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Alternative ways to pay? A review of non-government sources to fund bikeways

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Abstract

Cycling is (re)gaining popularity in many developed countries and cities. However, a key issue is cyclist safety due to lack of safe cycling infrastructure. Many governments of low to medium growth economies are struggling to meet the many needs of public spending. Necessary cycle-related funding is often allocated to other projects, such as for roads or public transport. There is a strong impetus for transport authorities to find new sources of funding as general taxation revenue is limited. Examples of bikeways funded by communities or the private sector are emerging across the globe. This paper reviews some of these notable cases, evaluating the funding potential, feasibility, and acceptability of these schemes. Non-government sources may not be mainstream sources of funding yet, but they offer new avenues to help reduce the financial burden of transport/planning authorities to plan, build, and maintain bikeways. As many of the innovative cases feature strong community involvement, rallying public interest in cycling infrastructure development is a key ingredient of success in the alternative funding models examined.

Keywords: Bikeways, funding sources, non-governmental, community, private-sector

1. Introduction

Cycling is increasingly recognised as an environmental and economical mode of travel with significant health benefits. However, many studies have shown unsafe road conditions, fear of motorised traffic (speed or volume), and lack of suitable bicycle lanes/paths are the key barriers of cycling, especially in Australian cities (Chataway et al., 2014; Fishman et al., 2012). Safety is a particular concern for demographics with lower cycling uptake, such as casual cyclists, females, and adolescents (Aldred and Dales, 2017). Jurisdictions with high cycling rates (Netherlands, Demark) tend to coincide with wider coverage and/or better designed cycling infrastructure across its urban realm. This helps to normalise cycling by achieving a 'critical mass', which improves safety (Pucher and Buehler, 2008).

Cycling infrastructure provision is closely related to cycle ridership. It offers both direct safety benefits (protected or seperated lanes) as well as indirect benefits, such as the 'safety in numbers' effect (Jacobsen, 2003). Network effects, when a network of safe cycle paths multiplies the propensity for one to undertake cycling by connecting more travel opportunities, may form. Many cities with formerly low rates of cycling are beginning to embrace this by widespread provision of cycling infrastructure, such as

Auckland, Vancouver, Portland and Seville (Marqués and Hernández-Herrador, 2017).

Cycling infrastructure typically refers to 'hard' components such as dedicated or non-dedicated (shared) cycle paths, bicycle sharing/cycle hire schemes, cyclist eye-level or priority signalling, parking and end-of-trip facilities (Pucher et al., 2010). The importance of 'soft' infrastructure (Jennings et al., 2017; Pucher et al., 2010) are also increasingly recognised, such as road rules that ensure cyclist safety (distance threshold, vehicle door opening protocols), cyclist and motorist training, and even an overall 'mobility culture' (Klinger et al., 2013) that supports cycling. But soft measures also need hard infrastructure to act as an 'enabler'. Certain new designs of cycling network focus on this aspect. In the UK, Quietways are bikeways/paths that are located at streets with less traffic, and 'Mini-Hollands' offer segregated cycle networks and road treatments at a borough-wide basis. These interventions are shown to increase active travel uptake and perception of safety in suburban London (Aldred et al., 2018). Developing 'hard' cycling infrastructure remains an important policy apporach in promoting cycling as an everyday mode.

However, protected cycling paths (bikeways hereafter) can be expensive to provide, especially for cities with existing roads, or with a road lobby that is unwilling to reduce road funding levels. Governments at different levels are juggling many existing priorities, such as public transport and road infrastructure. Fuel excises are also diminishing further constraining transport agencies. Hence, they are looking beyond conventional government funding, such as private sector involvement. Currently, cycling infrastructure in Australia remains mostly funded by government general income sources. There are calls to diversify funding sources to help develop cycling networks. Still, there has been a number of innovative funding schemes found in many developed economies.

