

From heritage to hi-tech – a shared path story

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Abstract

Active Transport includes any form of transport which involves physical activity, particularly cycling and walking. There are significant benefits from increasing cycling and walking for transport including positive health and environmental outcomes as well as potential for creating more liveable, connected communities. Accessible and convenient infrastructure is essential to encouraging Active Transport. This Paper provides a case study on developing new cycling and walking infrastructure in the Greater Darwin region of the Northern Territory. Background information on Active Transport in the Northern Territory is included to provide context and key issues addressed in the planning and design phases of the shared path project are discussed. A number of unique features, innovative responses and learnings for future projects are summarised in the Paper.

1. Introduction

This Paper presents a case study on the development of new cycling and walking infrastructure in the Greater Darwin region. The introduction briefly discusses the potential benefits of increased Active Transport and key data on cycling walking in the Northern Territory is presented to provide context. The role of infrastructure in supporting Active Transport is discussed and the Coolalinga shared path project is introduced. The Paper concludes with a description of a number of issues which were addressed during the concept development and design of the project.

1.1. The benefits of Active Transport

Cycling and walking have enormous potential to provide an efficient, healthy and sustainable transport option in the Northern Territory. With generally flat terrain, relatively short distances between urban activity centres and a favourable climate for much of the year, Active Transport can provide a practical option for both local short trips and more extended journeys. Cycling and walking can also be easily combined with public transport for longer distance travel.

1.1.1. Health

The potential benefits of increased cycling and walking are substantial. Being physically active and limiting sedentary behaviour every day is essential for health and well being. Physical inactivity has been identified as the fourth leading risk factor in Australia for mortality, behind smoking, high blood pressure and obesity (Australian Government, 2017). Cycling or walking to commute or for other short trips can incidentally contribute to increasing physical activity. With all forms of transport there are risks and there are low risks associated with Active Transport, however, there is widespread recognition that the health and social benefits of cycling and walking substantially outweigh these risks. There is evidence internationally that increased Active Transport improves road safety for cyclists and

pedestrians, with countries where there are higher levels of Active Transport, experiencing lower pedestrian and cycling fatality rates (Australian Capital Territory, 2015).

1.1.2. Environmental

Increased Active Transport has the potential to reduce car use leading to lower levels of congestion, fuel use and greenhouse gas emissions. Nationally, transport is the second largest source of greenhouse gas emissions after electricity generation, with private vehicles contributing approximately half of all transport emissions (Australian Government, 2017). Cycling and walking can effectively contribute to lowering transport emissions.

1.1.3. Social and Economic

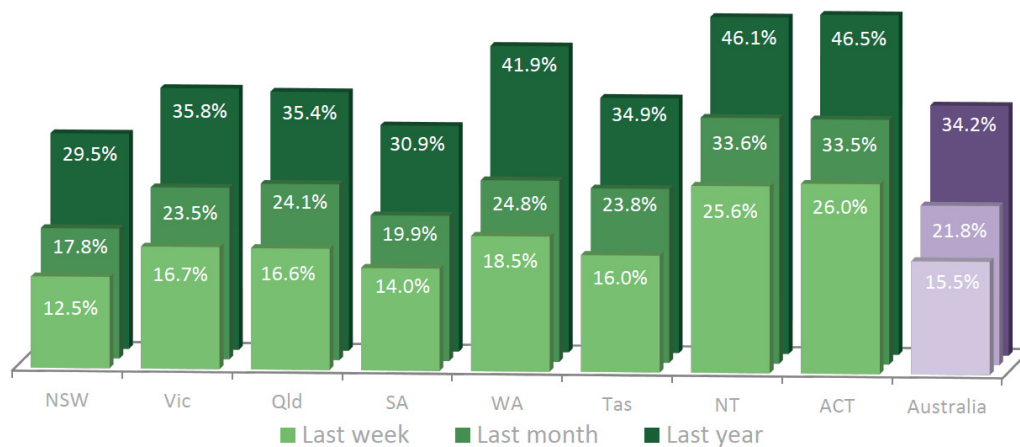
More people walking and cycling for transport creates more liveable connected communities, providing greater opportunities for social interaction and thriving local communities. With more people walking and cycling, there is increased passive surveillance, improving local safety and security. Cycling and walking also provide low cost transport options and have the potential to contribute economic benefits to towns and cities. There is evidence to indicate higher levels of retail spending where improvements have been made to the urban environment to encourage walking and cycling. Studies comparing spending according to transport mode have indicated that pedestrians spend more than people arriving by car (Australian Capital Territory, 2015).

