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Cycling for the Environment, for Health, for Pleasure

20-Year Infrastructure Plan – Bicycle Institute of South Australia submission

The Bicycle Institute of South Australia is the state's peak cyclist advocacy organisation, providing a voice in support of initiatives to improve cycling conditions and opposing measures that will make conditions more dangerous. We represent not just existing cyclists but also "proto-cyclists" – the significant proportion of the population say that they would cycle if conditions were safe enough.

This submission has been informed by input from the following Bicycle User Groups: Norwood Payneham and St Peters; Unley; and Coast to Vines.

Firstly, we congratulate the government for the establishment of Infrastructure SA (ISA) and congratulate ISA for establishing a plan for the next 20 years. Hopefully this will result in evidence-based decision-making about infrastructure provision that incorporates thorough and holistic cost benefit analysis; an approach previously lacking in South Australia.

Our summary recommendations are provided below.

Our attached submission discusses the implications of disruptive technologies for future transport infrastructure and the "wicked" problem of congestion, due to the reality that new road infrastructure induces car traffic and discourages other transport modes. It then turns to some of the factors that we believe should be part of holistic infrastructure planning: health, liveability and the environment. Finally, the submission identifies the four broad categories of cycling infrastructure that we see as necessary. Given our experience and knowledge, we of course could elaborate on these and would welcome future collaboration with ISA and other bodies involved in infrastructure provision.

Recommendations

1. Quantify the costs of ill-health due to inactivity to the State's budget, and for use in cost-benefit analysis.
2. Adopt resilient planning approaches that minimize predictions on highly uncertain matters.
3. Keep good communications open, to ensure that government is aware of the implications of its regulatory and pricing decisions.
4. Undertake the role of providing infrastructure "optimisation" seriously.
5. Assess infrastructure projects through the lens of the 30-Year Plan for Greater Adelaide.
6. As part of optimising our transport infrastructure, encourage the transition from internal combustion engines to vehicles powered by electricity, and encourage active transport.
7. Encourage cycling in the provision and management of our infrastructure, through four broad approaches:
    - a strategic network of quiet roads, off-road paths and protected bike lanes to encourage the average commuter to cycle to work,
    - a policy of continuous 24-hour bike lanes on arterial roads,
    - managing local streets with speed limits of 40km/h and lower,
    - the establishment and promotion of tourism and other recreational biking opportunities.

Yours sincerely,

Dr Ian Radbone
Vice Chair, Bicycle Institute of South Australia
31 July 2019

Planning horizons and disruptive technologies

The Bicycle Institute recognizes the challenges facing ISA. While State-level infrastructure needs a planning horizon of at least 20 years, this is a long time, particularly given the potentially dramatic changes in communications, energy and transport technology that we might (but might not) be on the cusp of.[1]

The discussion paper notes that the strategy will need to "consider long-term plans and options to address "… New technologies such as electric vehicles and autonomous vehicles as well as new service delivery models such as mobility-as-a-service."

The combination of practically zero marginal cost electricity and autonomous vehicles may well require short term rather than long term planning, given that we have examples of autonomous electric vehicles already operating Adelaide.

There have been predictions that autonomous vehicles will reduce the vehicle kilometres travelled in a city – and others that they will increase vehicle kilometres. Which scenario plays out will depend on how governments regulate and price access to the road network. Such diametrically opposed futures pose very different implications for future transport infrastructure. Throw in the implications of related technologies such as 3D printing, underground boring, etc., and ISA has a complex set of possibilities to plan around.

In the absence of a crystal ball, ISA would be wise to:

- ***Adopt resilient planning approaches that minimize predictions on matters that are highly uncertain.*** Minimize large, fixed, expensive infrastructure until obviously needed. (Broadly we support the government's approach to public transport, where it is cautious because of advances in technology, rather than to roads, where such caution is thrown to the wind.)
- ***Keep good communications with government open, to ensure that it is aware of the implications of its regulatory and pricing decisions.***

Dealing with congestion

Compared with the take-up of new technologies, demographic and other social factors are relatively easy to predict. But even here events have taken SA's planners by surprise. As the discussion paper notes, the 15-year target for urban infill established in 2010 has already been met – and easily.