This paper aims to offer a review of some notable cases of new funding arrangements. A 'matrix' is developed to analyse the key traits of these schemes based on possible funding size, ease of implementation, feasibility (in Australia), and availability of existing examples. While 'soft' measures are equally important and complimentary, their funding requirements are less capitally intensive. Hence, this paper focuses on 'hard' infrastructure, such as protected or dedicated cycle tracks away from motorised traffic, which greatly improve cyclist safety and movement speed. This paper is organised into four sections. Section 1 is the introduction of this paper, followed by Section 2 which describes the research background. Section 3 showcases non-governmental funding schemes for bikeways. Section 4 concludes the paper with a discussion of these schemes, limitations, and avenues for further research.

2. Cycling infrastructure funding in Australia

The United National Environmental Program recommended a target of 20% spending on non-motorised transport. This guideline is, however, based on a survey from developing countries (United Nations Environment Programme, 2016). No spending

guidelines are made for developed countries as the total value of all infrastructure spending tends to be much higher. Cycling infrastructure spending data across Australian states/territories are subject to data collection limitations – only projects that are earmarked as cycling infrastructure are summarised. Nevertheless, cycling funding is dwarfed by road funding (Pojani et al., 2018) as illustrated in Table 1. Despite recent improvements in cycling infrastructure and modest increase in cycling mode share, cycling uptake is still low (around 1 to 3%) in Australian capitals (Loader, 2017). This is further hampered by mandatory helmet laws, high volumes of motorised traffic, and high vehicle speeds on most roads outside the inner cities (Pucher et al., 2011). In Australian cities, while some dense urban areas are starting to offer better cycling infrastructure, suburban areas mostly remain unsafe for cycling. 'Network' and 'safety in numbers' effects are yet to be seen. Unless there is a change in the way bikeways are funded, it is difficult to envision how cycling uptake can be improved in the short term. There is a need to identify new sources of funding, possibly non-governmental sources.

Table 1: 2015-16 Funding for road and cycling in Australian States/Territories

State/Territory	Cycling	Roads	Cycling funding as % of road funding
Australian Capital Territory	$16m	$109m	14.3
Queensland	$33m	$2,202m	1.5
Tasmania	$2m	$126m	1.5
Northern Territory	$4m	$245m	1.4
Victoria	$17m	$1,999m	0.9
Western Australia	$16m	$1,679m	0.9
New South Wales	$32m	$5,281m	0.6
South Australia	$4m	$569m	0.6
Total	$122m	$12,209m	1.0

Data compiled by Pojani et al. (2018) and Australian Bicycle Council (2017) based on State/Territory budgets

3. Notable non-government funding cases

Some innovative funding sources identified in this paper are:

1) Public–private partnership (PPP)
2) Private sponsorship - naming rights
3) Philanthropic (donations and crowdfunding)
4) Gambling proceeds
5) Value capture
6) User pays
7) Motorist pays
8) Other schemes (e.g. health insurance, social bonds)

3.1. Public–private partnerships (PPP)

Direct involvement by private or community sectors in creating cycling infrastructure is rare due to land ownership, design standards, and maintenance issues. A way to allow private involvement in public infrastructure is through a public–private partnership (PPP). PPPs have been used in a number of road and rail projects, but in only a few cases for bikeway projects. There are different forms of PPPs.
An Australian example is Gladstone's 18km-long bikeway network in the state of Queensland. Many of the port city's bikeway projects were funded by local industries such as Boyne Smelters Limited (an aluminium smelter) and the Gladstone Port Corporation. A particular bikeway, dubbed the *Turtleway*, is located near turtle habitats with high conservation and educational value. Furthermore, parts of the Boyne Island bikeway were built directly by the smelter during its expansion in 1995. This bikeway offers Boyne's workers a safe path to cycle to work. These cycling initiatives are included in Gladstone's *2001 Integrated Regional Transport Pla*n (Queensland Department of Transport, 2001).

In New Zealand, tourism industry-led PPPs are instrumental for the development of the New Zealand Cycle Trail (NZCT) – a nationwide project that proposes new sections linking existing cycling and tourism infrastructure and targeted upgrades. Construction began in 2011, with 22 Great Ride routes and up to 2600km now completed. While the NZCT is mostly built by government funds, land ownership, asset holding, governance, maintenance and marketing of trails are different for each track which typically consists of National Government (Department of Conservation), tourism organisations, local councils, landowners, trail trusts, or cycling groups. The oversight of NZCT performed by a Governance Board that consist of tourism and cycling leaders. A key feature of the NZCT is being tourism-centric, reflected by the Official Partner Programme, a mutual promotion program that helps businesses to gain exposure by featuring their brand in NZCT assets and promotion material. These businesses in turn help to promote the NZCT in operations. Current official partners include tourism-related businesses (accommodation providers, tour operators), transport operators, and bicycle businesses.

