well as an on-road flashing beacons intervention. The evaluation was conducted on an advanced driving simulator with 20 participants per trialled technology, each participant driving once without any technology and once with one of the ITS interventions.

[Driving simulator evaluation of the failure of an audio in-vehicle warning for railway level crossings](#)

It is impracticable to upgrade the 18,900 Australian passive crossings as such crossings are often located in remote areas, where power is lacking and with low road and rail traffic. The rail industry is interested in developing innovative in-vehicle technology interventions to warn motorists of approaching trains directly in their vehicles. The objective of this study was therefore to evaluate the benefits of the introduction of such technology.

Light Rail

[A streetcar undesired: investigating ergonomics and human factors issues in the driver–cab interface of Australian trams](#)

There is little research to indicate the extent to which well-informed human factors and ergonomics practises are being incorporated into tram cab design. The aim of this paper is to improve our understanding of the socio-technical complexity of light rail and to enhance how design standards are informed in this domain. Various human factors methods were used, including observational cab rides, objective force assessments, interviews, and focus groups.

[Are we witnessing light rail establishing a new form of linear transit oriented development for Australian cities?](#)

This paper will detail the learnings of Glink (Gold Coast Light rail) from a number of perspectives including, the opportunities to: lift PT patronage; establish modal access priorities for each station; rejig the bus network and the establishment of feeder bus services; reduce on-site car parking requirements for new developments along the route of light rail; retain / create the excitement and vibrancy of entertainment and retail shopping precincts; and create safe after hours travel.

[Hidden social networks that drive online public involvement in infrastructure construction: case study of light rail transit projects in North America](#)

Underlying social networks formed in the background of public relations processes on online social media largely have been neglected. Such networks are referred to as infrastructure discussion networks (IDN) and can be rich sources of information for decision makers. If it can be proved that these networks follow the general behavior of social networks, then rich tools developed in social network analysis can be used to profile users and help decision makers study user attitudes. This paper compares the IDNs of four light rail transit projects in various cities in the United States and Canada and studies them under the microscope of social network analysis.

Parking

[Analysis and planning of bicycle parking for public transport stations](#)

This Australian study investigates bicycle parking behaviour at public transport stations. More specifically, this paper discusses the siting of bicycle parking spaces at stations, and selecting between different bicycle parking devices. The insight can improve bicycle parking patronage at public transport stations. Ultimately, the study has implications on the provision, placement and selection of bicycle parking infrastructure at public transport stations.

[Development of car parking constraint within a strategic transport model](#)

This Australian paper presents an approach that enhances the Victorian Integrated Transport Model (VITM) with the capability to represent both car parking constraint at railway stations and at activity centres. The paper also describes the model development process, the model validation and model sensitivity tests.

Risk Assessment

[Risk assessment framework for the rail transport of hazardous materials: formulation and solution](#)

This paper presented the formulation and solution of a risk assessment framework for moving hazardous materials (hazmat) by rail transport. The databases of the USA FRA have been used to develop a risk minimization model for application that incorporates in-transit risk as well as rail yard train assembly cost and time constraints.



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[National Interest Services supporting an informed land transport community](#)

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See the [Rail Knowledge Bank Charter](#) for more information on its objectives and structure, and the [Rail Knowledge Bank Collection Development Parameters](#) for resource coverage.