In truth, the shift toward infill rather than fringe development has been impelled by market forces common across the globe, not by local planning policy. The task for planners is not how to encourage greater density in the City and inner suburbs, but how to cope with it.

Putting aside the possible implications of disruptive technologies, our roads cannot cope with a combination of more people plus business-as-usual travel.

With a six square metre "footprint", the poor manoeuvrability of four wheels and an average of six parking spaces servicing each car, the car is a wasteful user of space, in terms of public roads and private buildings (off-road parking). The costs to provide both of these are borne by the whole community through delay and the price of goods and services.

Both the National and State governments believe they can "bust" congestion by providing more bitumen. This is akin to dealing with obesity by buying a longer belt. Transport planners have long known that more capacity encourages traffic in an effect known as induced demand, and that this neuters the benefits of new infrastructure. Jeff Speck has called induced demand "the great intellectual

[1] As a good exposition of the potentially dramatic changes that may occur, see Tony Seba, 2014 Clean Disruption of Energy and Transportation: How Silicon Valley Will Make Oil, Nuclear, Natural Gas, Coal, Electric Utilities and Conventional Cars Obsolete by 2030. Updated to 2018 in the keynote to the 70th annual Conference on World Affairs in Boulder, Colorado: Rethinking the Future - Clean Disruption of Energy and Transportation.

black hole in city planning, the one professional certainty that everyone thoughtful seems to acknowledge, yet almost no one is willing to act upon."[2]

Furthermore, widening intersections and roads to provide more vehicular capacity makes walking less attractive and safe, plus puts more strain on the local roads that are not given the same treatment. How many times do we hear the morning traffic report refer to "delays at the exits…"? Faced with daunting conditions for active travel, it is no wonder that car use dominates and people say that walking and cycling are "too dangerous". (We would argue that it's the cars that are dangerous).

The discussion paper takes the common approach to addressing induced demand when it argues that congestion could be alleviated through "***strategic*** investment at ***particular*** intersections" (emphasis added). This is code for "we know induced demand happens, but will pretend it won't on this project" – a sentiment offered in regard to the Robe Terrace upgrade, many years ago. The increase in traffic on this road has never been squared against the predicted benefit from reduced congestion – as is common with traffic projects, which struggle to achieve a cost-benefit ratio of 1:1, despite a rosy outlook on the expected outcomes and use of the 'multiplier effect' boosting claimed benefits.

In comparison, even discrete sections of cycle path not linked to a usable network typically have cost benefit ratios of 1:3.5, while overseas assessments of network-enhancing works have found benefits in the double-digits compared to costs. (This should not be unexpected as mature road networks offer little opportunity to generate significant transport improvement, unlike cycle routes where network connectivity is still lacking.)

Perhaps it is possible to alleviate bottlenecks without encouraging more traffic. Perhaps it is possible, say, to "upgrade" Cross Road/Fullarton Road intersection in a way that will not put more pressure all along Fullarton Road, or discourage walking and cycling across the bleak bitumen expanse of multi-staged crossing delays as well as further afield. But the State government hasn't managed it so far.

The discussion paper notes the result – Greater Adelaide is "spread over a larger land mass than other similarly populated cities" and has one of the higher levels of private vehicle kilometres per capita in the world. Having directed massive amounts of funding to the roads that service this sprawl but no similar funding or priority to active transport, we have minuscule mode shares devoted to public transport, cycling and walking. And ever slower traffic.

We recognise that the ISA must plan with the assumption of 3% annual economic growth. There appears to be an assumption that ISA also needs to plan for a similar increase in transport activity. Whether or not this is true, choices can be made in terms of how, when and where this transport is undertaken. ***We urge that ISA takes its role in infrastructure "optimisation" seriously, and doesn't just focus on infrastructure investment and delivery, or providing for cars as the only form of personal transport.*** ISA should be fearless in addressing the pricing of access to and use of our public infrastructure, in planning infrastructure for active transport, and in assessing road infrastructure proposals against the alternatives of active transport, travel demand management and so on.