Apart from tourism-led schemes, in the UK, more general joint venture approaches (already used in railway projects) are beginning to be adopted in cycling projects. An example is the Local Enterprise Partnership (LEP) mechanism of the D2N2 (Derby, Derbyshire, Nottingham and Nottinghamshire). LEPs are non-statutory partnerships between the public sector (mainly local authorities) and the private sector aiming to promote local economic development. The D2N2 LEP's signature project is the Nottingham Enterprise Zone, which features a cycle tourism network. £6.1 million is made available by this form of PPP, with co-investments from the British central government, businesses and local authorities. This project includes new footpaths and cycleways that add new route numbering and branding schemes to the existing network. These are also incorporated in the *Nottingham Local Transport Plan Strategy 2011-2026* and the *Nottingham Cycle City Ambition Plan*. This joint-venture example operates under the auspices of economic development and is a top-down driven approach.

Alternatively, a more bottom-up PPP example is found in USA, in North Carolina's third largest city of Greensboro, where local business leaders formed the *Action*

Greensboro group to revitalise the city's struggling economy. A 4-mile (6km) long bikeway that loops around the downtown has been proposed. This group was able to form a partnership consisting of local, North Carolina State, and US Federal governments ($30 million USD) alongside local companies ($4.5 million) to help fund the Downtown Greenway project. Part of the funding comes from selling naming rights, discussed in the following subsection. The timeline of Downtown Greenway is showcased in Table 2.

Table 2: Timeline of events of Greensboro Downtown Greenway

Downtown Greenway

Future Milestones

2018-2019	Begin construction of eastern section along Murrow Blvd. Construct western section along railroad corridor. Build Freedom Cornerstone. Complete entire Downtown Greenway.