1.2. Cycling and walking in the Northern Territory

1.2.1. Cycling participation

In the Australian context, levels of cycling and walking in the Northern Territory are relatively high. The 2017 National Cycling Participation Survey found that cycling participation rates in both Darwin and regional Northern Territory are significantly greater than the Australian average (Austroads, 2017). 25.6 percent of NT residents had ridden a bicycle in a typical week and almost half had done so in the past year, compared with an Australian average of 15.5 percent and 34.2 percent respectively. These participation rates translate to around 62,700 residents riding in a typical week and 113,000 residents riding at least once in a typical year.

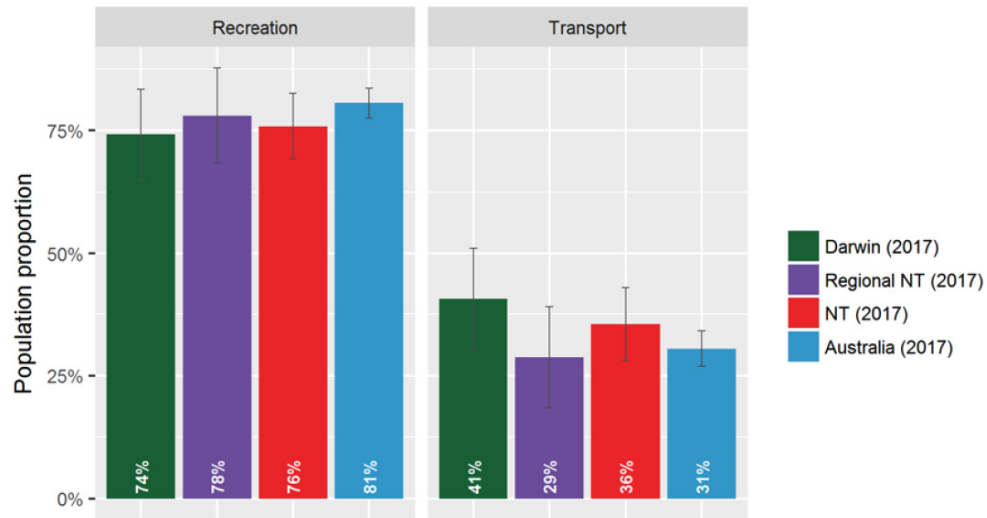
Figure 1: Cycling participation as a proportion of Australian resident population in 2017 (Austroads, 2017)



1.2.2. Cycling trip purpose

The 2017 National Cycling Participation Survey found that, of the people who cycled in the last month in the Northern Territory, 76 percent had cycled for recreation and 36 percent used a bicycle for transport. In Darwin, transport cycling was a higher percentage at 41 percent compared to a national average of 31 percent for transport cycling (Austroads, 2017).

Figure 2: Cycling for recreation and transport in the Northern Territory (Austroads, 2017)

