South Australia's 20-Year State Infrastructure Strategy Discussion Paper

Submissions from Individuals

infrastructure.sa.gov.au

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Hello,

I have read through the strategy and I believe that there is a very limited focus for your light rail, and train networks over the next 20 years. It is however, the front cover of the discussion paper which is peculiar because, despite understanding that it makes a good cover shot, you aren't doing anything about it.

It is imperative that Infrastructure SA seek to provide equivalent funding for public transport infrastructure as you are to road construction.

Extensions to the light rail network are critical to deliver affordable housing close to shops and services. We can see that there are these types of housing already under construction on O'Connell Street in North Adelaide. It makes logical sense that the light rail is extended to at least North Adelaide and further into Prospect. This is a fairly simple >4km extension of the route, which would be extremely useful to locals and will drive significant development along the corridor.

Stage 2 would entail an extension to Norwood, another simple 3.1km extension. Unley could be Stage 3.

There are many options to extend the network and to have a 20 year strategy and not consider one, is very short sighted and not recognising the demographic change towards a generation which does not drive as much as older generations.

Trains should also be extended to growth areas as leading infrastructure not lagging infrastructure.

Light rail ridership has exceeded expectations in other states which have a proactive vision to construct lines and then extend services. Adelaide is lagging in this regard and it has a good foundation.

Yes it might be controversial to the locals, but it's not fair for the future generations coming after that they have to wait so long and embed driving into their daily habits.

Now is the time to catapult this network into the 21 century.

Thank you
Andrew Holmes

Submission to Infrastructure SA

Digital Empowerment for Regional, Rural and Remote Communities across Australia

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Version 1

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1. Introduction and summary

This submission to Infrastructure South Australia is in response to the South Australian 20-Year State Infrastructure Strategy Discussion Paper released for public consultation in October 2023.

The submission is primarily focussed on digital empowerment for regional, rural and remote communities and intersects with the discussion paper consultation questions across a number of the consultation themes and questions, summarised below:

Consultation Paper reference	Question
Chapter 4 The Economic Context	
Section 4.4 Our Productivity Challenge	1. What opportunities should we consider to improve South Australia's economic growth?
Harnessing digital technology and innovation across all aspects of our socio-economic system is paramount to future productivity and competitiveness. There are systemic barriers to ensuring regional, rural and remote communities can fully participate. This submission proposes a **digital community policy framework** at an Australian national level to address this. South Australia has a proud history of social innovation and vibrant regional communities which could pioneer this approach, aligned with the State's theme of 'A New State of Mind' and in partnership with Local Government and Australian Government programs including Regional Development Australia.	

Consultation Paper reference	Question
Chapter 5 Enabling Infrastructure	
Section 5.4 Digital Connectivity	5. What are the barriers to increased adoption of digital technology to improve productivity?
The availability of professional ICT skills in local economies is a major barrier to adoption of digital technology to improve productivity in regional, rural and remote communities. This submission proposes a policy framework to create the enabling environment needed for **digital community innovation hubs** to be developed primarily in the private economy to enable economically viable digital technology expertise to be fostered in these communities, strengthening regional economies and improving productivity across all aspects of our socio-economic system.	

Consultation Paper reference	Question
Chapter 6 Liveable and well-planned places	
Section 6.1 Coordinated planning	7. How can South Australia better coordinate infrastructure investment to support a growing population?
Regional, rural and remote communities need to be equipped with joined-up, data-driven visibility of planned infrastructure and its alignment with community social and environmental imperatives, including liveability, as populations grow. This submission calls for a framework and mechanism for **systems equity monitoring** to support community empowerment and actualisation.	

Consultation Paper reference	Question
Chapter 6 Liveable and well-planned places	
Section 6.2 Affordable housing	8. What can be done to support sufficient, fit-for-purpose housing to improve housing affordability?
Housing is part of a dynamic, market-driven accommodation ecosystem which plays out differently in different communities across our State. A data-driven understanding of this ecosystem and the supply-demand flow at a finer level of granularity will enable local communities, government, researchers, financiers and the development industry to better understand local conditions and opportunities to enable optimum investment and policy settings on the supply and demand side. This submission sets out a policy framework whereby **Digital Community Pioneer Communities** take a lead role in adopting digital technologies across wider, multi-disciplinary boundaries, to enable greater self-sufficiency,	

efficacy and equity of systems. Enabling sufficient and fit-for-purpose housing in communities should be one of the priority Pioneer system activities.

Consultation Paper reference	Question
Chapter 6 Liveable and well-planned places	
Section 6.4 Health and wellbeing	10. What investments would support a more efficient and productive health system that meets our growing and changing needs?

Health and Wellbeing are critical aspects of liveability. Despite best endeavours of all involved and record levels of financial investment, regional, rural and remote communities have poorer health and wellbeing outcomes. There is systemic disadvantage to these communities in the way the current systems operate. As above, this submission proposes a **Digital Community Pioneers Program** which should prioritise efficacy and equity in health and wellbeing. Pioneer Communities should be established to foster innovation in mass-personalisation of the health system, empowering individuals, families and whole communities to better understand their state of health and wellbeing, maximise preventative activities and behaviours, and optimise access to diagnostic and treatment options, using digital technologies to the maximum potential, and optimising the human experience where travel is a necessity. This will foster more innovation in the health system, enable more efficient use of resources and improve health outcomes.

Consultation Paper reference	Question
Chapter 7 Accessible and inclusive infrastructure	
Section 7.2 Regional and remote areas	13. How can we think differently about infrastructure investment to support equitable access and a more inclusive society?

This submission acknowledges and supports the three most frequently identified gaps in Infrastructure Australia's recent assessment of South Australia - being water security, digital connectivity and availability, diversity and affordability of housing. However digital connectivity is too narrow a focus and a broader digital empowerment approach is needed to enable equitable liveability in regional, rural and remote communities, compared with our major Cities across Australia. A framework for digital empowerment is proposed which includes policy proposals for fostering digital skills development and availability in local communities, a **Digital Community Pioneers Program** and a **Systems Equity monitoring** framework to enable greater visibility of progress towards equitable and inclusive outcomes for these communities.

Consultation Paper reference	Question
Chapter 8 A decarbonised, sustainable economy	
Section 8.1 Green industries	15. What infrastructure investments will support industries to transition to a global net zero future?

In this section of the Infrastructure SA discussion paper, authors make the point that: "South Australia's regional areas will be the cornerstone to our transition to a greener, decarbonised economy. Supporting new and emerging industries that enable growth requires a workforce in the right place with the right skills." With digital skills and transformation at the heart of new and emerging industries, it is vital to foster digital skills availability in regional areas. Fostering new and emerging industries in regional areas will require digital connectivity, digital skills availability and systems transformation in local communities. This submission calls for **Digital Community Innovation Hubs** and a **Digital Community Skills Availability** framework and monitoring platform to enable visibility of progress towards the enabling workforce needed for the future viability of regional communities.

Consultation Paper reference	Question
Chapter 8 A decarbonised, sustainable economy	
Section 8.3 Transitioning transport	17. What are the most significant challenges for decarbonising transport and how do we address them?

A major contribution to de-carbonising transport would be to target road freight and private passenger car traffic for innovations in monitoring and encouraging transformative

behaviour. For example, innovative use of AI can introduce new ways to monitor heavy goods transport on key freight routes to identify older vehicles and curate options for operators to upgrade, including matchmaking with schemes for low cost capital fleet investment. For private passenger car users, using data to illustrate how small changes in behaviour can influence systems-level transformation would be beneficial. For example, for a regular commuting route, what are the alternative options to using a fossil-fuelled vehicle and how do they compare in cost, environmental impact and convenience? If certain fossil-fuel car trips are substituted, how would this impact the whole system if various percentages of peer groups did the same? Can innovative monitoring systems enable individuals to share their substitution behaviours and rate alternatives, encouraging peer behaviour change? Can monitoring data be used to highlight innovation opportunities for entrepreneurs and public services? For example, would public transport providers benefit from understanding barriers to passenger car substitution behaviour along various routes? Are there entrepreneurial opportunities for bicycle concierge, storage, security, maintenance and other supports in the City which organisations might support for their commuting staff?

In regional, rural and remote communities, enabling heavy vehicle fleet renewal, and substituting heavy vehicle road freight or private fossil-fuelled passenger car trips would be beneficial, particularly if the community has visibility of the change, enjoys the benefit of the change and is recognised for enabling and encouraging this. For example, could some heavy vehicle trip substitution lead to more localised secondary or tertiary processing, or more shared cold storage or transport?

These are the types of systems changes that digital technologies can help to orchestrate. This submission calls for the establishment of a common **Digital Community Systems Equity** Framework and mechanism for measuring and reporting on systems equity across all aspects of the socio-economic system, including transport, enabling communities to self-organise visible progress towards net-zero.

Consultation Paper reference	Question
Chapter 8 A decarbonised, sustainable economy	
Section 8.4 A circular economy	18. What action is needed to achieve a circular economy in South Australia?

Moving to a circular economy is essentially an information problem, an economic cost-of-handling problem and a recycling materials technology problem. Across our socio-economic system, the concept of 'waste' is predominantly the result of the scaled, siloed, modern economic system where activities have become disassociated from their upstream or downstream environmental (and social) impact. Responsible Environment, Social and Governance (ESG) reporting and related voluntary and regulatory frameworks are slowly gaining momentum across the system but a more dynamic, granular and data-driven approach is needed to match so-called 'waste' outputs to input opportunities across the economy, and to identify gaps which materials research and the private economy can take up, with capital support from government at each level, including international climate finance which South Australia should target for investment opportunities in partnership with the Australian Government.

This is another example of systems transformation which aligns with the **Digital Community Systems Equity** Framework highlighted later in this submission.

Consultation Paper reference	Question
Chapter 8 A decarbonised, sustainable economy	
Section 8.5 Infrastructure delivery	19. What measures can be taken to enable the infrastructure industry to decarbonise?

One of the challenging aspects of the infrastructure industry is the accumulative burden that hard infrastructure places on future generations in terms of maintenance/cost of ownership and environmental impact. Across all aspects of our socio-economic system, there is a need to optimise the balance between social, socio-economic and environmental demands to enable adaptable, resilient and 'just enough' infrastructure for human activities whilst minimising the ownership burden to future generations and minimising harm or,

ideally, regenerating the natural environment. This is a collective responsibility which is hard to instil in individual organisations or sectors. New governance models are needed to enable visibility and optimal operation of this collective responsibility.

At individual project level, there is a lag effect with industry take-up of new construction materials and techniques. Publicly-funded works should be more proactively used to address this lag with measured and prudent risk-taking to encourage industry reskilling and viable take-up of new materials, supply chains etc.

For individual projects, use of digital technologies to more readily and speedily align with multiple planning schemes and regulatory frameworks are becoming available. Perhaps a substitution scheme can be introduced to fund the gap between the proponents ability to fund at a certain level of clean efficiency/adaptability and a more optimal level for longer term community good.

For existing infrastructure, one of the underutilised monitoring techniques is utilisation itself. A focus on utilisation monitoring can uncover opportunities for shared access or repurposing to ensure maximum value of existing infrastructure. This can include public and private infrastructure, even to the extent of commercial properties and the housing stock. Rather than punishing underutilisation, perhaps it might be more effective to reward higher utilisation, possibly through the rates, taxation or other measures.

In regional, rural and remote community settings, it is more prevalent to share infrastructure across domains but there are still many barriers to optimising utilisation of infrastructure. One of the **systems equity** mechanisms we could explore in regional community settings is a focus on enabling shared infrastructure through utilisation monitoring and shared governance models. Planning innovations are also an opportunity in these communities, with successful pioneer models scaled for larger communities and Cities over time.

Consultation Paper reference	Question
Chapter 10 A stronger infrastructure industry	
Section 10.2 Digital technology	24. How can we maximise the productivity benefits of digitising our infrastructure?