Milestones

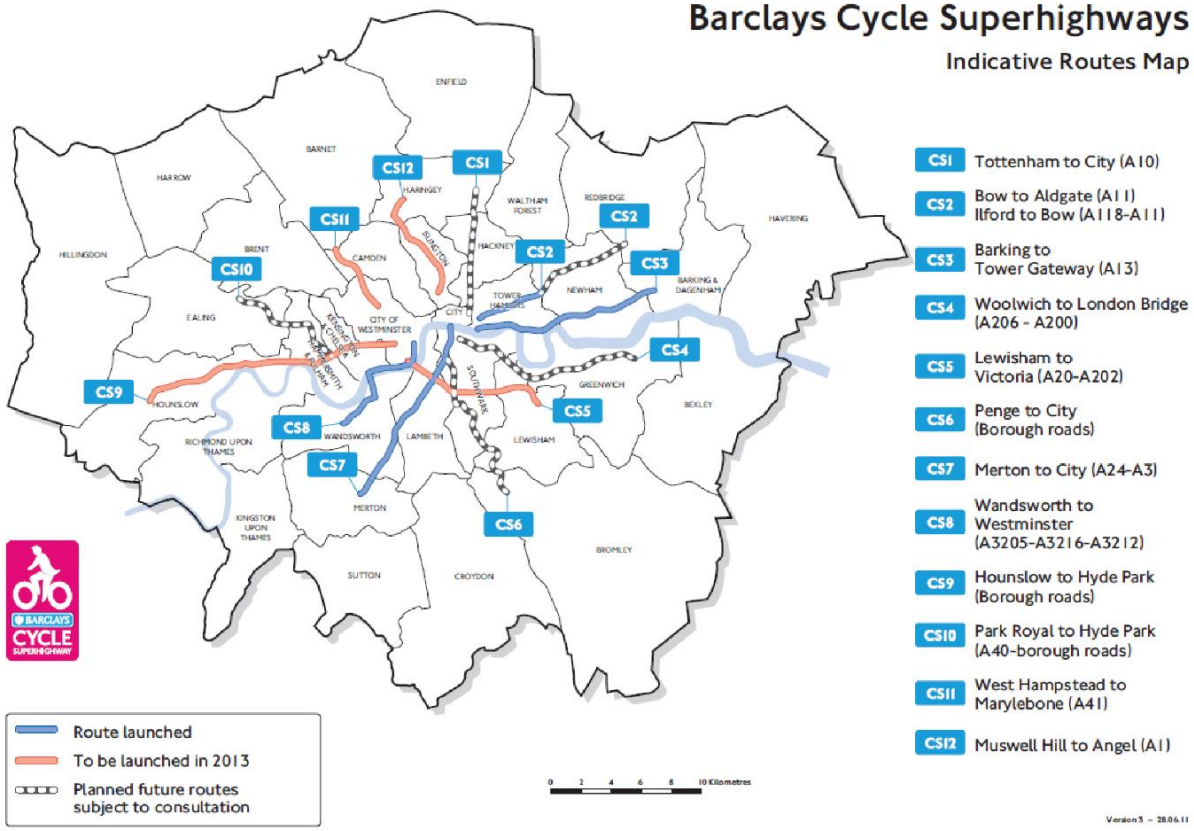
2001	Introduced in Center City Master Plan.
2002	Volunteer committee work begins
2006	City-adopted Bi-Ped Plan that identifies the Downtown Greenway as the hub of the entire system of trails. Becomes signature project for the City's Bicentennial.
2007	City Council resolution of support, staff hired by Action Greensboro.
2008	$4.5M in private funding raised and $7M secured by the passage of a Street Improvement Bond by voters.
2009	First phase breaks ground in the Warnersville Neighborhood.
2010	First ¼ mile section opens to the public (Five Points).
2011	Morehead Park- the second ¼ mile section-- breaks ground.
2012	Morehead Park opens to the public and fundraising for the project exceeds $18M. Break ground on 2 blocks of Smith Street adjacent to Greenway at Fisher Park Apartments.
2013	Celebrated the opening of Smith Street adjacent to the Greenway at Fisher Park Apartments. Began construction of the Tradition Cornerstone.
2014	Completed the Tradition Cornerstone. Continued design on Murrow Boulevard and southern leg. Chandler Concrete sells concrete manufacturing plant and restricts rail-use on the property.
2015	Began design of railroad corridor on west side. Commissioned artist for Innovation Cornerstone and began approved design. Completed design of eastern side (Murrow Blvd) and southern leg.
2016	Opened Innovation Cornerstone. Began construction of northern leg along Fisher Avenue between Greene and Eugene and along Eugene. Passage of Parks & Recreation Bond package to construct Phase 4 (railroad corridor).
2017	Complete construction of northern and southern sections. Complete engineered design of western section along railroad corridor.

(Source: http://downtowngreenway.org/planning/)

3.2. Private sponsorship - naming rights

Naming rights have been long used in high profile sporting facilities (such as stadiums) as a way to attract private sponsorship funding. Recently, this has been applied to bikeways as seen in London's Barclays Cycle Superhighway (BCS) (Figure 1). An ambitious cycling infrastructure plan was first proposed by former London mayor Ken Livingstone in 2008 – featuring dedicated bikeways connecting London's CBD and its outer areas, in conjunction with a cycle-hire scheme. The winner of the 2008 election, Boris Johnson pledged to carry out these proposals. In 2010, the naming rights of both schemes were offered to Barclays, a major bank in the UK, under a sponsorship agreement with Transport for London (TfL). For five years (2010-2015), Barclays would help fund £25 million while the estimated cost of the whole cycle superhighway project is £145 million. Part of this scheme was motivated by the London 2012 Olympics and having two of the earliest BCS routes (CS3 and CS7) passing near Barclay's headquarters. Barclay's corporate logos would be featured prominently on bikeway signage, maps and also the bicycles.