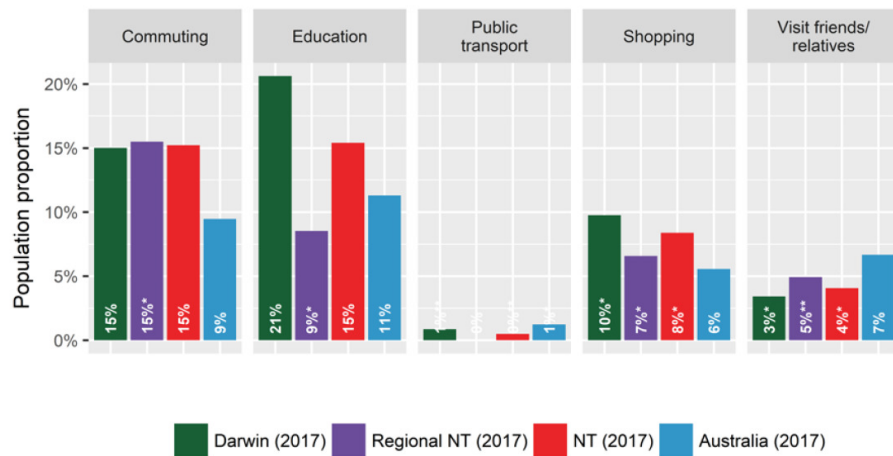


Sample: All persons who had ridden in the past month

1.2.3. transport cycling trip purpose

The 2017 National Cycling Participation Survey found that among those who had ridden at least once in the past month in the Northern Territory, and had travelled at least once for transport purposes (commuting, education, public transport, shopping and visiting friends or relatives) most had ridden for the purpose of commuting or education (Austroads, 2017).

Figure 3: Purpose of cycling for transport in the Northern Territory (Austroads, 2017)



Sample: All persons who had ridden in the past month and who had travelled for each purpose (by any mode).

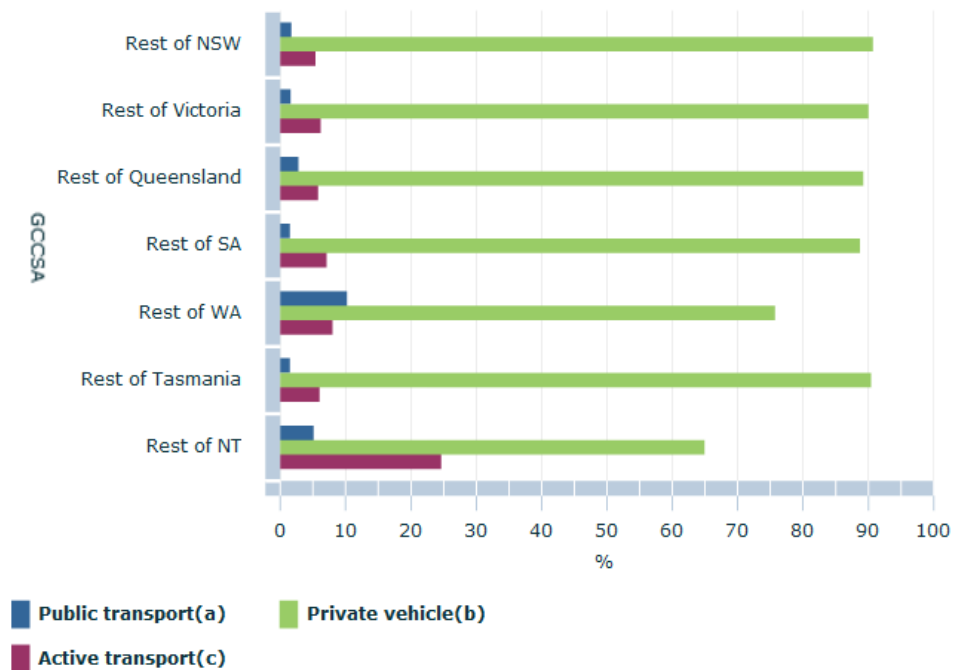
* Estimate should be treated with caution.

** Estimate should be considered unreliable.

1.2.4. Active Transport commuting

Australian Bureau of Statistics 2016 census data for the method of travel to work for the Northern Territory indicates 2.9 percent of commuters travel by bicycle and 9.95 percent walk. This compares with an Australian average of 1.1 percent and 3.0 percent respectively (Australian Bureau of Statistics, 2016). At 24.6 percent, the mode share for commuting by Active Transport outside of the Greater Darwin area is significantly higher than in other jurisdictions (Australian Bureau of Statistics, 2018).

Figure 4: Mode of transport for commuting for ‘rest of state’ (outside capital cities) 2016 (Australian Bureau of Statistics, 2018) (a)(b)(c)



(a) Public transport includes all journey to work trips that used a public bus, train, ferry, tram or taxi. (b) Private vehicle includes journey trips that used a private vehicle as a driver and/or passengers. (c) Active transport includes all journey to work trips that were completed by walking or cycling.