More innovative use of digital technologies and new governance models can be combined to address both the visibility of the infrastructure program pipeline and the need to maximise productivity benefits from digitisation. Regional South Australia is already providing a more joined-up picture of investment pipelines across the public and private system through the SA Government's Primary Industries and Regional SA (PIRSA) Department and Regional Development Australia (RDA) mechanism. Improving the systemisation of this approach will yield greater returns for regional investment and set a standard for pipeline visibility that the whole State can harness. Regional, rural and remote communities are ideal pioneers for digitisation innovation because the feedback loop to societal-level benefit is tighter and smaller scale proving grounds lead to faster innovation. The **Digital Community** policy proposals in this submission provide a framework for holistic adoption of digital innovations in these communities, empowering regional, rural and remote communities whilst establishing the pathway for improved productivity across the State.

2. Digital Empowerment Framework

Throughout the development of human civilisation, waves of technological change have fostered major reorganisations of human communities and systems. We are in the midst of another such reorganisation, triggered by exponential gains in computing capability and innovations in artificial intelligence and other fields impacting every aspect of human society.

Some call this the digital age, some refer to it as the information age or the global age of human civilisation.

Whatever it's called, as innovation races ahead, there is a distinct danger that systemic bias can creep in, disadvantaging certain people groups and communities, with a heightened risk that some will become disenfranchised from broader society.

To mitigate this risk, the policy response from governments have focussed mostly on digital connectivity, whilst civil society organisations have focussed on digital inclusion.

There has been much positive progress with digital connectivity and digital inclusion across these communities, but there is still much to do.
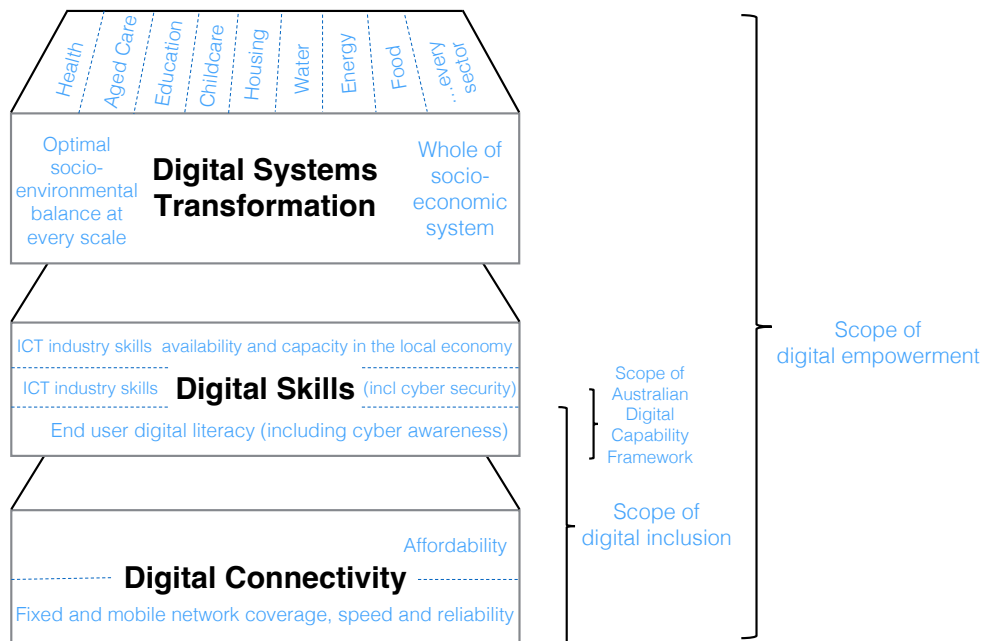
The main purpose of this paper is to table the need for a broader 'digital empowerment' policy approach to more effectively support the future of regional, rural and remote communities across Australia.

Digital empowerment is not about technology. It is about people…and specifically how people in communities can better harness digital technologies to support their individual and collective way of life, their health and wellbeing, and their sustainable, peaceful and prosperous future.

Further sections highlight a number of digital policy opportunities to support socio-economic development for regional, rural and remote communities by broadening our attention from digital connectivity and digital inclusion to the wider aspects of digital empowerment.

To understand digital empowerment in the socio-economic development context, it is helpful to consider the following three-layer stack of policy zones as illustrated overleaf:

Health | Aged Care | Education | Childcare | Housing | Water | Energy | Food | ...every sector

Optimal socio-environmental balance at every scale **Digital Systems Transformation** Whole of socio-economic system

ICT industry skills availability and capacity in the local economy
ICT industry skills **Digital Skills** (incl cyber security)
End user digital literacy (including cyber awareness)

Affordability
Digital Connectivity
Fixed and mobile network coverage, speed and reliability

Scope of Australian Digital Capability Framework

Scope of digital inclusion

Scope of digital empowerment

2.1. *Digital Connectivity*

This is the base policy zone which includes the key elements of digital voice and internet connectivity, coverage (ensuring the network reaches everyone), performance and resilience/reliability/security of the network itself, plus the concept of affordability for end users. This is where government telecommunications and internet policy and the industry dynamics are most relevant, including structural elements such as the separation of wholesale and retail markets to drive competition, coverage and affordability measures.

In Australia we have a strong telecommunications and internet industry, the government-funded National Broadband Network (NBN) and many helpful Australian, State and Territory Government programs such as the National Black Spot program and others that seek to improve coverage, resilience and security of the network.

There are also a number of key government, community and research initiatives, most notably the Australian Digital Inclusion Index (ADII) supported by the Royal Melbourne Institute of Technology (RMIT), Swinburne University of Technology and Telstra who carry out important research and advocacy for affordability, inclusive access for all and digital literacy skills development.[1]

The Australian Government has established the Regional Tech Hub program in partnership with the National Farmers Federation and the Australian Communications Consumer Action Network to provide independent advice for regional Australians choosing from the various digital connectivity options available.[2]

But even with these multifaceted efforts, there is still much to do in this policy zone to ensure regional, rural and remote communities are fully enfranchised in digital age society.

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[1] https://www.digitalinclusionindex.org.au
[2] https://regionaltechhub.org.au

The important role of regional data centres in building a resilient, performant and inclusive digital connectivity fabric for Australia needs to be better articulated and understood to ensure these facilities are incorporated into regional development plans.

2.2. Digital Skills

Above this base layer is digital skills, this includes both digital literacy for end users but also, importantly, the availability of professional Information & Communication Technology (ICT) / digital industry expertise and support in the local economy.

In this policy zone it is important to highlight again the important work of ADIA which covers the digital literacy aspects of skills development, particularly focussing on end user citizens and the social disadvantages that result from the digital divide.

Also of note in this zone is the work of the Australian Government Department of Employment and Workplace Relations who have produced an Australian Digital Capability Framework[3], adapted from the European Commission's 'Digital Competence Framework for Citizens'. This is at an early stage of development. It seems to be spanning both 'user' digital skills and a generalised level of professional 'expert' ICT industry skills, at least to a certain extent.

A **digital empowerment** approach builds on this by adding in the industrial policy needed to develop the professional ICT industry skills capacity and, most importantly, the availability of these skills in local economies.

Australia cannot fully harness the value of digital technology and innovation in regional, rural and remote communities if professional ICT/digital industry people and services are not readily available in local economies, but are instead concentrated only in our large cities.

It is in the nature of regional, rural and remote communities to look to their local resources for trusted advice and expertise. If it is not readily available, this becomes a major constraint on the take-up of digital technology and innovation opportunities.

The recent 'Growing Australia's Digital Skills' Report[4] by the Digital Skills Organisation (now Future Skills Organisation[5], a Jobs and Skills Council funded by the Australian Government Department of Employment and Workplace Relations) highlights the growing supply and demand gap for workers with digital skills, defining these broad categories:

- Digital expert workers – those requiring specific digital skills as central functional skills
- Digitally enabled workers – those relying on digital skills to augment their functional skills
- Digitally informed workers – requiring digital literacy but negligible need for specific digital skills

It is clear from the report that Australia needs to urgently address this supply and demand gap for digital skills across the workforce.

The gap is exacerbated in regional, rural and remote communities if digital expert workers are mostly clustered in our major Cities.

Australia needs a vibrant digital technology and innovation industry and ecosystem that fully involves and includes regional, rural and remote communities, connecting with local businesses (typically micro, small and medium enterprises), government entities at all three layers and community organisations.

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[3] https://www.dewr.gov.au/skills-and-training/resources/australian-digital-capability-framework
[4] https://digiworkforce.futureskillsorganisation.com.au
[5] https://www.futureskillsorganisation.com.au

It is important to note that all aspects of the socio-economic system, including both the private economy of businesses, and public social services such as health clinics, schools and local councils, are constrained by limited capacity of locally available ICT/digital industry expertise in regional, rural and remote communities.

2.3. Digital Systems Transformation

The third and top-most policy zone is digital systems transformation. Sometimes called 'digitisation', it might be more accurately referred to as 'digital technology and innovation-powered systems transformation'. This refers to transformation of systems across the whole socio-economic fabric – health, aged care, education, justice, housing, water, energy, food, transport and every other sector.

Digital technology and innovation is permeating every aspect of human endeavour – every public service, every industry sector, every research field. It is also transforming society at every scale, including our lives as individuals, the way households operate, community fabric such as local transport systems and services (eg. electric scooters, ride-sharing, on-demand food and grocery delivery) and national-scale operations such as electronic health records, electronic prescriptions and digital driving licenses.

There is a symbiotic link between the three policy zones of digital connectivity, digital skills and systems transformation, but it is this latter digital systems transformation layer which provides the return-on-investment for digital connectivity and skills development.

Notwithstanding the sub-economies within these three layers, improvements in the efficacy, equity and productivity of socio-economic systems, including all industry sectors and all public services, provides the true value of digital technology and innovation to the nation.

This is also the key to lifting Australia's declining productivity performance. The Australian Government Treasury's '2021 Intergenerational Report' highlights the slow rate of innovation and technology adoption as a key contributor to this decline.[6]
There is much evidence that many sectors, such as the health[7] and aged care systems[8], the education system[9] and even the food[10], water[11], housing[12] and childcare[13] systems are working at a significantly lower level of efficacy in many regional, rural and remote communities when compared with major cities.[14]

In some sectors, there is a 'one size fits all' mentality to systems design, including compliance policy established with a dense population mindset, which is exacerbating the problem rather than assisting systems equity.

Evidenced by the outcomes measured in various sectors, particularly health and education, this disparity highlights an existing systemic disadvantage to regional, rural and remote communities across Australia.

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[6] https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/pubs/BriefingBook47p/AustraliasProductivitySlowdown

[7] https://www.aihw.gov.au/reports-data/population-groups/rural-remote-australians/overview#:~:text=For%20example%2C%20data%20show%20that,those%20living%20in%20metropolitan%20areas.

[8] https://onlinelibrary.wiley.com/doi/full/10.1111/ajr.12770

[9] https://www.themandarin.com.au/144887-barriers-to-education-in-rural-and-remote-areas/

[10] https://ruralhealth.org.au/11nrhc/papers/11th%20NRHC%20Young_Michelle_A7.pdf

[11] https://www.anu.edu.au/news/all-news/remote-australians-lack-access-to-quality-drinking-water#:~:text=Australians%20in%20more%20than%20400,Australian%20National%20University%20(ANU).

[12] https://chl.org.au/wp-content/uploads/parity_vol36-4.pdf

[13] https://regionalaustralia.org.au/Web/Web/Media/Media-Releases/2023/New_report_shows_critical_gap_in_regional_childcare.aspx#:~:text="We%20know%20that%203.7%20million,childcare%2C"%20Ms%20Ritchie%20said.

[14] https://infrastructure.org.au/remote-communities-improving-access-to-essential-services/

This is not the fault of any one party, whether political or administrative or industry associated. It is rather a general systems effect based on the underlying economic system, settings, drivers and human teaming/organisational factors.