Figure 1: The BCS proposal in 2011 with the route 3, 7 and 8 kick-starting the project (Note the sponsorship logo being featured, source: TfL)



The cycle scheme and BCS became a permanent fixture in London, helping to make cycling more visible and to promote decent usage rates. In 2011, Barclays agreed to extend the sponsorship deal to 2018. However, as the BCS was hastily built, some sections offered little or no protection from vehicles, only providing blue painted road lanes. This might have caused a number of collision and fatalities. The BCS began to attract negative publicity from the cycling community. What later discovered is the 'clawback' terms of the sponsorship agreement – when the cycle-hire patronage does

not meet a specified target, Barclays can reduce funding commitments. This resulted in increased public distrust. The London Assembly initiated an inquiry to investigate TfL's sponsorship agreements (including ferry and gondola schemes). The report found greater transparency of the sponsorship tendering process is required as there was little documentation on why Barclay's was selected as the sole-sponsor (London Assembly, 2012). In late 2013, Barclays decided to pull out from the extension to 2018, only continuing to fund until the original 2015 agreement. Little financial information is available for BCS. The amount of sponsorship funding in London's cycle hire scheme is provided in Table 3. While naming rights sponsorship in London's BCS and Cycle-hire scheme is not a total success, it nonetheless funded part of the TfL cycling infrastructure. Perhaps future schemes require more transparent contract design.

Table 3: Income and Expenditure of London's Cycle Hire Scheme (£m)

Item	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Operating Expenditure	13.27	20.59	23.53	24.06	26.62	26.17	21.35
Customer Income	2.38	6.17	7.03	8.56	10.50	10.78	11.00
Barclays Sponsorship	3.79	5.18	5.42	4.22	4.58	-	-
Santander Sponsorship	-	-	-	-	-	5.15	6.38
Other Income	0.00	0.00	0.00	0.50	0.08	0.07	0.35
Income Sub-Total	***6.17***	***11.36***	***12.44***	***13.28***	***15.17***	***16.01***	***17.73***
TfL funding	**7.10**	**9.23**	**11.08**	**10.78**	**11.46**	**10.16**	**3.62**

Source: TfL

3.3. Philanthropic (donations or crowdfunding)

Most bikeway projects are built and planned by governments, but philanthropic sources are possible. Sustrans, a cycling advocacy group in the UK, has been building and maintaining parts of the 22,530 mile long National Cycle Network (NCN) with direct donations from the public, non-government grants and volunteer labour. Unique to the UK, Sustrans actually owns 560km of the National Cycle Network that is on purchased or donated land. Sustrans also operates innovative funding schemes such as 'Sponsor-a-mile' and bequests.

In recent years, crowdfunding is becoming a popular vehicle to attract donations. An example is the Northern Rivers Rail Trail (NRRT) in the northern coast of New South Wales (NSW), Australia. This proposal plans to convert some parts of a disused railway line into cycling 'rail trails', connecting the towns of Murwillumbah and Casino. This new incorporated charity group was able to crowdsource $75,000 AUD, meeting their target. Donors are offered rewards from the local businesses based on the amount of donation (Figure 2). It is unclear whether this is sufficient to fund the rest of the project, but this helped it to gain traction. Some elected politicians and NGOs (the Heart Foundation) voiced their support. This prompted the NSW State government to consider a rail trail in the area and with a feasibility study in progress. This shows crowdfunding is not only a funding source, but also a way to galvanise local support for cycling infrastructure.

Figure 2: The screenshot of the Northern River's Community Trail crowdfunding page

A more established case of philanthropic funding is found in Ontario Province, Canada. The Great Lakes Waterfront Trail, a waterfront cycle track at its southern lake district, was mooted in the late 1980s. In 1988, the Waterfront Regeneration Trust (WRT), a charitable organisation that is eligible to receive tax-deductable donations, was established. Originally the Trust focused on conservation and environmental protection. In 1995, the waterfront bikeway commenced, and gradually became a large network of bikeways, 2,161km in length in 2017 (Benson, 2002). Like the NRRT example, WRT was able to attract some high profile sponsors. For example, the CIBC Bank donated $250,000 CAD in 2007. Small community donations and public funding at federal and provincial level were also secured due to its community involvement

and economic importance (such as cycle tourism) with additional ecological and tourism benefits. WRT is strongly involved in the planning and maintenance of the bikeways with close cooperation with all levels of the Canadian government.