1.2.5. Proportion of female riders

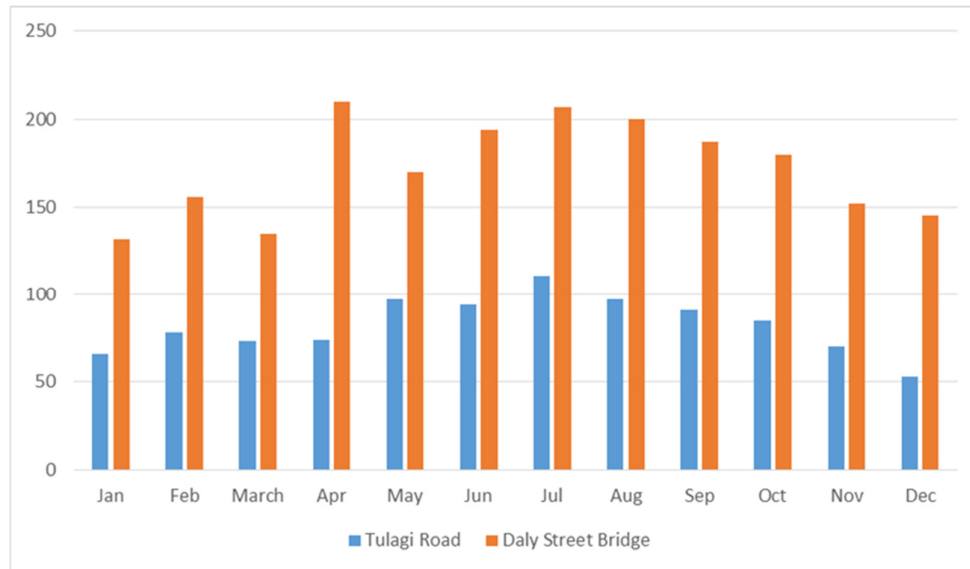
The proportion of female riders is often used as an indicator of the condition of cycling infrastructure, with a high proportion of female cyclists indicating a more supportive cycling environment. In the most advanced cycling nations, the number of female cyclists is often equal to male. In contrast, the proportion of female cyclists in Australia is around 22 percent (Bicycle Network, 2017). In the Northern Territory the average is 30 percent female riders while at some locations in the centre of Darwin and Alice Springs close to and above 50 percent of riders are female.

1.2.6. Seasonal variability

Extreme climates encountered across the Territory are often cited as a potential barrier to Active Transport, with temperature extremes in Central Australia and a prolonged wet season

in the tropical north. However, permanent bike counters in Darwin indicate that while cycling peaks during the dry season, there is limited difference between the number of cyclists riding in the wet and dry seasons (Department of Infrastructure, Planning and Logistics, 2016). Similarly, levels of cycling are also consistent year round in Alice Springs.

Figure 5: Seasonal variation in the average daily number of cyclists recorded at permanent counters in Darwin 2016 (Department of Infrastructure, Planning and Logistics, 2016)



3. The role of infrastructure in supporting Active Transport

Current levels of cycling and walking in the Northern Territory provide a good basis to build support for Active Transport and increase physical activity. There are a range of interventions to encourage cycling and walking and lift participation rates including integrating land use and transport planning, providing end of trip facilities, improving road safety and raising awareness. However, the provision of accessible, convenient and connected infrastructure is widely acknowledged as a fundamental requirement for supporting Active Transport.

In the Northern Territory, as in most Australian jurisdictions, management and maintenance of walking and cycling infrastructure is shared between local government and the Territory Government. The NT Government manages the arterial network and liaises closely with local government to ensure links with the local network are established and maintained.

A well-developed arterial network of shared path extends throughout the major urban areas and regional centres across the Territory. In the NT, all paths are shared paths which means cyclists and pedestrians share all paths, including footpaths. With low population levels in the Territory, shared paths provide a lower cost, practical means of supporting cycling and walking in most situations. However, in a small number of high use areas, separated cycling and walking infrastructure has also been implemented.