In sectors such as health, there is understandable centralisation of specialist equipment, teaming and services for safety and affordability reasons. However, there is sub-optimal implementation of digital systems to support regional, rural and remote communities to operate as self-sufficiently as necessary and sub-optimal alignment of transport, accommodation and other facilities to enable equitable access to centralised, distributed or travelling facilities when needed. Current socio-economic analysis methods do not provide the framework, granularity or dynamism to assist communities with optimising their local socio-economic environment.

There are considerable resources and dedicated, committed people at all levels, working diligently to assist regional, rural and remote communities, both from within communities themselves and throughout public policy, from parliamentarians through to government administrators, nonprofits, academia and industry. However, these collective efforts are currently highly fragmented and are not enough to counter the general systems effect.

This wider impact of systemic disadvantage on the future of regional, rural and remote communities is the true challenge of the digital divide.

Without more deliberative attention to this challenge, there is a significant risk of a widening socio-economic gap and a two-speed economy between our major cities and our regional, rural and remote communities.

A new paradigm of policy design and digital age socio-economic monitoring instrumentation for more dynamic and granular measurement of public policy effectiveness is required.

3. Digital Policy Opportunities

Digital divide policy response by Australian, State and Territory Governments have focussed mostly on the digital connectivity policy zone to date.

In the light of rapid advances in digital technologies such as artificial intelligence, quantum computing, augmented/virtual reality and other key innovations, it is vital to ensure regional, rural and remote communities are fully enfranchised in the changing socio-economic environment.

There are many initiatives for digital systems transformation and skills development underway which have elements of support for regional, rural and remote communities, but these are highly fragmented and difficult to join up to assess overall progress.

An overarching policy and framework is needed to enable a more systemic, measurable and self-organised approach for communities to navigate their pathway to local optimisation of liveability.

For discussion purposes, the following six key policy opportunities, two for each policy zone, are highlighted under a broad *Digital Community* policy umbrella:

3.1. Digital Community - Pioneers Program

In the digital systems transformation policy zone, Australia should establish 'Pioneer Communities' to act as focal points for designing, implementing, monitoring, iterating and showcasing optimal digital systems implementations across various aspects of the socio-economic system.

These aspects should encompass holistic and foundational liveability themes such as health & wellbeing, housing, food and water systems, community safety, education, childcare and all other key aspects, including skills development and employment for existing and aspirational industrial sectors operating in the local economy.

These Pioneer Communities should be established to showcase and share knowledge around the most optimal place-based connection between their local socio-economic system and the regional, state, national and global systems that they are operating within.

This approach enables focussed participation by regional, rural and remote communities in digital systems innovations to lift liveability whilst enfranchising communities into the digital age socio-economic system.

It enables a community-centric mechanism for joining up research and development efforts, providing improved pathways to commercialisation for Australia's deep research capability, whilst more effectively harnessing the creativity, pragmatism and civic pride of local communities.

The approach also aligns with circular economy, net zero, clean energy optimisation and supply chain resilience imperatives across the country.

By allocating specific but overlapping themes to multiple Pioneer Communities, Australia can ensure coherent coverage of all the key systems needed for truly equitable liveability in regional, rural and remote communities.

Coupled with a comprehensive knowledge-sharing program platform, this will improve digital systems knowledge disbursement throughout the nation, enabling Australia to become a leading light for global challenges in regional, rural and remote community self-actualisation.

3.2. Digital Community – Systems Equity Framework

Also in the Digital Systems Transformation policy zone, Australia should establish a common framework and mechanism for measuring and reporting on systems equity across all aspects of the socio-economic system, introducing a more thematically-holistic, time-sensitive and place-granular approach to measuring community liveability aligned with frameworks such as the UN Sustainable Development Goals and emerging environmental, social and governance reporting frameworks.

This should combine data-driven and ethnographic evidence to provide an ongoing ability for Australian communities to monitor and carry out the integrated planning needed to improve their local liveability environment. Lead indicators should be established for more timely response to systems-level fluctuations with longer term investment cycles such as housing, health, energy, water and transport needs.

3.3. Digital Community Innovation Hubs

In the digital skills policy zone, the current focus of digital inclusion only extends to end-user digital literacy.

Australia needs ICT/digital industry professionals and firms to be present, operating and employing people in regional, rural and remote communities. New industrial development policy is needed to incentivise this.

To this end, Australia needs a new fabric of connected **Digital Community Innovation Hubs** in all communities to act as nodes of the digital innovation ecosystem, connecting the vibrant and burgeoning City digital innovation ecosystems with our regional, rural and remote communities.

This is differentiated from libraries and community services hubs which should continue to build on the highly valuable assistance they provide with digital literacy, citizen support and service accessibility, but are not the appropriate environment for digital innovators, startup and scale up entrepreneurialism.

It is also differentiated from tertiary education institutions and initiatives such as Uni Hubs[15], TAFE etc. but these can be part of an interconnected environment which enable pathways for young people into new forms of work and career development.

These may be best established as a self-organising network of hubs in the private economy with support from three tiers of government, industry, the research/academic system and the local communities themselves. The form of these hubs should be tailored to local community conditions, driven by collaboration and led by local community champions, ideally as financially-viable enterprises in their own right.

The benefits of this approach include:

- Enabling community-minded local entrepreneurs to work in the local context to establish and adapt digital innovation hubs to local community needs.
- Creating opportunities for much-needed adaptive re-use of commercial property in regional, rural and remote communities.
- Surfacing existing local digital expertise and capacity that is currently hidden and disconnected from local community economies.
- Enabling a focal point for digital innovation and program, events, activities in the local community.
- Creating a 'go-to' connection point for local organisations to source and share digital capability.

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[15] https://unihubsg.org/how-does-it-work/

- Enabling a two-way synchronisation of digital innovation and knowledge sharing between City and Country Australia.
- Surfacing greater opportunities for ICT/digital industry professionals and firms to operate viably in regional, rural and remote Australia, effectively seeding the growth of Australia's ICT/digital industry across the nation.
- Creating a tangible opportunity to support multi-cultural diversity and inclusion of people in the local community including First Nations/Aboriginal and Torres Strait Islander peoples through initiatives such as First Tech Nation[16].
- Opening up the potential of an 'innovation visitor economy' whereby digital innovators and entrepreneurs are encouraged to visit and connect with different local communities to share knowledge and build collaboration.

Digital Community Innovation Hubs need to be recognised as strategically important infrastructure in regional, rural and remote communities and should be eligible for infrastructure funding support through programs such as the Australian Government's Growing Regions Fund. The hubs will play an important role in the future liveability of communities by enabling the knowledge sharing, digital economy participation and social systems innovation needed for communities to thrive in the digital age.

Initial discussions on this initiative in South Australia are highlighting the following challenges:

- Small co-working hubs are not sufficiently profitable as standalone business enterprises to attract sustained private sector investment.
- Connecting hubs into a cohesive network creates opportunities for resource-sharing and shared practice management to identify efficiencies and additional revenue opportunities to enable long term sustainability.
- There is a need to equalise the support given to City-based digital innovation hubs, particularly for capital costs such as property refurbishment and operating costs such as property lease, community host personnel, internet access and energy costs.
- There is a need to foster local community support and recognition of the value of digital innovation hubs and the people that champion/pioneer them in local communities.

3.4.   Digital Community - Skills Availability Monitoring

Also in the digital skills policy zone, a framework and monitoring platform for measuring and reporting on the availability of professional ICT industry skills capacity in the local economy is required.

The extent to which local communities can effectively harness digital technology to optimise systems across socio-economic priorities needs to be measured to ensure Australia addresses capacity issues effectively.

The Digital Community Innovation Hubs mentioned above may be ideally placed to handle this measurement and reporting requirement.

There may also be an opportunity to build on the existing ADIA approach to measuring digital literacy in communities, extending it to this broader professional ICT/digital industry skills capacity aspect, perhaps in collaboration with the emerging strategy of the Future Skills Organisation.

3.5.   Digital Community - Mobile Service Freedom

In regional, rural and remote community settings, it seems inappropriate for mobile phone services to compete on coverage. It would be preferable to be structured to compete on customer service quality and price. The opportunity that Neutral Host[17] technology brings,

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[16] https://allianceict.com.au/home#3661b9b4-7289-4a96-a77a-9a31d0de4159
[17] https://www.baicommunications.com/infographic/what-is-a-neutral-host/

where telecommunication towers, equipment and services can be configured to enable access by any Australian Mobile Network Operator (MNO), enables mobile phone users to access multiple providers' coverage seamlessly…and can reduce the need for multiple towers to service the same coverage area.

Australia needs a coherent approach to an abstracted 'regional, rural and remote Australia' mobile network environment whereby existing network operators are contractually linked to effectively enable mobile users to stay connected whilst moving between mobile operator networks.

This seems to be an ongoing, contentious area of telecommunications policy which is much less visible in City settings but impacts greatly on regional, rural and remote communities every day. It is an imperative for Australia to address this core, foundational aspect of inequity between City and Country liveability in the digital age.

3.6.   Digital Community - Resilient Network Rating

Measurement of progress in the digital connectivity policy zone should be extended to include the resilience of the entire digital network mesh serving a community, incorporating fibre-optic and other physical cabling, wireless including mobile and microwave services, satellite innovations in low, mid, geo-stationary orbit and other network connectivity innovations.

This should also incorporate the availability of regional data centre capacity to strengthen resilience and improve stability and performance of the network in regional, rural and remote communites.

A framework and monitoring platform to measure and report on the resilience of this network mesh is required for each regional, rural and remote community.

The optimisation of this local network mesh should be weighed against the local risk conditions including flood, fire and other locally-applicable risks, along with the prevailing economic development plans for employment, infrastructure and population growth.

This will assist with identifying the key opportunities to reduce vulnerability and maximise the resilience to ensure the network becomes a firm foundation for community digital systems transformation and liveability into the future.

The combination of this resilient network rating, together with the digital skills availability monitoring and systems equity monitoring, represent core instrumentation required for managing socio-economic development in the digital age.

Purpose

The Framework is a new approach to how the Australian Government delivers regional investment – valuing local voices and priorities, being informed by and building the evidence, operating with flexibility, integrity and transparency, and coordinating across governments to make investments work better for regions. It provides an integrated and coordinated framework for regional development regardless of a region's economic circumstances.

Guiding Principles – *applied across all Australian Government investments in all regions*

√ Realising the Government's ambition of "no one held back and no one left behind" requires specific regional investment across all portfolios.

√ Sustainable regional investment enhances liveability and builds economic and social resilience.

√ Maximising investment impact in regions requires building on each region's unique strengths, including helping regions undergoing significant economic change to transition or adapt to specific structural challenges.

√ Place-based decision making that draws on the experience of local government alongside regional bodies must guide investment in our regions.

4. Alignment with the Regional Investment Framework

Digital empowerment aligns closely with the Australian Government's recently-announced Regional Investment Framework (RIF).[18]

In particular, this approach supports all four of the RIF priority focus areas:

Priority Focus Areas – *our investments in regions will have key objectives across all Australian Government portfolios*

√ Meeting the needs of, and providing opportunities for, First Nations people.
√ Supporting the transformation to a net zero economy and decarbonisation. √ Achieving gender equality.

Investing in People	Investing in Places	Investing in Services	Investing in Industries and Local Economies
Putting people at the forefront of growth, with local voices influencing decision making.	*Targeted and place-based investment that enables communities to thrive.*	*Investment in regional services with a focus on improving quality and accessibility.*	*Ensuring regional industries and economies are positioned for sustainable growth.*
√ Listening to local voices and partnering with communities. √ Targeted investment in skills, education, training and local leadership capacity.	√ Supporting adaptive, accessible, sustainable and liveable regions. √ Delivering infrastructure where and when it is needed.	√ Enhancing connectivity, accessibility and equity of services. √ Investment including across communications, health, water, and transport.	√ Investment to help activate economic and industry growth. √ Supporting the conditions needed for industries to diversify and grow.