From the cases outlined in this sub-section, it appears many philanthropic schemes started small but have grown into large scale bikeway networks and some formed PPPs at later stages with a growing influence.

3.4. Gambling proceeds

Another form of cycling funding is from gambling proceeds, as seen in the UK and Queensland in Australia. Usually this form of funding requires a grant application to a gambling revenue authority, often managed by governments or lottery trusts.

Sustrans in the UK is also involved in this type of funding. Sustrans started in 1977 in Bristol as a local cycling group and gradually expanded nationwide. The group began with direct donations and membership fees from the public. The first bikeway project by Sustrans is the Bristol & Bath Railway Path, a rail trail project. In 1995, Sustrans successfully applied for a £43.5 million from the Lottery Fund to help develop its own National Cycle Network to rural and smaller towns. This was repeated in 2013 for the National Lottery Awards, granted to fund the *Connect2* project. As illustrated in the Shoreham-on-Sea cycling project (Table 4), lottery funding only contributed around 9% to project costs, but it was an important feature to help obtain co-funding from other governmental sources.

Table 4: Funding break down of Shoreham-on-Sea project (2013)

Funding Source	**£**	%
National Lottery Funds	970,000	8.72
Subtotal: Total Match Funding Confirmed	10,156,840	91.28
Match Funding Break down:		
West Sussex County Council (Local Authority): a mix of various funds: transport, developer input: tied to housing	*9,339,000*	*83.93*
Links to Schools: Government funds (Ring-fenced for cycling and walking and administered by Sustrans)	*400,005*	*3.59*
Homes and Communities Agency (Central Government grant, tied to housing growth)	*417,835*	*3.76*
Total Spend on Project	**11,126,840**	**100.00**

Source: Communication with Sustrans

In Queensland, Australia, the Community Benefit Gambling Fund operates at a more ad hoc basis. Since 1994, the fund allocates grants for not-for-profit community groups to enhance their capacity to provide services, leisure activities and opportunities for Queensland communities. This fund is Queensland's largest one-off grants program, distributing approximately $54 million per year. Key examples include the Atherton Tableland rail trail connections.

As a 'sin tax', there are concerns on whether this is an ethical source of funding. There are some agencies and organisations that eschew gambling and lottery funding on ethical grounds, though the approach is relatively well-accepted in Australia.

3.5. Value Capture

Value capture is being used in railway projects (Newman et al., 2017). The possibility of bikeways inducing property value uplift is beginning to attract research attention (Li and Joh, 2017). There are some examples of value capture for cycling infrastructure. In 2009, the City of Tallahassee government in Florida developed a Significant Benefits Program (SBA) which requires new developers to pay for a 'proportionate fair share'. For areas designated as *Multimodal District*, 100% of the proceeds from the SBA will be spent on cycling, pedestrian and transit projects as part of the Mobility Planning scheme. This scheme allows the funnelling of property gains from developers to improve bicycle infrastructure. The Tallahassee-Leon County Bikeway is partially funded by the SBA.

Another example is Oregon's various approach to collect revenue from developers or businesses in the form of sales tax/dedicated property taxes (Oregon State Government, 2016). However, this scheme does not fund only bikeways as it also provides finance for roads and pedestrian sidewalks. While this is still a government source of funding, it captures some of the value from the beneficiaries of infrastructure improvement. Very often in North America, sales tax requires referendums as a form of mandate, which could be rejected by voters.

3.6. Cyclist-pays

Another possible funding source is charging cyclists at certain routes or facilities. Secure parking at key locations (e.g. public transport interchanges) are often charged for a fee in the Netherlands, Denmark and Japan. Some transport operators even build and operate paid bicycle parking areas.

