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LIVEABLE CITIES

LIGHT RAIL – an integrated approach to movement in our cities

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Introduction

Rapid urbanisation, expanding urban populations and the impacts of climate change have made planning and developing for public transport necessary to the sustainability of our cities. The relationship of public transport to the social, economic and environmental aspects of our cities also affects our personal lives. There is a clear correlation between the character of the built environment and public transport, and health and wellbeing. [Cervero 2005]

The challenge for 21st century cities is to create a smarter distribution of activity centres with effective and accessible transportation systems linking them. Light rail transit (LRT) is part of the solution. Investment in LRT systems strengthens city and urban centres, promotes the development of new centres, and renews investment in open space corridors along routes and around light rail stations. [Goncavles et al. 2009]

There is a substantive body of research which suggests that the built environment influences health behaviours and health risks such as physical inactivity. It is well documented that use of public transportation and transit-oriented development with high walkability, and compact, mixed land use can offer many health benefits. These include increased physical activity (reduced BMI), better mental health and social capital, and reduced traffic emissions and traffic-related injuries.

Landscape architecture plays an important role in developing strategies and route alignments and for urban renewal around light rail stations and along transit routes to ensure the legibility, walkability and desirability of the public realm encourages a less car-dependent lifestyle. In the early phases of light rail development the focus on the infrastructure without taking into account the streets or the landscape and surrounding communities, can reduce the design challenge to one of achieving efficient transit. However the effects of LRT on our city streets requires high-quality, integrated environmental design.

Without an integrated design approach, interactions between the land market and new transport systems can result in rapid development, leading to unintended consequences including a reduction in open space. [Mueller & Dooling 2011]

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Key issues

Interactions between the land market and new transport systems can result in rapid development, leading to unintended consequences, such as a reduction in open space rather than an increase. [Mueller & Dooling 2011]

Ultimately, light rail in our cities and urban centres provides an opportunity for a total; street renewal approach, which includes not only the improved transport benefits, but more productive economic outcomes and better greener streets.

AILA position

AILA supports light rail investment in cities where it is accompanied by appropriate investment in community engagement, robust planning, a total street approach, and integrated infrastructure. AILA believes this investment should be accompanied by high quality open spaces and streets that contribute positively to the experience of city living.

AILA recommends local, state and federal agencies adopt tax incentives and policies to foster complementary infrastructure such as public spaces, parks and greenways along with light rail transport systems. This will ensure urban renewal – catalysed by light rail – is coupled with the development of a high-quality streets & public realm as well as improved city liveability.

AILA believes investment in light rail should:

- Connect key destinations for all to maximise social , environmental and economic viability
- Incentivise high-quality, transit-oriented development to occur adjacent to the route and around stations
- encourage a total street approach

Delivering light rail that contributes positively to urban environments – four recommendations:

1. **All levels of government must introduce policies to ensure planning for quality landscape amenity is embedded in the planning stages of light rail developments.**
2. **Federal government must provide tax incentives for light rail developments to ensure high-quality landscape amenities occur with all light rail developments.**
3. **The public interest must be protected in light rail development through considering the needs of existing residents living along the corridor.**
4. **Any increase in the density of built form must be balanced by high-quality public realm and greener streets.**

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Case Studies

Many of the leading industry exemplars, from an integration perspective with landscape, architecture and context, are in France.

Brest, France

The 14·3 km route serves 28 stops including four park and ride sites offering a total of 900 spaces.

Some 27% of residents and 38% of jobs are now within 450 m of a tram stop. End-to-end journey time is 28 min.

Image courtesy of Railway Gazette http://www.railwaygazette.com/news/urban/single-view/view/brest-tramway-opens.html

Bourke Street Mall, Melbourne

Image of Light rail in Bourke St Mall, Image courtesy of http://transportblog.co.nz/2015/06/09/queen-st-light-rail/

Bordeaux, France

The tramway system has been a success since the opening of the three lines. The users of the tram now represents 53% of the public transportation of Bordeaux and the surrounding area. In 2008, 90.3 million passengers had used public transportation with 54.7 millions using the tramway

Nice, France
https://en.wikipedia.org/wiki/Nice_tramway

The **Nice tramway** is a 8.7-kilometre single-line tramway in the city of Nice France. Opened on 24 November 2007, it replaced bus lines 1, 2, 5 and 18. From the start, the system had 20 trains in service, providing a frequency of seven minutes. Since its inception, the number of passengers has increased from 70,000 per day in 2008 to over 100,000 per day currently. Trams were chosen because they appeared to be more reliable than buses, since they are not subject to the vagaries of traffic, but they are less expensive than a subway line.

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Sydney Light Rail
http://www.sydneylightrail.com.au/

The NSW Long Term Transport Master Plan is the NSW Government's strategy to address Sydney's transport challenges and to deliver an integrated and modern transport system. The Master Plan is supported by a series of integrated transport delivery plans and regional strategies which address specific needs for buses, heavy rail and light rail. This is Sydney's first ever integrated transport action plan and focuses on reducing congestion, providing for future growth and improving customer experience

Image of Sydney LIght Rail. Courtesy of NSW Government

http://www.sydneylightrail.transport.nsw.gov.au/about/sydney-light-rail

Supporting research/links

The impact of light rail on sustainability is most often defined through CO2 emission reductions gained through reduced private vehicle transport use. A recent Perth study using three different scenarios showed that in terms of CO2 emission reductions, both rapid bus and light rail have similar impact [Tiwari, et al. 2011]. However, the study did not calculate the embodied energy thus shows only partial benefits. In addition, scholars are arguing that implications on place-making were found to be immense in case of the light rail (Ibid: 404).

There is a substantive body of research which suggests that the built environment influences health behaviours and health risks e.g. through physical inactivity.

Very few studies however, were identified in this review that examined the broader health benefits of light rail development. One of the few that has been evaluated was a detailed study [MacDonald et al 2010] using data from a pre-post longitudinal study examining the effects of using the light rail in Charlotte NC USA. MacDonald found that those who used LRT to commute to work had a significant average reduction of 1.18 kg/m2 for self-reported BMI compared to non-LRT users over a 12–18 month follow-up period and an 81% reduced odds (95% CI=0.04, 0.92) of becoming obese over time. The association between LRT use and meeting weekly recommended physical activity levels of walking was in the positive direction but not statistically significant. The authors concluded "the results of this study suggest that improving neighbourhood environments and increasing the public's use of LRT systems could provide improvements in health outcomes for millions of individuals" [MacDonald et al 2010].

Findings from this and other studies illustrate that LRT can potentially increase physical activity and help decrease obesity amongst patrons. No studies were identified which assessed the broader health benefits of light rail transit systems, such as for example: social interaction and social capital, accessibility to local amenity and benefit to those who are disadvantaged or marginalised. The literature on health benefit focuses on the neighbourhood scale (mostly walkability) and not the whole of systems scale.

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Other position statements

Public transport

Further information

AILA National Office	**www.aila.org.au**
Telephone	**02 6248 9970**
Email	**admin@aila.org.au**
Post	**GPO Box 1646, Canberra ACT 2601**