The arterial path networks in the Territory's major centres are periodically reviewed, in consultation with the community, to identify potential opportunities to develop and extend the path network and improve connections between existing infrastructure. The most recent

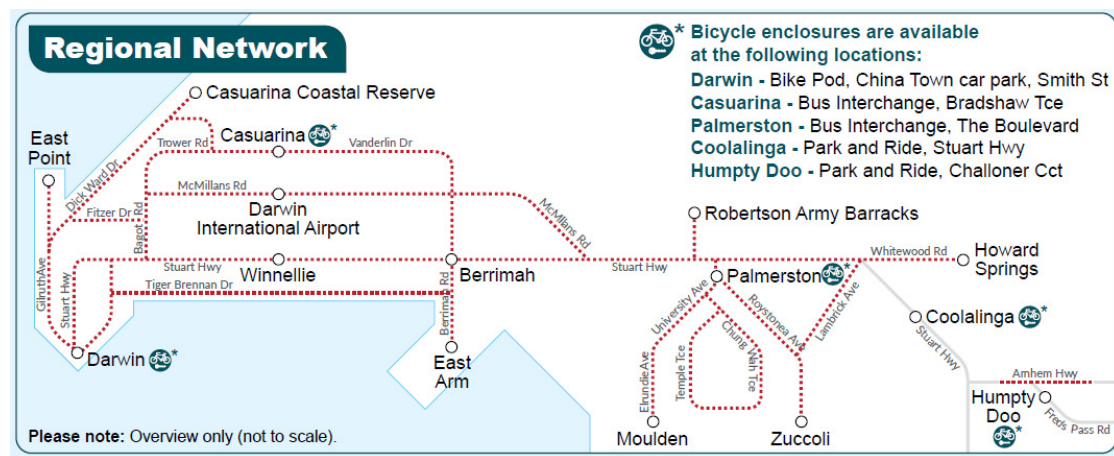
Greater Darwin shared path network review identified the potential to extend the existing path network in Darwin's rural area.

4. The Coolalinga shared path project

4.1. Location

Coolalinga is an expanding residential and commercial activity centre located in the rural area of the Greater Darwin region, approximately 30 km south of the Darwin CBD. The Coolalinga activity centre includes a newly developed commercial precinct, urban residential development and rural lifestyle blocks on predominately two hectare lots. The activity centre has developed adjacent to the major Stuart Highway and there is a public bus interchange and associated car park with secure bike parking. At present there is no formal cycling and walking infrastructure connecting local shared paths at Coolalinga to the Greater Darwin shared path network.

Figure 6 Schematic representation of the Darwin region shared path network



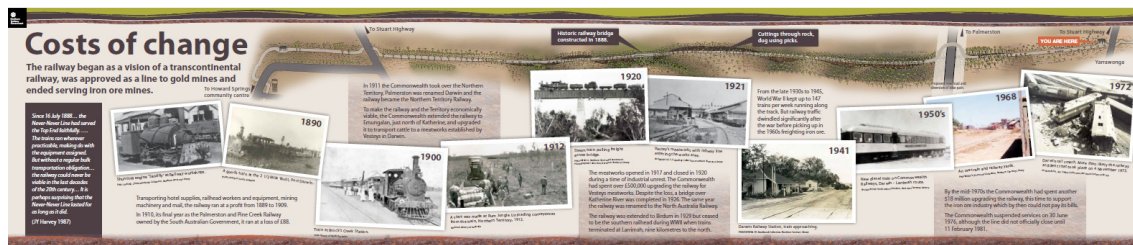
4.2. Existing shared path connections

An off road shared path currently extends from the Darwin CBD to Whitewood Road in nearby Howard Springs. This well-used path has been constructed within the former North Australia Rail (NAR) corridor (the railway ceased operation in the 1970s). The most recently constructed section of this path, from Palmerston to Howard Springs was completed in 2011. The path traverses through a range of tropical environments and features unique railway heritage features including bridges and culverts dating from 1887 and pick marks on hand-excavated cuttings. Interpretative signage highlighting the corridor's history has been installed at shelters adjacent to the path. A permanent bike counter located on the path near Palmerston shows consistent use with over 100 cyclists using the path daily during July.

Figure 7: Howard Springs shared path, Darwin



Figure 8: Interpretative signage installed on the Howard Springs path, Darwin



4.3. Extending the shared path network to Coolalinga

A 3.2 km extension of the existing Howard Springs path to Coolalinga was identified in the planning for the shared path network and in land use planning for the Coolalinga area. There has also been community support for extension of the path. A shared path connection with Coolalinga provides an alternative transport option for residents and employees commuting to and from the activity centre and also provides a connection to local schools and to the nearby City of Palmerston. The path will also provide an opportunity for local and extended Active Recreation. The North Australia Rail corridor is Crown Land and continues from Howard Springs to Coolalinga (and beyond). An unmaintained track has developed within

the rail corridor and a number of adjoining land holders have developed informal accesses to the corridor. Power and telecommunications infrastructure is also located within the former rail corridor.