Figure 3: Paid bicycle parking area adjacent to a railway station in Nagoya, Japan
(Single use charge is JP¥200 (AU$2.5AU), monthly JP¥3,500(AU$44), photo source: Author)

An example in Australia can be found in Brisbane's busway stations of King George Square and Royal Women's Hospital, both featuring dedicated cycle centres which charge fees for bicycle parking and end-of-trip facilities (with lockers, showers and towel services). However, they have at times struggled to obtained high-levels of use. There are also some calls for registration of cyclists (Queensland Transport, Housing and Local Government Committee, 2013). The debate remains unsettled but such a 'cyclist rego' would likely be unpopular and counterproductive in cycling promotion. On a historical note, a 'bicycle tax' was charged on cyclists in the Netherlands during the 1920s to help fund roads. In 1927, due to high numbers of Dutch cyclists, this fee contributed as much money to the Road Fund as did motor vehicle owners. It was removed during World War II and never reinstated.

Alternatively, dockless bicycle-hire schemes are seen as an emerging funding source. A permit system is in place in San Francisco and Washington DC that charges bike share operators a fee. While not a bicycle scheme, emerging sharable electric scooter operators such as *Bird* are proposing to fund Portland's protected bikeway network to improve safety with a commitment of $1USD per scooter per day, as part of obtaining a 'social license' for their operation (Theen, 2018). This can be an opportunity to fund cycling infrastructure though the funding levels are likely to be modest at best.

3.7. Motorist-Pays (Mobility/congestion pricing)

The high external costs of driving (air pollution, congestion, road trauma) justify tolling of motorised users. This can be used to divert funds to cycling as an alternative mode. A key example is the London Congestion Charge, which has used some of its revenue to fund walking/cycling programmes. In 2007/8, walking and cycling initiatives allocated from the charging revenue amounted £4 million (out of £137), with bus network improvements receiving most of the funds (Transport for London, 2008). This approach is seen as an important policy measure as it improves the attractiveness and feasibility of active modes, offering an alternative to avoid being charged when entering the Central Charging Zone by car. Vancouver also proposed a distance-based 'mobility pricing' charge to help fund transport projects, anticipating a funding shortfall due to increased fuel efficiency and uptake of electric vehicles (Mobility Pricing Independent Commission, 2018). However, motorist-pays schemes are likely to be politically unpopular at this stage.

3.8. Other funding schemes

Some innovative schemes are being proposed, such as health-related funding or social impact bonds. While there is little evidence about implementation, potential for their success warrants further investigation.

In Germany, the latest National Cycle Plan suggested the use of public health insurance funds to help fund cycling infrastructure, as cycling is known to offer opportunities for physical activity and health benefits (German Federal Government, 2012). There has been little attention to funding bicycle infrastructure via health schemes in the Australasian context, which does not come as a surprise given the extremely small funding any preventative health initiatives receive compared to

curative health. Alternatively, a new form of social impact investment (also known as payment by results) is heralded as an innovative way to monetise the social benefits of providing public infrastructure or services. In such schemes, social benefit outcomes are seen as the 'dividends'. Trials have been carried out in social welfare and criminal justice settings, such as correctional services to minimise reconviction) in the USA and UK (Warner, 2013). There is some potential to tap into the financial market to fund cycling infrastructure, however the market is very immature at present.

4. Discussion and Concluding Remarks

This paper reviewed some notable non-government sources to fund bikeway construction or operation. As no existing evaluation framework is available to assess funding schemes for cycling infrastructure, a scoring scheme and evaluation matrix has been developed to help rank the schemes based on a set of key criteria. The scoring scheme is based on a five-point (1-5) Likert scale (Table 5).

Table 5: A proposed scoring scheme for the evaluating cycling funding models

Score	Potential funding size (generally)	Longevity of funding	Ease of implementation	Ethical/ political concerns	Feasibility in Australia	Existing policy compatibility in Australia	Level of success from existing examples
1	Very small projects or need substantial co-funding	Very opportunistic or one-off in nature	Requires significant efforts (e.g. negotiation)	Highly controversial	Very unlikely to be done	No policy framework to work with this scheme at all	No success cases found for cycling infrastructure
2	Small projects and need some co-funding	Moderately opportunistic and one-off in nature	Requires some efforts	Somewhat controversial	Somewhat likely to face significant barriers	Little policy are made for this scheme	Some cases found but with poor or mixed results
3	Moderate-sized projects (local) or need some co-funding	Some mechanisms developed to ensure long-term funding	Moderate	Some issues but able to overcome	Moderate level of feasibility	Some policy are made for this scheme	Some cases are successful but with mixed results
4	District-wide projects or need small amounts of co-funding	Good mechanisms developed to ensure long-term funding	Easy to implement	Generally not controversial	Generally feasible with some minor issues	Good policy compatibility, only need minor adjustments	Good number of cases and generally successful
5	Large projects (e.g. whole city)	Very institutionalised funding, unlikely to be cancelled	Very easy to implement	Unlikely to face any backlash, widely accepted	No issues of feasibility at all	No issues of policy compatibility at all	Widely implemented with good results
~	Varies greatly by project nature						