Implementation

The Framework guides the Government's approach to design and delivery of regional initiatives. It will influence decision making in Budget processes, drive meaningful collaboration across and between governments, embed data and evidence to support better outcomes, and ensure local voices are heard and influence responses.

- **Investing in People**

  Establishing digital community innovation hubs will invest key skills in the local economy, connecting local communities with their own local digitally-skilled people whilst lifting the development of digital skills capability and capacity to benefit all aspects of liveability.

- **Investing in Places**

  Introducing place-based monitoring of digital network mesh resilience, skills availability and systems equity enables greater visibility of investment priorities and opportunities. Establishing mobile phone service freedom, digital innovation hubs and digital pioneer communities represent both direct investments and strategic mechanisms to optimise place-based investment and return-on-investment into the future, enabling more resilient, responsive and prosperous communities.

- **Investing in Services**

  Improving access to professional ICT/digital industry skills and firms in local communities will enable more effective use of digital technologies and innovation for service delivery. Establishing digital pioneer communities will optimise use of digital technologies for service provision in regional, rural and remote community settings.

- **Investing in Industries and Local Economies**

  Establishing a firmer foundation for digital connectivity, digital skills and systems transformation will lift local industries and economies to higher levels of productivity and empower communities to match local conditions with optimal use of enabling technologies for economic development and socio-environmental balance.

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[18] https://www.infrastructure.gov.au/sites/default/files/documents/regional-investment-framework-july2023.pdf

5. Opportunities for the RDA network

Regional Development Australia (RDA)[19] is a national network of local committees and teams supporting the development of Australia's regional, rural and remote communities.

There are several opportunities for RDAs to support digital empowerment and align these efforts to achieve the aims of their Charter[20].

5.1. RDA digital transformation

The RDA network itself can harness digital technology and innovation to better deliver its charter – in particular:

- Using data analytics to join up economic, social and environmental data to support the evidence for economic development priorities and initiatives across their region.
- Using digital platforms to encourage and facilitate collaborations across the three tiers of government, industry, academia and community organisations for their region, with a particular focus on the investment pipeline for regional community industry, social infrastructure, circular economy and clean energy initiatives.
- Using digital platforms to improve operational efficiency and support knowledge sharing across the national network.

The Australian Government is developing some helpful resources such as the Regional Data Hub[21] and a national portal for RDAs.

To enable this, it is recommended that RDAs include digital technology and innovation experience in their skills matrix for appointments to Committee Boards and establish Chief Technology Officer roles or similar in their executive teams where possible.

5.2. RDA support for digital empowerment

RDAs can play a key role in assisting digital connectivity, digital skills availability, and systems transformation in each of their regions.

For digital connectivity, RDAs can assist the collection of evidence to support the socio-economic value of mobile phone service freedom and assist with building the joined-up view of digital network resilience rating across their regions and communities.

For digital skills, RDAs can help measure and attract professional ICT/digital skills into their regions and communities by assisting the development of digital community innovation hubs.

For systems transformation, RDAs can support the establishment of digital community pioneers for particular thematics in their regions, assist with knowledge sharing on systems effectiveness impacting regional, rural and remote communities nationally and provide local intelligence and data to highlight the state of systems equity in communities across their region.

Capital City RDAs can play a particular role to assist their regional RDAs and communities across their region by helping to connect the City-based digital innovation ecosystems with country communities through the envisaged digital community innovation hubs.

This aligns with the shared vision for strong, connected regions where people, businesses and investments thrive.

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[19] https://www.rda.gov.au
[20] https://www.rda.gov.au/sites/default/files/documents/rda-charter.pdf
[21] https://www.regionaldatahub.gov.au/home

6. Summary

Australia's socio-economic systems need to work differently but equitably between City and Country to ensure the nation has a future where regional, rural and remote communities are fully enfranchised in digital age society, ensuring sustainable, peaceful and prosperous futures for all.

More deliberative and granular policy design, adaptive implementation and digital age monitoring instrumentation is needed across all three policy zones of digital connectivity, digital skills and digital systems transformation to enable this.

Digital empowerment is a foundational, cross-cutting issue. In other words, it isn't about comparing the priority of digital empowerment with themes such as housing, workforce, water, childcare etc. which are all critically important topics for regional, rural and remote communities. Digital empowerment underpins all of these by enabling a more inclusive system of communications, knowledge-sharing, collaboration and systems transformation which empowers communities with a more coherent understanding of their own local capabilities, their state of self-sufficiency and the opportunities to partner with the wider economy more productively for local benefits.

Digital empowerment should be a key theme of ongoing policy debate and discussion for regional, rural and remote socio-economic development, including the Regional Development Australia program, across Australia.

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Please feel free to contact the author via LinkedIn below:

Christopher James Sampson

https://www.linkedin.com/in/chrisjsampson

From:	David Read ███████████████████████
Sent:	Wednesday, 15 November 2023 8:56 AM
To:	Infrastructure SA
Subject:	State Infrastructure Strategy Discussion Paper (20 Years) Consultation - City of Victor Harbor

███████████████████████████████████

Apologies for the lateness. Please find below some comments to consider regarding the *State's 20 Year Infrastructure Strategy – Discussion Paper* recently on consultation until 13 November, 2023 :

1. The Strategy needs to include more of a social, educational and health focus and, for these to be emphasised further within the definition of 'infrastructure' (page 6), particularly should this Strategy/Plan be the correct strategic sphere in forward planning for the State's education and health systems (as the Strategy partly implies)
2. The Strategy should align and intimately connect with the *Greater Adelaide Regional Plan* (GARP) more regarding the co-ordination of land use with infrastructure planning and delivery (page 21). Alternatively, there may be a need to have one combined Strategic Plan and include all elements e.g. social, economic, environmental and governance/political
3. It is useful having an 'Economic Wellbeing' indicator (page 14) as this appears to not always be simply growth focussed e.g. linking public health to GDP is useful (page 25)
4. A decarbonised future for SA needs to have a greater benefit than just economic factors (as implied on page 34) e.g. include social and environmental
5. Decarbonising, recycling and confronting 'end of life waste streams' (page 38) are all encouraged and aspirational, as they promote the principles of a circular economy and value adding, working towards achieving 'green industrialisation' (page 35) e.g. 'Battery Value Chain' (page 19). Such opportunities need to be explored and aggressively encouraged further.
6. There is opportunity to identify, build-on and enhance existing facilities and assets/infrastructure to promote public health and wellbeing, not always requiring new e.g. Tour Down Under (local roads), mountain biking and trails (existing parks), triathlons (existing lakes, water fronts) etc.
7. Education is important (and access to it) – Strategy needs greater emphasis and provide direction here, if this is the correct Strategy (as per comment 1 above)
8. Concrete, steel and aluminium alternatives – find opportunities in SA and promote research and development to seek and create new industries here (page 39)
9. Procurement processes (all tiers of government) needs to lead the way even more-so (page 38) for growing and promoting the circular economy
10. To take Climate Change actions, targets and emergency declarations seriously, this will require significant change and a paradigm shift in the way people in SA will live and work. This Strategy, as well as others such as the GARP, must lead the way in promoting future inter-generational planning

Could you please confirm receipt of this correspondence, thanks !

Regards,

David Read | Strategic & Policy Planner

████████████████████████████████

For consideration - Roofing in S.A.

I am concerned that in all new housing developments in the new outlining suburbs of Adelaide, a huge majority of the rooves are black colour bond !

If the rooves were painted white, along with tree planting in these days of global warming, whole suburbs
could be some degrees cooler.

I have read many international reports that state that a paint has been developed which is whiter than white and which is being trialed in some suburban areas in the USA and other countries.

These responses to climate challenges need investigation.

To give you a real life example: 5 years ago I built a new home at Wirrina Cove and requested from the council that I have a white roof on my property. The council refused and would only allow an off white/ grey roof with no reason for their refusal of my white roof request.

I am looking forward to some feedback on this subject from your department as these matters are significant.

Dennis Ferrett ████████████████████████████

Strategy Team
Infrastructure SA
GPO Box 2343
Adelaide SA 500

Email infrastructure@sa.gov.au

Dear Ms Hage

This Discussion Paper provides an opportunity for South Australians to engage in the infrastructure projects we need for the next 20 years to support a growing economy that improves the prosperity of all South Australians.

I understand you are interested in 'major or 'game-changer infrastructure investments. This major infrastructure opportunity relates to Consultation Question 9, expanded to How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

As the Discussion Paper recognises, this issue strongly connects with our state's liveability,[1] as public transport is an essential element of liveability, if not the only one. [2] Good public transport has many benefits, and the Discussion Paper identifies some of them as providing *efficient and affordable transportation options for all to access* and supporting *the movement of labour.[3]*

An integrated transport system consisting of tram, rail, and bus routes linked by underground stations in the CBD will make the most of existing and future developments in public transport. For instance, another light rail system that could connect Adelaide Airport and the expanding outer suburbs, as proposed in the *Greater Adelaide Regional Plan,* could be better serviced by passenger rail in a more timely manner.

Furthermore, these initiatives include active transport networks for cycling, walking and emerging options such as e-scooters and e-bikes.

Building upon the Transport Action Network initiative,[4] Infrastructure SA could introduce a game changer in public transport, particularly relevant to social issues such as climate change, cost of living, affordable housing and social cohesion.

I look forward to hearing the outcomes of your consultation and, notably, to establishing an integrated transport and land use plan in consultation with the community and other state and federal government bodies.

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[1] Refer to page 23-24 of the Discussion Paper.
[2] See for instance Economist Intelligence Unit's Global *Liveability Index* which uses five catagories which are stability, healthcare, education, culture and the environment, and infrastructure.
[3] Discusssion Paper, page 23.
[4] See *In Daily* report by David Washington at https://indaily.com.au/news/2023/11/08/adelaide-underground-rail-key-to-transport-vision/.
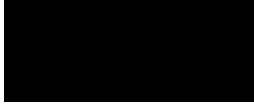
I appreciate your consideration.

Yours sincerely

███████████

Elizabeth Rushbrook

███████████

Date: 12 November 2023

████████████████████████████████

Hello,

I am a resident of Trinity gardens. The infrastructure strategy is severely lacking in scope of further active transport like cycling and walking. The strategy in its current form is hopeless. We should be moving away from the car and towards biking public transport and walking like every other advanced economy in the world. We are still stuck in the dark ages. More bike paths are severely needed and barely cost any money, it's an absolute no brainer!

Thanks,
Emerson

██

To whom it may concern,

I think more electric rail and light rail in the city and suburbs needs addressing. Rail to Mt Barker and Murray Bridge and Tailem Bend is needed also. Personally, I think more frequent trains on the Seaford line are needed. And after midnight trains perhaps to 1am.

Thanks,
Heather Moyes

From: Jersmann, Hubertus (Health)
Sent: Thursday, 19 October 2023 12:47 PM
To: Infrastructure SA
Subject: Your Say Adelaide

Consultation question 9

How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

By making cheaper or even free.
(Incentivise public transport. Would work even better if inner city car parking was to become more expensive)

By linking it with active transport: walking/cycling/scootering. Then you can combine it with a public health message!
(if people can leave their bikes/scooters safely when they jump onto public transport they are more likely to take it up.)

Kind regards

Hubertus Jersmann

Professor Hubertus PA Jersmann
MBBS, MD, PhD, FRACP, FThorSoc
Respiratory and Sleep Physician
Interventional Pulmonologist

Tel.:
Facsimile:
Mobile:

████████████████████████████████

Dear SA Government,

Thank you for providing an opportunity for the people of Adelaide to have a say on the infrastructure plans over the next 20 years.

I myself have lived in the wonderful suburbs of Adelaide for the past 30 years and have noticed an increase in density of people.