Figure 9: Coolalinga shared path – proposed route



A Project concept report was completed in October 2015 which considered a number of options for the path and recommended a preferred alignment. The report also investigated surface treatments, including a possible gravel surface to potentially reduce costs. However, due to the tropical climate with intense rainfall events and ongoing maintenance costs associated with a gravel surface and potential for increased use, a sealed path surface was recommended as the most cost effective option.

4.3.1. Heritage features

The concept report identified a number of heritage features including bridges, culverts, embankments and cuttings, although none have been previously listed. The route was inspected with representatives of the Heritage Division of the Department of Tourism and Culture and a heritage assessment determined adaptive re-use as the most appropriate approach to managing the heritage values. As a result, the path design has incorporated the heritage features, retaining original structures wherever practical and allowing for sensitive adaptation where required. Interpretive signs to acknowledge the history of the NAR corridor will also be installed as part of the project.

Figure 10: Original NAR bridge infrastructure which will be incorporated into the Coolalinga shared path



4.3.2. Consultation

The path alignment is adjacent to a number of private properties and construction of the path will facilitate increased access through the corridor. During the design phase, local residents were consulted regarding the proposed path and existing use and access to the corridor. A fact sheet was delivered to all residents in the local area and residents immediately adjacent to the corridor were contacted directly. Meetings were held with local Members of the Legislative Assembly (MLAs) and displays were installed in the local MLA's offices. All responses received were highly supportive of the proposed path and a number of adjustments were made to the concept design in response to the feedback received.

4.3.3. Innovative surface treatment

An informal track has developed within the former rail corridor which is used by some residents as an alternative access to their properties. The new path will be constructed on the rail formation and is sufficiently separated from the track to minimise conflict between path users and vehicle traffic. However, at Coolalinga, the path alignment crosses the corridor to connect to the Coolalinga local road and shared path network. The path will be raised where it crosses the unformed track, which together with appropriate signage will clearly indicate path priority. Although solar lights will be used at road intersections, the use of lighting near Coolalinga will be minimised to avoid impacts on adjacent residences. As an alternative, an innovative surface treatment will be applied to the path which includes particles which absorb light during the day and 'glow' at night. The surface treatment will assist in both defining the direction of the path for users and highlighting the path crossing to vehicles. The 'glow in the dark' treatment has been used internationally and in a growing number of locations in Australia.

Figure 11: Glow in the dark path – Gosford, NSW (Moondeck, 2018)



Use of the glow in the dark surface treatment has also allowed for incorporation of a public art component in the path construction. A local artist has been engaged to develop a design for the application of the path treatment which is inspired by the local environment and culture and the heritage features of the path.

Figure 12: Artwork to be installed as part of the surface treatment of the Coolalinga Path



4.3.4. Wayfinding

The Coolalinga path will include wayfinding signage consistent with the Austroad guide for Bicycle Wayfinding (Austroads, 2015) which has recently been implemented on path networks in Darwin and Alice Springs.

Figure 13: Consistent wayfinding signage installed across the NT arterial shared path network



5. Summary

The Coolalinga Path is scheduled for completion during 2018/19. Path use will be monitored through annual bike counts and potentially permanent counters. Further extension of the path network in the rural area will be considered through land use planning and in future reviews of the Greater Darwin shared path network.

Construction of the Coolalinga shared path in the rural area of Greater Darwin will provide a valuable local connection to support increased cycling and walking. The path will link employment, education and residential destinations and encourage Active Transport for short local trips as well provide an option for Active Recreation. Planning and design of the Coolalinga path has included adaptive re-use of heritage infrastructure, responded to issues raised during community consultation and involved innovative use of materials.

In order to effectively increase cycling and walking, infrastructure also needs to be supported by a range of complimentary Active Transport policies and programs. However, well designed and connected infrastructure is essential to encouraging cycling and walking for short trips.

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