Table 6 presents the preliminary assessment results based on the scoring scheme (Table 5) using the cases reviewed in this paper. Philanthropic schemes tend to be less controversial but have limited funding potential (either in funding size or longevity). Some schemes are likely to face greater ethical or political concerns, such as gambling funds. Schemes without existing working examples offer little information about their potential feasibility (health-funding, social impact bonds). Some schemes could be institutionalised and become long-term and stable funding sources. For instance, value capture schemes or parking charges could provide greater funding stability, if successful. However, there is a moderately high chance to be objected due to its perception as 'just another tax'.

Table 6: A proposed scoring scheme for the evaluating cycling funding models

Alternative Funding Sources	Potential funding size (generally)	Longevity of funding	Ease of implementation	Ethical/political concerns	Feasibility in Australia	Existing policy compatibility	Level of success from existing examples
Direct provision	2	2	3	5	3	2	4
PPP - Bottom-up	2	4	3	4	3	3	3
PPP - Top-down	4	4	1	4	3	3	3
Private Sponsorship - Naming rights	3	2	1	2	2	1	2
Direct donations	~	2	5	4	4	4	3
Crowdfunding	2	~	4	4	4	4	3
Gambling and lottery grants	2	3	5	1	5	5	3
Value capture - Developer contribution	4	3	1	4	4	4	3
Value capture - Sales tax	4	5	3	3	1	1	3
Value capture - Property taxes / Benefit fee	4	4	2	3	2	3	3
Value capture - Retail concession	1	3	4	4	4	4	3
Cyclist-pays (e.g. parking)	1	5	5	4	3	3	3
Motorist-pays (e.g. congestion charges)	3	5	2	4	2	2	3
Bike-share levies	2	4	3	4	3	3	2
Health-related funding	~	5	2	3	2	1	1
Social impact bonds	~	4	2	3	2	1	1

Australia is yet to see a national or State level cycling advocacy group as successful as Sustrans. Nevertheless, Australian cycling advocacy groups are seemingly starting to adopt similar approaches used in the examples of Sustrans (UK) or WRT (Ontario, Canada). These exemplary overseas groups gradually became large community organisations with a large membership base which the government could not ignore and obliged to help fund their projects, or form PPPs with them. The North River Rail Trail Inc. in NSW, Australia is also aiming to follow such footsteps.

In conclusion, this paper showcased a number of notable bikeway projects that are not solely funded by governments in the form of general taxation. Another finding is that many large cycling groups make use of multiple non-government sources in tandem. However, there is no 'magic pudding' here. The easy options for infrastructure funding are mostly already used. Most of the alternative methods have challenges that have limited their uptake, such as limited funding size and needing government co-granting at the end. However, if road and rail projects are able to make use of private sector funds (PPP or value capture), why not cycling? There is ample possibility to tap into industry (cycling manufacturers or tourism) or property value uplift funding sources. Cycling, being a sustainable mode, is also unique in its ability to attract dedicated personnel and community members to act as volunteers or members to form strong advocacy groups. This is an element that is not often seen in road projects, and possibly the key for cycle projects to gain momentum and popular support. Perhaps more creative ways of funding can be realised with better cooperation between governments, community and private sector.

Further research on the role of cycling groups in funding and partnership could be useful, as they can play a larger role, not only as pressure groups. A limitation of this research is that most of the cases examined are from English-speaking jurisdictions. It could be fruitful to develop a worldwide database of non-government funding for further study and develop new typologies. How bikeways are funded by alternative sources beyond European, American or Australasian contexts could be another interesting avenue of research.

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