As such I am considering moving to Mount Barker or Murray Bridge as a means of more affordable housing.

However, one really big downside is at the moment there is NO train line going along the South Eastern Freeway (M1) towards Murray Bridge.

I believe to relieve the current housing crisis a train line does need to be built from Adelaide to Murray Bridge, with stops in Stirling and Mount Barker.

This would be a massive undertaking but I have seen numerous Facebook and instagram comments about this undertaking.

Re iterating a train line to Murray Bridge, with stops at Stirling and Mount Barker is urgently needed, especially with the land development proposal in Murray Bridge.

Please let me know if this email is received.

It is also needed to prepare Adelaide for transport options of the future and not rely on car / road transport.

Regards,
James Norris

Get Outlook for Android

Dear Sir/Madam,

Rail has a big and important role to play in the infrastructure of South Australia over the next 20 years. Removing vehicles from the roads will create safer transport and reduce carbon emissions. The following projects are suggested :

(1) The electrified Seaford railway line should be extended to Aldinga, as there are now many people living at Aldinga.

(2) The electrified Gawler railway line should be extended to Roseworthy, as there are planned housing developments at Roseworthy. An extended line would also make Roseworthy College Campus more accessible.

(3) The Gawler railway line could be extended in another direction to the Barossa Valley. This would open up the Barossa Valley to more tourism.

(4) There should be a standard gauge passenger train service to Mount Barker, as this town is growing quickly. Eventually, there could be a standard gauge passenger rail service extended to Murray Bridge. Goodwood Railway Station could be used as an interchange station to broad gauge passenger trains.

(5) The railway line on Eyre Peninsula to Port Lincoln should be upgraded as a freight line to transport wheat and other cereals to port.

(6) In the state of Victoria, regional passenger rail is the lifeblood of some towns. Regional passenger services could be re-established in South Australia. This could be done as a special project to celebrate the bicentenary of South Australia in 2036. For example, there could be a passenger train service from Adelaide to Port Pirie or Port Augusta or Whyalla. The Iron Triangle area will grow due to large renewable energy projects and mining.

Please give consideration to each of these projects in my submission.

Yours sincerely,
John Christie

I would also like to add that there should be a light rail link from Adelaide city to Adelaide Airport. Great cities of the world have a rail link to their Airport. Adelaide Airport Limited is trying to increase the number of international flights to Adelaide. A light rail link will be necessary in the future. A light rail link to the Airport along Henley Beach Road was suggested several years ago.

Yours sincerely,
John Christie

Consultation question 1 What opportunities should we consider to improve South Australia's economic growth?

- investing in technologies and industries that work towards the goal of decarbonisation and sustainability could be a means to boost productivity and meeting carbon goals. e.g. investing more in industries like solar, rain capture, electric vehicles, green roofing, reducing car reliance etc.

Consultation question 2 What infrastructure constraints are preventing a more efficient, accessible, and productive freight sector?

- Traffic congestion occurs because South Australia is dependent on motor vehicles. the lack of viable and safe alternative infrastructure e.g. extensive train/tram network, separated cycling lanes means roads will just become even more congested as the population increases and suburbs expand. If we can give people a reason to not drive, we can improve the efficiency of freight.

Consultation question 3 How can we enable a sustainable and affordable water supply into the future?

- Increase rainwater capture and reduce stormwater runoff. E.g. with curbside rain gardens, more drought tolerant plants, introducing swales and ponds in agriculture to hold water during droughts and increasing the groundwater table
- Find ways to replenish ground water aquifers so as to not deplete a finite resource

Consultation question 5 What are the barriers to increased adoption of digital technology to improve productivity?

- Continued education and training is required to improve literacy with technology.
- Lack of legislation protecting consumers regarding digital scams and phishing prevents trust in the system

Consultation question 7 How can South Australia better coordinate infrastructure investment to support a growing population?

- Decrease the reliance on single home suburban zoning and allow for the organic growth of neighbourhoods where shops and increased housing density can be developed as needed.
- Create more residential options closer to central already established locations which don't require significant infrastructure investment, as opposed to urban sprawling brand new suburbs

Consultation question 8 What can be done to support sufficient, fit-for-purpose housing to improve housing affordability?

- Continue to create higher density zoning locations with good proximity to the cbd e.g. Bowden, Churchill rd corridor. Create the infrastructure and lifestyle for those areas to be desirable ie. Close public transport, lively third places, low traffic noise pollution.
- Build up rather than out

Consultation question 9 How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

- Create routes that traverse across surburban areas rather than just through the cbd. E.g. along regency rd, cross road,port rush etc.
- Increase safety of train network at stations, potentially by developing infrastructure and commercialism near train stations to make them busier
- Having a cost saving for people who travel less stops, or travel frequently.
- Reduce parking opportunities in cbd areas to make driving less desirable
- Develop attractive active transport routes along all train routes to increase uptake.

Consultation question 10 What investments would support a more efficient and productive health system that meets our growing and changing needs?

- Improving education and putting greater emphasis on preventing adverse health outcomes e.g. around fast food, exercise, comorbidities

Consultation question 12 How can we sustainably grow these sectors to realise greater benefits for visitors and residents?

- Improving accessibility for tourists with easier transport options to make traversing the metro area an attraction of its own. E.g. train/tram line to/fro airport, improved safe cycling routes in cbd and visible bike hire stands.

Consultation question 17 What are the most significant challenges for decarbonising transport and how do we address them?

- The biggest challenge is viable alternatives to cars. The lack of extensive and safe public transport and active travel routes makes reliance of cars almost a necessity.
- Not everyone can afford or want to upgrade to an electric car, cost being a significant barrier
- The reliance on buses as the major public transport mode simply increases congestion on roads.
- Incentivise uptake of cycling within the inner metro area with connected, dedicated lanes in and out of cbd. Reduce car infrastructure ie. Parking spaces and lanes to reduce traffic pollution and discourage driving as the means for all transportation.

Consultation question 18 What action is needed to achieve a circular economy in South Australia?

- Education on what constitutes waste and reducing the creation of it rather than trying to increase recycling
- Reduce single use plastics in all aspects of commercialism, .e.g. takeaway containers, supermarket products etc.

Consultation question 1 : What opportunities should we consider to improve South Australia's economic growth?

We need to increase exports. Obviously better rail, port, and freight infrastructure are needed, as well as developing our industries so that we are not merely exporting resources but are value adding (ie exporting steel instead of ore). A nuclear industry would be a good idea given that we are also planning to build nuclear submarines here and we should consider a full industry of power generation, military usage, and disposal and re-enrichment of nuclear waste. Building SMRs here would also be a good idea and we should leverage our stable geology and politics as well as our vast uranium reserves to become a world leader in this field.

Consultation question 2 : What infrastructure constraints are preventing a more efficient, accessible, and productive freight sector?

Over the last 50+ years we have allowed trucks to take the place of rail freight and this has been a grave mistake. Trucks should be phased out in favour of rail freight (especially if we consider reducing climate change as a goal).

The fact that trucks have to travel on busy congested routes through residential areas makes them inherently inefficient. Trucks need to be removed from Portrush Road.

If rail freight replaced truck freight we could also cancel the remainder of the Torrens to Torrens project as we wouldn't need the tunnels any more.

The airport's restrictive time frames for planes to take off and land due to (stupidly) being in the middle of the city is no doubt affecting air freight.

I have no expertise to any comments about ports.

Consultation question 3 - How can we enable a sustainable and affordable water supply into the future?

I renewable energy turns out to be as cheap as we are continually promised, then surely we can just desalinate more water as required.

Consultation question 4 : How do we realise the opportunities and mitigate risks with transforming our transmission and distribution infrastructure for the future?

I don't see how this can be done, frankly. It would have been better to switch to nuclear power years ago and when you take into account the costs and ongoing issues of firming the grid for 100% renewables it may still be cheaper to make the switch to nuclear even now.

Consultation question 5 : What are the barriers to increased adoption of digital technology to improve productivity?

Every business and household needs to have a FTTP (fibre to the premises) internet connection, the same as it is expected that ever house is connected to the electricity and sewer network. Our internet is abysmal by world standards.

Consultation question 6 : What investments could unlock the value of South Australia's resources?

Rail freight and other infrastructure efforts to make it easier is necessary, owned by the government if necessary.

Support for a nuclear industry and other value adding to exports is needed.

Consultation question 7 : How can South Australia better coordinate infrastructure investment to support a growing population?

We need to have a plan for rail and other public transport to cover Adelaide, and indeed the entire state.

Road projects should be cancelled except upgrades to regional roads.

We need a plan that makes sense. Electric cars are not the future – rail and public transport is required unless we are prepared to give up on our climate change targets.

This would allow proper future planning around infrastructure.

Consultation question 8 : What can be done to support sufficient, fit-for-purpose housing to improve housing affordability?

Removal of all development controls.

Failing that, zones should be allocated for medium/high density development where developers can build what they want if they have the land space available.

The government should consider compulsorily acquiring large tracts of low density land closer to the city and turning it over to developers.

Greenfield development should not be preferred until such areas are well linked to services and rail transport otherwise they will quickly become unlivable.

Once rail transport has been established across the state to the point where it would be possible to commute to work in the CBD from (for example), Port Augusta, Clare Valley, or Mount Gambier via high speed rail then those regional centres can be developed further.

Consultation question 9 : How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

The fact is, if we actually have any pretense of tackling climate change we have to mandate increased patronage.

Services need to be vastly improved, mainly by rebuilding the city wide network of trams and thereafter by creating heavy (high speed) rail to regional areas and then public transport needs to be mandated as the main mode of transport aside from walking or cycling.

There should be taxes on vehicle ownership, particularly for large unnecessary cars, and eventually they should be phased out for all except for those prepared to pay the very heavy price to drive privately.

In the short term the services need to be vastly improved so that people have an incentive to catch public transport.

I would also suggest some sort of scheme whereby if you do not own a car at all, or can demonstrate that your main mode of transport is public transport or active transport you should be eligible for discounted delivery services or car share/hire schemes so that (for example) you can go to the hardware store and pick up various large/heavy things and have them delivered or be able to hire a car to drive them home essentially for free if you do not already own a car. Supermarkets and other businesses should be incentivised to develop their ability to deliver goods to the consumer so this becomes the primary mode of delivering bulky goods to cut down on the need to travel by car.

Premium shopping areas should be made car free (ie Unley Road and King William road should be made car free, as well as more obvious areas like Rundle Street) or tram only to develop better shopping areas and large American style malls should be phased out of existence. Improved public transport links to these shopping/eating areas will also be required for this to work.

Almost every trip on public transport in SA takes double or triple the time it would take to drive. This needs to be improved before public transport will be a realistic choice for most people. It's also not cheap enough to justify the extra time it takes. I catch the bus at least half the time for going to work, but mainly for ideological reasons as it would generally be much easier for me to drive.

Consultation question 11 : How can infrastructure support improved education and skills outcomes for South Australia?

It should be a goal for 90% of students at all levels of education from primary to university to be walking, cycling, or catching public transport to their school/institution.

Consultation question 12 : How can we sustainably grow these sectors to realise greater benefits for visitors and residents?

If all of the above was done, South Australia would become a much more vibrant tourist destination. Imagine if you could catch a fast train from Adelaide to Wilpena Pound and then to the Coonawarra. We would become a tourist mecca.

Consultation question 13 : How can we think differently about infrastructure investment to support equitable access and a more inclusive society?

If all of the above was achieved, South Australia would be much easier to navigate for people with disabilities and for older people etc.

At the moment it seems as if every piece of new infrastructure is designed to actively stop people from walking or cycling and this makes life harder for anyone who doesn't drive a car. We need to remove priority for cars in favour of other forms of transport and this will greatly benefit all less able people whether they be children, the elderly, people with disabilities, or poorer people, or whatever.