Here technological developments including GPS, the internet of things and dramatically increased computing power will enable the government to price trips and parking comprehensively, in turn allowing sophisticated planning to shape the type, timing and location of traffic. Given how well-established infrastructure and non-infrastructure approaches are in encouraging walking and cycling, these are the modes where greater transport activity can be generated without increasing congestion, and at much lower costs than vehicular modes. Active transport could and should be the poster child for optimizing the value of existing infrastructure or a proposed infrastructure spend.

Holistic approach

We welcome references to the need for an holistic approach to infrastructure planning. It would be a refreshing change from past practice.

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[2] Source: Wikipedia article on induced demand. See also Duranton G and Turner M (2011) The Fundamental Law of Road Congestion: Evidence from US Cities, *American Economic Review*, 101 (October), pp. 2616-2652.

An egregious example of a narrow approach to infrastructure planning occurred when the option of running rail freight on a new route to the east and north of Adelaide was being assessed. The consultants undertaking the task were obliged to ignore the impacts of rail freight on the urban community, hence overlooking the very substantial benefits to people living alongside the existing route through the Adelaide Hills and inner southern suburbs.[3]

Most obviously, infrastructure should meet the broad priorities of the Government. These were clearly expressed in the previous Government's Strategic Plan. We have attached as an appendix an example of how infrastructure projects could be assessed against the priorities documented in that Plan. In June 2018 the current government abandoned the Strategic Plan, saying that priorities would be revealed through the State budget[4]. An obvious priority – given the proportion of the budget devoted to it – is the health of South Australians. We will turn to this shortly.

We also note that the 30-Year Plan for Greater Adelaide still exists and should provide guidance for ISA. This was produced in 2010 and updated in 2017. While not holistic in the same sense as the abandoned Strategic Plan, it still indicates the sort of geographical aims that infrastructure projects should support, such as preservation of the Barossa and McLaren Vale regions, or catering for higher numbers of people in the City and inner suburbs such as Unley, Kent Town and Norwood.

We recommend that any infrastructure projects be assessed through the lens of the 30-Year Plan (as amended).

Health

For the Bicycle Institute, the most glaring example of narrow thinking in past infrastructure decisions is the ignoring the health impacts of infrastructure in cost-benefit assessment.

One in three dollars spent by the State government is spent on hospitals. We suggest that the ISA ask the Health department what proportion of the beds at its public hospitals are occupied by people who are overweight, or suffer in some other way from a lack of exercise, including from the diseases whose incidence can be significantly lowered by adequate exercise. This would provide a good proxy measure for just how much a lack of exercise is costing the State budget, not to mention the wider costs to employers and the community in general.

After running through the usual sort of narrowly defined "health" (really illness) infrastructure measures being undertaken by the State, the discussion paper asks:

> *What complementary infrastructure can be built to support better health outcomes across the population?*

Here, bike infrastructure has a much better claim to being genuine health infrastructure than hospitals. The current approach in transport planning of ignoring the impact of infrastructure on community health generates poorer health outcomes by encouraging car use and discouraging the incidental exercise gained from active transport.

If health is considered to be more than just the absence of illness – that is, is considering well-being, happiness and productivity – then the true value of cycling can be appreciated. Cycling is the happiest mode[5]; riders arrive at work in a positive frame of mind and with health characteristics and that lead to

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[3] Department of Infrastructure, Transport, Regional Development & Local Government (2010) Adelaide Rail Freight Movements Study, Final Report. The exception was noise, which was assumed to be directly proportional to route length, ignoring the proximity of residences, the curves that create "wheel squeal" etc.

[4] Ex-premier Mike Rann's vision for South Australia purged after 14 years by new ruling Liberals, *Sunday Mail*, 9 June 2018.