Consultation question 14 : What are the opportunities for infrastructure investment to accelerate attainment of the Closing the Gap targets?

As above, increasing public transport and active transport options will benefit Aboriginal people for the same reasons. Vastly increased links to regional areas would benefit them massively.

Consultation question 15 : What infrastructure investments will support industries to transition to a global net zero future?

Australia became rich partly because electricity was cheap. We have given up this competitive advantage. I don't know how we get back there.

Consultation question 16 : How do we maintain an affordable, reliable and secure energy system through the energy transition?

We have already failed to do this and I cannot see any way to turn this around.

Consultation question 17 : What are the most significant challenges for decarbonising transport and how do we address them?

The most significant issue is weaning people and governments off of the view that private road transport should be the dominant mode of transport.

Consultation question 18 : What action is needed to achieve a circular economy in South Australia?

This is not possible until we address the high cost of living and manufacturing in South Australia. It is simply fanciful to think that anyone could set up a recycling business of scale here with electricity and labour costs as they are. Used wind turbines and solar panels will simply become landfill until we address this issue.

Consultation question 19 : What measures can be taken to enable the infrastructure industry to decarbonise?

Stop building roads.

Build rail instead for all new infrastructure. This will solve this issue, more or less.

Consultation question 20 : How do we better account for the impacts of climate change in our infrastructure, to support improved resilience?

Stop building roads.

Build rail instead for all new infrastructure. This will solve this issue, more or less.

Consultation question 21 : What are the critical resilience issues that South Australia needs to address?

High costs and lethargic approvals for new projects.

Consultation question 22 : How can we better realise the resilience benefits of green and blue infrastructure to inform infrastructure planning?

If we did what I have described above then our natural areas would be better off overall.

Consultation question 23 : How can government and industry work together to support the supply of skilled labour needed to deliver a transparent infrastructure pipeline?

The primary problem is labour. Government needs to commit to a long term vision for infrastructure building, lock it in place with a binding referendum if necessary, then commit to raining people to fill the roles needed.

Consultation question 24 : How can we maximise the productivity benefits of digitising our infrastructure?

Unsure.

Consultation question 25 : How can government continue to encourage collaboration and innovation in procurement?

At the moment, the tender process guarantees that only large Tier 1 contractors can get involved in projects. The primary government contracting motivation is avoiding corruption which has probably worked but at the cost of delivering some of the highest infrastructure costs in the world.

Consultation question 26 : What are the funding and financing options government should consider in future, to ensure its infrastructure program remains affordable and sustainable?

Stop building roads to benefit private motorists and build for everyone instead.

Infrastructure SA
20 Year State Infrastructure Strategy Discussion Paper Submission

M. Williams
13 November 2013

Contents

1.   Executive Summary

Thank you for the opportunity to provide a submission in response to the Infrastructure SA 20 Year Infrastructure Discussion Paper.

My background is a civil engineer and transport planner

- 16 years with the Australian National Railways Commission as an infrastructure engineer, operational research manager and standards development, two years with GHD as a consultant and 19 years with the South Australian Government including rail and public transport strategic planning.
- Author of the Australian Rail Track Corporations 2001 Interstate Network Audit - "Operating and Engineering Studies East/West corridor" which contained projects to improve the corridors productivity.
- Initiator and author of the strategic business case for grade separation of the interstate rail network from the Adelaide Metro Network at Goodwood and Torrens junctions allowing 1,800 metre trains, reducing delays to freight trains and lower collision risk.
- Initiator and author of the strategic business case for the upgrading of the Adelaide Metro network including new trains, increased train frequencies and station upgrades.

This submission covers the following:-

- Commentary on the current and future rail freight task
- Investments in the state on the interstate rail network
- Investments in regional freight rail projects
- Increasing patronage on the Adelaide metropolitan rail network

This is not an exclusive list of topics and I would be pleased to discuss other initiatives such as Eyre Peninsula rail and the future of The Overland train.

Further information can be made available if required.

Mark Williams

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2. What infrastructure constraints are preventing a more efficient, accessible, and productive freight sector?

2.1 Rail Freight in South Australia – Current and Projected

The 20 Year SA Infrastructure Plan discussion paper comments on the existing freight task including "the bulk of our freight movements occurs by road (>80%)" and "The national freight task is forecast to grow by26% to 2050, with road freight forecast to grow by 77% from 2020 volumes."

Table 1 supports those values.

	Tonnes (000)					
	Road	Rail	Air	Sea	Total	Percentage
International	-	-	32	27,988	28,020	12%
Domestic	175,150	11,662	27	11,472	198,311	88%
Total	175,150	11,662	59	39,460	226,331	
Percentage	77.39%	5.15%	0.03%	17.43%		

Table 14:
Freight volumes by mode
Source: AECOM

Table 1

The freight task however should be considered in terms of tonne kilometres as this relates directly to transport cost, asset maintenance, safety and environmental impacts.

The Bureau of Infrastructure and Transport Research[1] has estimated that roads in SA carried 15.729 **billion** net tonne kilometres in **2021** and would carry **20.197 billion** tonne kilometres by **2040**.

The Bureau of Infrastructure and Transport Research[2] estimates the gross tonnes carried by each sector on the interstate railway network for Intermodal and steel freight and other bulk freight.

The tonne kilometres for South Australia are estimated by multiplying those tonnages by the corridor distance and converting the tonnes from gross to net. This results in an estimate of around **10 billion** tonne kilometres in 2021.

The Bureau of Infrastructure and Transport Research[3] under the medium forecast case, projects that East–West non-bulk rail freight to increase by 68 per cent over 2020 levels by 2050 or 2.2% per annum (linear). Applying the 2.2% growth rate to the **2021** estimates results in rail freight growing to **14.1 billion** tonne kilometres by 2040.

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[1]Table E5 - Australian interstate, intrastate and capital city road freight forecasts –2022 update – November 2022
[2] Trainline 10 - 10 May 2023
[3] Australian aggregate freight forecasts–2022 update

Figure 1

Table 2 summarises the results and the mode share estimate of around 60% for road and 40% for rail.

Estimated Land Freight Task - South Australia (tonne kilometres)					
	2021	2040	Increase	2022 mode share	2040 mode share
	billion tonne km	billion tonne km			
East West rail	10.0	14.1	42%	39%	41%
Road	15.7	20.2	28%	61%	59%
TOTAL	25.7	34.3	34%		

Table 2

This does not include any additional rail freight from other current rail operations such as Liberty Steel at Whyalla and Arrium at Thevenard, future mining developments or mode shift.

2.2   East West Interstate Rail Network

The East West interstate rail network is a key logistics network for South Australia and the nation.

Ongoing investment in the network is essential to ensure that the resource costs per tonne kilometre are as low as practicable. There are some specific issues.

2.2.1   Train length

Train lengths on the majority of the East West rail network in South Australia are 1,800 metres, however the Australian Rail Track Corporation has applied a restricted category for trains longer than 1,500 metres on the Adelaide to Melbourne corridor. ("*MELBOURNE - ADELAIDE – paths exceeding 1500m are permitted however may incur delays to service enroute due to limited crossing locations available to accommodate services exceeding 1500m in length when required to cross other opposing overlength services*").[4]

It is understood that there are also train length limitations at the Dynon Intermodal terminals in Melbourne that limit the number of 1,800 metre trains operation to Adelaide, however new intermodal developments in Melbourne[5] [6]should enable more longer trains to operate to Adelaide.

In South Australia around nine of the 15 key crossing loops between Mile End and Wolseley have been extended or are new, but there still appears to be six that are only 1550 metres in length[7].

Extension of the shorter crossing loops to allow unrestricted 1,800 metre trains should be a priority.

2.2.2   Axleload

Axle load is restricted by the strength of bridges, the sleeper type and rail size.

Following the Australian Governments investment in rerailing key parts of the Australian Rail Track Corporations network, from Adelaide to Whyalla, Tarcoola and Broken Hill there are three sections that still have lighter rail that have lower axle load limits and are understood to have higher rail breakage rates:-

- Adelaide to the Victorian Border

- 100 kilometres of the Tarcoola to Alice Springs railway (an obligation under the Alice Springs to Darwin Railway Concession Deed)

- Tarcoola to the Western Australia border

Rerailing not only provides improved axle load and reliability but also offers some other benefits

- Supports Liberty steel at Whyalla

- Is a source of rail for other projects that may require rail including Glenburnie to Heywood and Tailem Bend to Pinnaroo which are discussed below.

2.2.3   Cubic capacity

With the completion of the Inland Rail project in the early 2030's the ability to operate trains up to 6.5 metres in height (double stack clearance) will have been significantly improved, in particular double stacked trains being able to operate from Melbourne to Perth and Adelaide via Parkes and Broken Hill.

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[4] Route Access Standard - General Information Route Standards – Table 2.3.1
[5] The Age, 18 October, Proposed Little River Freight Terminal
[6] Premier of Victoria - Start of Major Works At Somerton Freight Terminal – July 2023
[7] Australian Rail Track Corporation Network Information Books

Figure 2 shows the remaining single stacked sections in blue after the completion of Inland Rail.
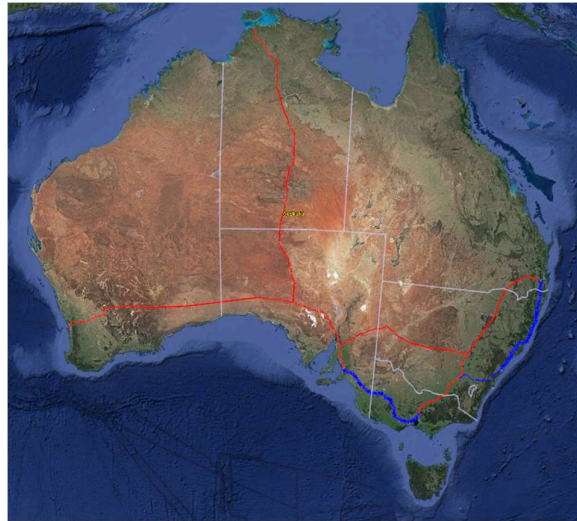
Figure 2

Following the completion of the Inland Rail project between Melbourne and Parkes the impact on the redistribution freight between the corridors through Broken Hill and Bordertown is not known, as although the cost per tonne kilometre is lower for double stacked trains those benefits are offset by the extra distance that the trains need to travel, around 600 kilometres to Perth and 780 kilometres to Adelaide

There are several challenges to double stacking between Adelaide and Melbourne including tunnels in the Adelaide Hills and the Melbourne Metropolitan Area.

The Victorian Government has a proposal to construct a new rail track called the Outer Metropolitan line that would mean that many restrictions would no longer apply. This however is a longer term project and any double stacking project may not be possible until the second half of the 20 year plan timescale (2034 to 2044).

2.3   Adelaide Intermodals

One of the significant costs of rail intermodal freight is the transfer of freight between trains, road transport and logistics facilities.

The CSIRO[8] estimates that to transfer a 40 foot container costs $80. In a round trip this implies a total cost of around $320 to the transport of a single container.

The location of intermodals in relation to their clients is key as the cost of road transport for the short distance can be relatively high, the optimal solution being an integrated logistics facility on site.

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[8] Inland Rail Supply Chain Mapping Project: Reference Case Modelling – Page 60

Significant investment is underway on automated logistics facilities such as Moorebank in Sydney and Somerton[9] in Melbourne with proposals for additional intermodals in Melbourne at Beveridge[10] and Little River[11] (by early 2030's) and Truganina[12] (longer term).

It is recommended that in conjunction with the private sector, the Australian Rail Track Corporation and National Intermodal Corporation that the State Government investigate the opportunity for the type and location of potential intermodal and integrated logistics facilities, in particular relating to ensuring relevant land use planning policies are in place and suitable road access and other supporting infrastructure are planned.

2.4   Potential Economic Benefits

The potential benefits of longer trains and double stacking are significant.

Using the **Australian Transport Assessment and Planning Guidelines** the author has estimated that the potential resource costs saving could be in the order of 30% for Intermodal trains between Melbourne and Adelaide.

Over 50 years at a growth rate of 2.2% until 2040 the resultant economic benefits (50 years at 7% discount rate) could be between **$1 billion** and **$2 billion** dependent on assumptions around any mode shift.

2.5   Reconnecting the Regions to the Interstate rail network

There are railway lines in the South East and Southern Mallee regions of South Australia that do not operate any train services.

Figure 3 show the railway lines from Mount Gambier to Heywood in Victoria (Light Green) and Tailem Bend to Murrayville in Victoria (pink and red).

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[9] Premier of Victoria - Start of Major Works At Somerton Freight Terminal – July 2023
[10] National Intermodal completes acquisition of land for the Beveridge intermodal precinct – June 2023
[11] The Age, 18 October, Proposed Little River Freight Terminal
[12] Herald Sun, October 5 2023, Untangling the Freeway Chaos, Outer Metropolitan Road and Rail Corridor
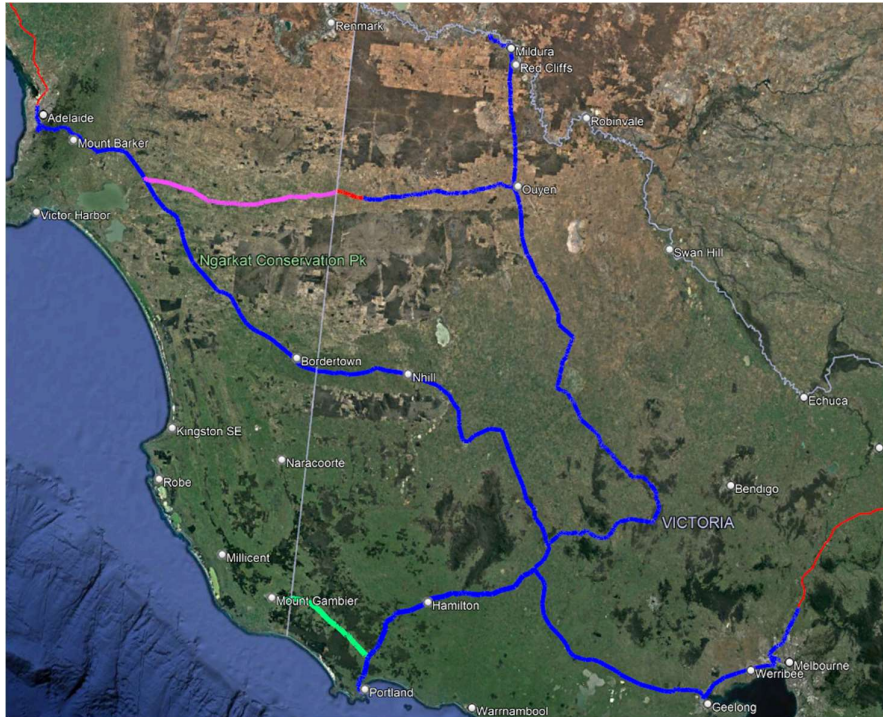
Figure 3

If work was undertaken to standardise and upgrade two of the highest priority railways in coordination with the Victorian Government facilitating similar works on their side of the border, this would enable the connection of those regions to the East West and North South Interstate rail network.

Both proposals are likely to involve investment from the private sector, South Australian, Victorian and Federal Governments and consequently will require cross border negotiations.

The recent appointment of a Cross Border Commissioner by the South Australian Government should help facilitate these negotiations.

2.5.1   Glenburnie to Heywood (Victoria) and an intermodal at Glenburnie

Following rail gauge standardisation in 1995, the Mid & Lower South East region was left without an operational railway to access the East West and North South interstate rail network. Three events have occurred which indicate that reinstating rail access has become more economically viable:-

- In 2020 the CSIRO in a report commissioned by Regional Development Australia Limestone Coast[13] (using the CSIRO's TraNSIT dashboard) identified that an Intermodal at Glenburnie and reinstatement of the 81 kilometre rail line to Heywood in Victoria appeared to have the highest potential freight cost savings of the options considered, one of which was reinstating the rail line between Mount Gambier and Wolseley.

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[13] Rail corridor and freight analysis for the Limestone Coast and South West Victoria

- The Green Triangle Forest Industries Hub[14] identified significant opportunities to increase the value of the wood product produced in the Green Triangle Region. The impact of this would be many more tonne kilometres of freight being generated to supply value-adding end users in Australia than had been the case with export of relatively low-value woodchips and logs from the Port of Portland to overseas buyers.
- The District Council of Grant is undertaking a review of land use planning policies across the council including a proposal to establish an industrial estate at the Glenburnie saleyards, which could logically be complemented by an adjacent intermodal terminal.

Figure 4 shows the location of the proposed Glenburnie intermodal and the rail line to be reinstated.
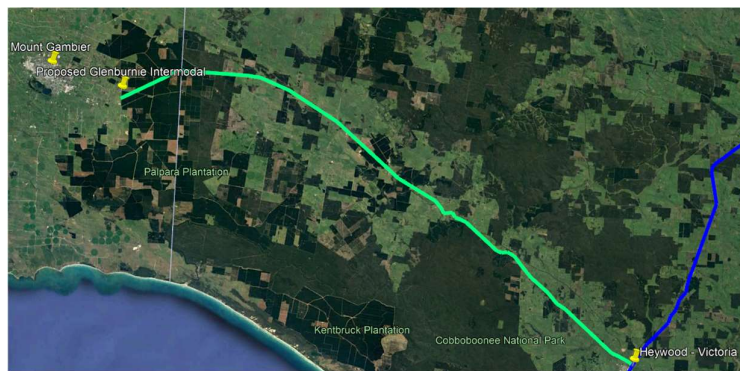
Figure 4

Use of rail will result in lower transport resource costs for industry, plus significant community benefits, in terms of road safety and road damage and maintenance issues. There are also environmental benefits through reduced GHG emissions, air pollution and noise nuisance.

For the transport industry, reducing damage to trucks and addressing a critical shortage of qualified truck drivers are added advantages of moving freight to rail.

I understand there is strong cross-border support for this project from Regional Development Australia Limestone Coast, the City of Mount Gambier, District Council of Grant, Regional Development Australia Barwon South West, the Glenelg Shire and Port of Portland Authority.

There is still a need to refine the business case, determine industry's willingness for rail to be part of their logistics solution and to determine how such a project would be funded and delivered.

A key step in this process would be to have the project listed on the 20 Year Infrastructure Plan. This would be a catalyst for further consideration of the proposal by industry and all three levels of government on both sides of the border.

2.5.2   Pinnaroo line

Prior to 1995 the Tailem Bend and the Murray Basin in Victoria were connected by a rail link through Lameroo and Pinnaroo to Ouyen in Victoria.

Historically before 1995 grain was transported from Victoria to Adelaide along this railway line.

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[14] Building the Nation: Growing the Green Triangle's Contribution to Australia's Future

Following gauge standardisation in 1995 the railways from Tailem Bend to Pinnaroo and to Loxton were also standardised with funding provided by the South Australian Government in the late 1990's but train operations ceased on the lines in 2015.

Since 2020 the railway from Ouyen to Murrayville has been converted to standard gauge and upgraded as part of the Victorian and Commonwealth Government's Murray Basin rail standardisation project[15].

There only remains 20 kilometres of railway in Victoria between the GrainFlow bulk grain receival site on the South Australian side of the border and Murrayville in Victoria.

Combined with any necessary upgrading of the rail line between Tailem Bend and the Victorian Border by the rail asset owner Aurizon this would then enable rail freight to flow between the East West interstate rail line at Tailem Bend and the Victorian Mallee region.

Figure 5 shows the extent of the three railway elements.

- Tailem Bend to Pinnaroo – standard gauge but no train services (Pink)

- Pinnaroo to Murraville – broad gauge and requires upgrade (Red)

- Murrayville to Ouyen – standard gauge and upgraded (Blue)
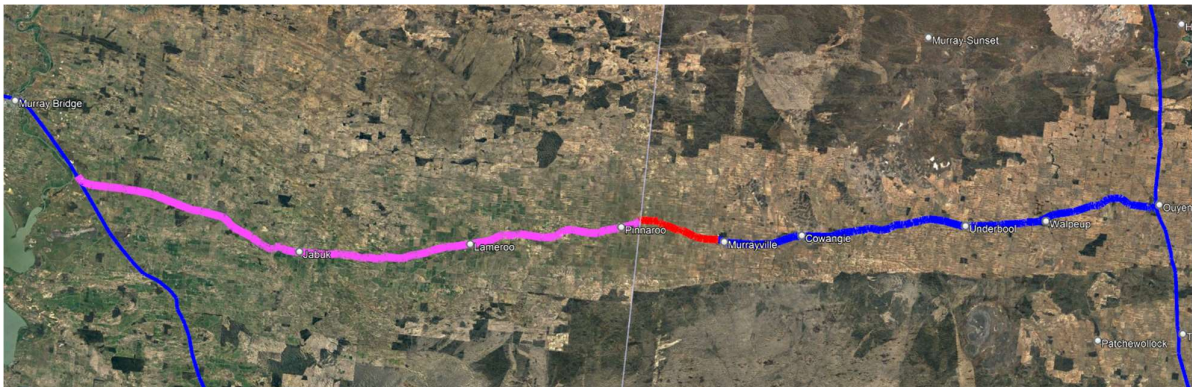
Figure 5

Historically before 1995 some grain was also transported from Victoria to Adelaide.

Figure 6 shows the reduction in bulk freight transported following cessation of the train services in 2015[16].

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[15] Premier of Victoria, Progressing With The Murray Basin Rail Project, July 2022
[16] Trainline 10
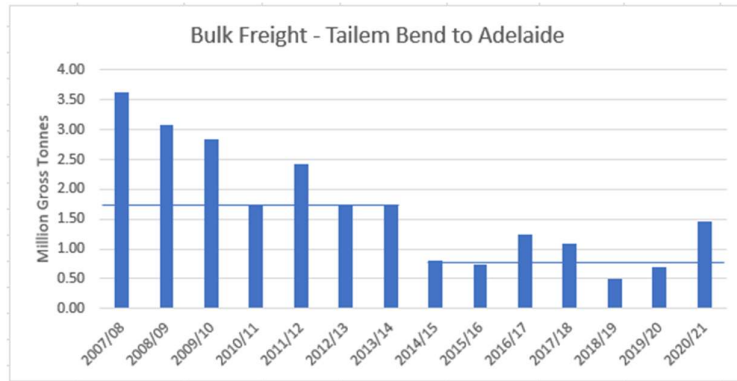
Figure 6

As there is now the potential for other commodities to and from the Murray Basin this is a project that is recommended to be investigated.

There is still a need to determine the potential freight flows and how such a project would be funded and delivered.

A key step in this process would be to have the project listed on the 20 Year Infrastructure Plan. This would be a catalyst for further consideration of the proposal by industry and all three levels of government on both sides of the border.

2.6   Other Rail networks

Any decision on the remaining non operational railways from Mount Gambier to Wolseley and Millicent and Tailem Bend to Loxton should wait until the Glenburnie to Heywood and Tailem Bend to Murrayville projects have progressed.

I also support recommencing train operations on the Eyre Peninsula and Leigh Creek railways.

3. How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage

This section focusses specifically on improvements to Adelaide's metropolitan rail system with a starting point being the 2020, 20 Year State Infrastructure Strategy.