[5] Jing Zu and Yingling Fan (2018) "Daily travel behavior and emotional well-being: Effects of trip mode, duration, purpose, and companionship" *Transportation Research Part A: Policy and Practice*, December.

greater productivity.[6]

We provide a broad approach to what bicycle infrastructure is needed at the end of this submission.

Liveability and attracting people

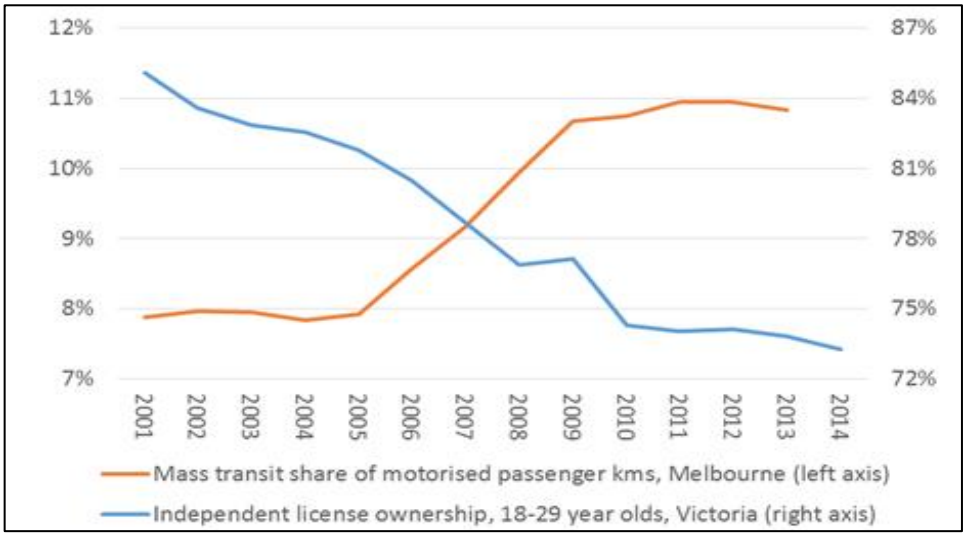
Another important facet of an holistic approach is how well our infrastructure adds to or detracts from the liveability of the State. The discussion paper emphasises how important this is, noting that:

> "By ABS estimates, in 2017 South Australia experienced a net loss of over 6,000 people interstate, primarily [to] Victoria, over 50% of which were in the 20-34-year age cohort."

Both the State government and Adelaide City Council are trying to arrest this by providing a more vibrant, diverse city centre. While the attractions of Melbourne to our young people are not confined to its transport, the Victorian government and Melbourne City Council have done a great deal in recent years to make the city centre appealing by reducing the dominance of cars, with such measures as:

- increasing the coverage of parking maxima
- a 40km/h speed limit in the city
- widening footpaths, and
- creating a network of separated bike lanes.

Today's young people are simply not as reliant on cars has their forebears. Between 2001 and 2014 the percentage of 18 year-olds with a driver's licence fell from 53% to 40%[7].



A 2017 update found that this trend is continuing, with 37% of Victorians aged between 18 and 24 not holding a driver's licence.[8] South Australia has experienced a similar though less dramatic decline.[9]

ISA should keep at the forefront of the government's mind the need to ensure that new infrastructure projects enhance rather than detract from the liveability of the City and suburbs, as well as our regional towns.

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6 Liang Ma and Runing Ye (2019) "Walking and cycling to work makes commuters happier and more productive" *The Conversation*, 5 July.

7 Source: Trends in driver's licence ownership in Australia, *Charting Transport*, 2015

8 RACV (2017) Young Adult Licensing Trends – 2017 Update, Research Report 17/2

9 Update on Australian transport trends *Charting Transport*, December 2018.

Environment

The other important element of holistic planning raised in the discussion paper is the environment. The paper asks: ***How can South Australia take the lead on reducing emissions from transport?*** It is stating the obvious that walking and cycling are the least polluting forms of transport, and we wish everybody would drive less and walk and cycle more, for the sake of the planet.

However, we recognise that active transport's mode share is small, and that even doubling the amount of walking and cycling would have a relatively small impact on our transport emissions. With such a large and growing proportion of our electricity now obtained through clean sources, a more effective policy would be to discourage access to infrastructure to internal combustion engine vehicles. Those riding bikes in traffic would certainly appreciate the cleaner air, as would those whose lives are cut short every year through air pollution.[10]

Optimising our transport infrastructure should include encouraging the transition from internal combustion engines to vehicles powered by electricity, and encouraging active transport.

Infrastructure for active transport is also more conducive to innovation. For example, Timbercrete makes a carbon-negative paver that could be used in footpaths. (The wood waste used in their production ties in with the SA's 2018 Carbon Sequestration Strategy.) Power-assist bike-buses can displace "mummy's taxi" trips – and provide valuable exercise – at a lower cost than school buses. And so on. Active transport also complements approaches that discourage private car ownership, for example by enabling car-share as an alternative to parking in statutory planning – as occurs in Victoria. Car-share cars are more likely to be electric than private cars, while having a car in the driveway is directly linked to the amount it is used. But residents who use car-share tend to walk or cycle for short trips, and need access to infrastructure for active transport that is both safe and convenient.

The need for more bicycle infrastructure

Examining the State government's professed strategic goals and considering these on an holistic basis, the value of bicycle projects is clear. Eventually Adelaide must do what creative, economically dynamic cities across the world are doing: prioritize active transport over the private car.

Without going into detail on what is needed, the infrastructure to cater for more cycling can be categorised at four levels:

1. For the average commuter, we need a network, not just bits and pieces. Following a blueprint pioneered by the Bicycle Institute, the State government has been putting together a network of Greenways – quiet routes, often off-road that in general link the CBD with the western, north west, north east and south western suburbs. But there are still huge gaps and we have yet to have a single continuous north south or east west protected route through the CBD.

   An inviting, safe network of protected bike routes would improve both the efficiency and productivity of our transport system.

2. For the more fearless commuters – and for those who don't have an alternative route – we need bike lanes on all arterial roads. While this is already a general policy, we need bike lanes that do not stop when they are most needed, and do not become non-operative during the day, forcing bike riders to swerve dangerously into the traffic to pass parked cars.

[10] Our driving choices can help us breathe easier, Medical Republic, 2017.

3. At this stage we do not know how broad ISA's remit will be – whether it will extend to the management of local streets. But these need to be safe for children to ride to school, both to encourage healthy habits and to reduce morning congestion to levels experienced during school holidays, will surely be important for the use of the State's infrastructure. Local streets should be designed and regulated for less than 40km/h traffic. Local streets should stop being prioritised for rat-running vehicles (as currently occurs at Magill Road/Sydenham Street, for example).
4. Cycling networks should be developed for recreation, both for better health and to encourage tourism. While we applaud the Government's commitment to the Great Southern Bikeway linking Adelaide and Melbourne, this should be built upon to create local tourism opportunities; say, by creating a loop through the McLaren Vale wine region, or the Limestone Coast (linking to passenger rail at Bordertown). Optimizing transport infrastructure in this respect could include ISA securing access to land under the care and control of the Australian Rail Track Corporation (which is in turn owned by the Federal government).

Appendix: A comparison of projects as to whether they support Strategic Plan targets

Strategic plan target	O-Bahn City Access Project	Darlington South Road expansion
Increase the use of public spaces by the community	≈	✗
Double the number of people cycling in South Australia by 2020	✓	✗
Ensure the provision of key economic and social infrastructure accommodates population growth	✓	✓
Reduce greenhouse emissions by 60% (to 40% of 1990 levels) by 2050	✓	✗
Increase the use of public transport to 10% of metropolitan weekday passenger vehicle kilometres travelled by 2018	✓	✗
By 2036, 70% of all new housing in metropolitan Adelaide will be being built in established areas	✗	✗
Increase by 5 percentage points the proportion of South Australian adults and children at a healthy body weight by 2017	✓	✗