> The terminus nature of the Adelaide Railway Station puts a natural constraint on the rail network as it limits the number of trains that can be put into service at any one time and results in frequencies of 15–30 minutes for most services. Some services are currently running to capacity and additional carriages could be added; however, the length of many platforms does not allow for more than three carriages across the whole network. Options to improve frequencies in train services should be explored, and these could include improvement to signalling systems. In the long term, the terminus nature of the Adelaide Railway Station will need to be reviewed with the potential to create a CBD rail loop. While this will provide operational efficiencies, any study should also consider the potential economic benefit of enabling more intensive development of CBD employment precincts when needed, and a shift to greater public transport use in existing intensive employment zones such as the Royal Adelaide Hospital and BioMed City precinct.

The future of a CBD rail loop is certainly the key strategic decision regarding the rail public transport network and is recommended to be retained as a potential project, however there is much that can be done while longer term planning is carried out on the project.

While it is agreed that Adelaide Railway Station is the key constraint on the network, there is some capacity for a limited number of additional trains from around 32 trains now up to 36 an hour assuming a train can be scheduled every 15 minutes into the 9 platforms.

The following sections discuss in detail the background to earlier project work, current patronage and options for the future.

3.1 Background to the Rail Revitalisation Project

I understand that the upgrade to Adelaide's train system was based on the changes to the Perth rail network in the early 1990's including:-

- Electrification of the three heritage railway's to Fremantle, Midland and Armidale
- The construction of the Northern Suburbs railway to Joondalup
- Introduction of simplified higher frequency train services

Figure 7 shows the increased patronage that resulted over the subsequent 10 years.
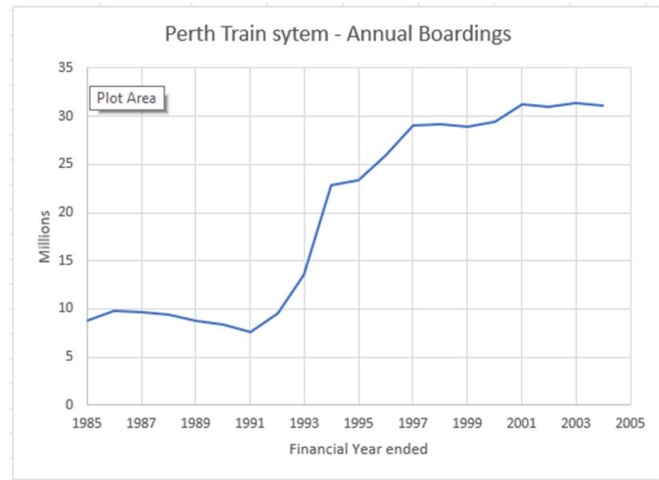
Figure 7

The original plan for the 2008 Rail Revitalisation plan was to achieve a significant growth in passengers by:-

- Increasing train frequencies for most stations, so that trains will arrive every 15 minutes between 7 am and 7pm on weekdays and 30 minutes at other times
- At key stations having a train arriving at less than 10 minutes during the morning and afternoon peak hours.
- Electrification of the network
- Purchasing new trains and converting some existing trains
- Increasing the maximum train speed from 90km/hr to 110 km/hr
- Upgrading stations

Over time this has been expanded to include extensions to Seaford and Flinders.

3.1.1   What are the results to date

Figure 8 shows the number of boardings on Adelaide train network over a 20 year period[17] [18]. Note that these have been adjusted to account for the change from initial boardings to total boardings that occurred in 2017. The estimate for 2023/24 is based on the authors

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[17] Department of Infrastructure and Transport Annual Reports
[18] Trainline 10

analysis from Department of Infrastructure and Transport boarding statistics for July to September 2023[19].
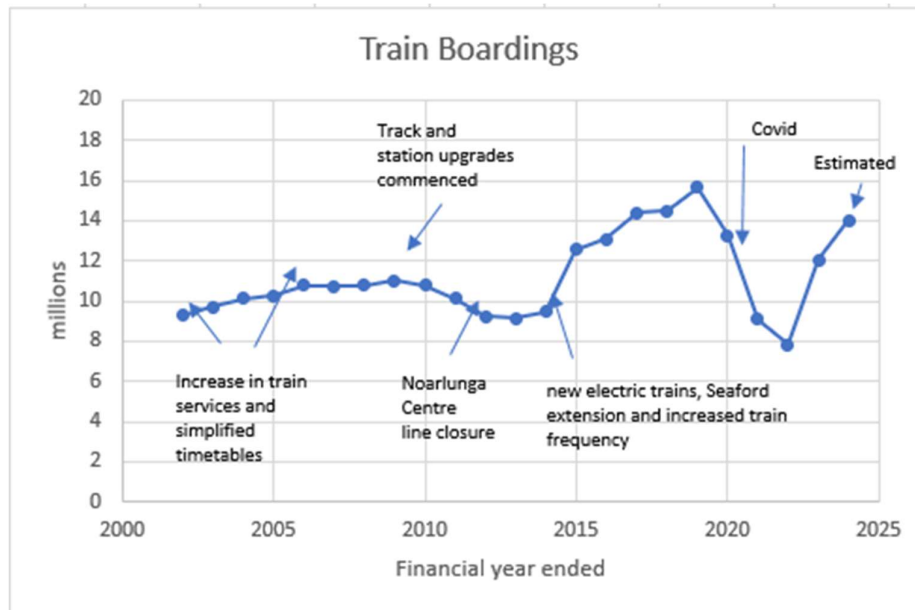
Figure 8

Following improvements to the number of train services in the early 2000's boardings reached around 11 million per annum.

With the completion of the Seaford extension and electrification boardings reached nearly 16 million in 2018/19 before the impact of Covid reduced all public transport patronage.

This demonstrates that trains stopping more often at stations, that are faster, more reliable and of higher amenity can combine to significantly improve the total level of boardings.

3.2   What problems still exist on the network

Following Covid, patronage appears to be returning to previous levels based on an assessment of boardings.

Figure 9 shows monthly boarding data[20] for the third quarters of 2017, 2018, 2022 and 2023, (these exclude adjustments such as free travel, bus substitutes and gate data) that indicates an increase of around 19% for the first quarter of 2023/24 compared to the same period in 2022/23.

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[19] https://data.sa.gov.au/data/dataset/adelaide-metrocard-validations

[20] Data SA - Adelaide Metrocard Validations
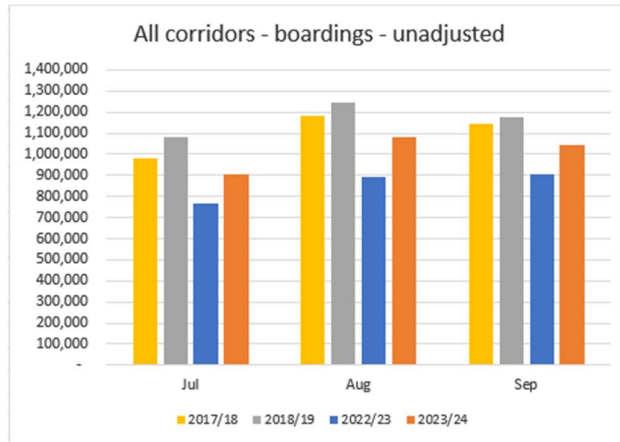
Figure 9

Growth however has not been consistent with Figure 10 showing the Seaford line nearly returning to 2018/19 boardings, while Figure 11 shows the Gawler line still needing to grow further to return to the 2018/19 boarding levels and continue to increase beyond those as was seen with the Seaford line.
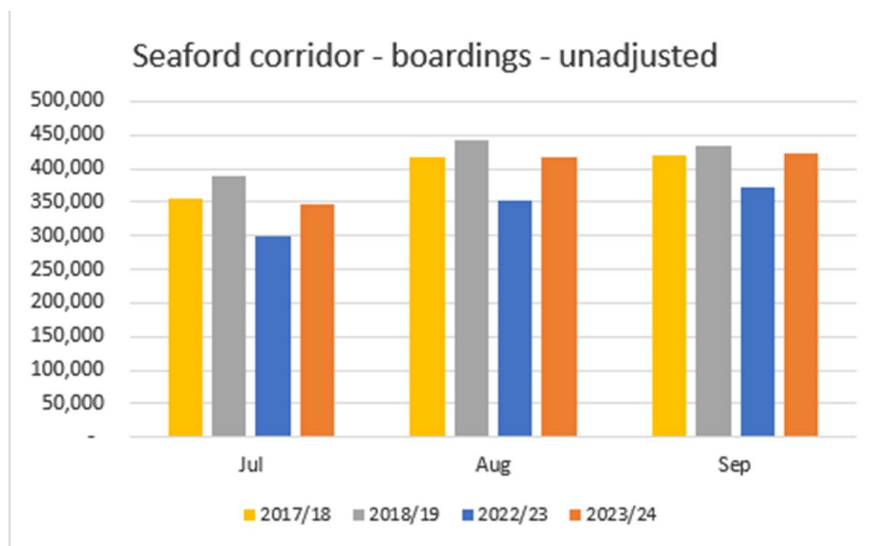
Figure 10
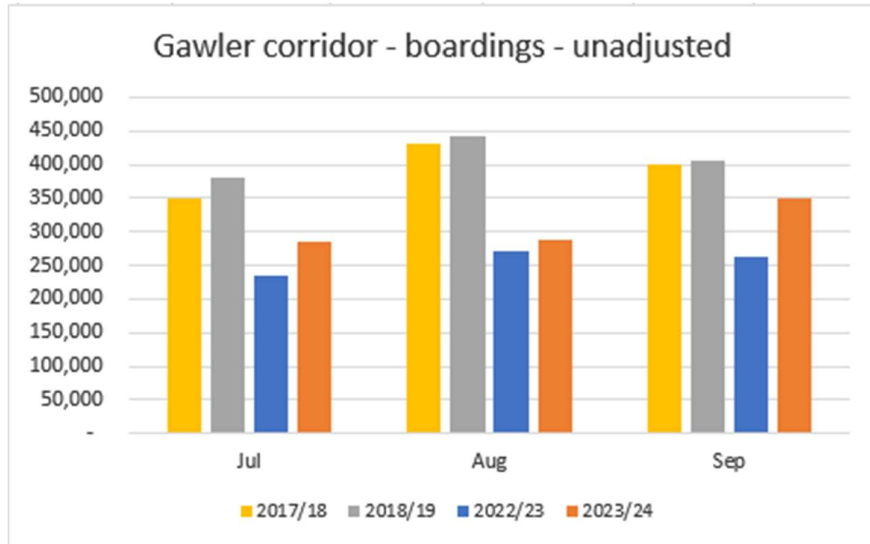
Figure 11

The following sections detail initiatives that can be undertaken to increase patronage and allow for future enhancement.

3.3   Proposed changes - Immediate

Although the Gawler line has now been electrified with an all-electric train fleet the timetable for the corridor has not been updated.

These timetable changes are of two types, one is due to the higher acceleration of the electric trains and their increase in maximum speed from 90 km/hr to 110km/hr, however of more importance is the frequency of trains stopping at stations balanced by travel time.

Figure 12 shows that there is a gap of 30 minutes for peak and off peak trains at stations such as Broadmeadows (adjacent to the Smithfield Barracks being acquired by the South Australian Government for urban development), Munno Para and Ovingham.

		Gawler Central	Gawler Oval	Gawler	Evanston	Tambelin	Kudla	Munno Para	Smithfield Inter-change	Broad-meadows	Womma	Elizabeth Inter-change
Monday to Friday (continued)												
PM	-	-	1.36	-	1.40	1.43	1.45	1.48	-	-	1.54
	1.47	1.48	1.51	1.54	1.56	-	-	2.03	2.06	2.08	2.10
	-	-	2.06	-	2.10	2.13	2.15	2.18	-	-	2.24
	2.17	2.18	2.21	2.24	2.26	-	-	2.33	2.36	2.38	2.40
	-	-	2.36	-	2.40	2.43	2.45	2.48	-	-	2.54
	2.47	2.48	2.51	2.54	2.56	-	-	3.03	3.06	3.08	3.10
	-	-	3.06	-	3.10	3.13	3.15	3.18	-	-	3.24
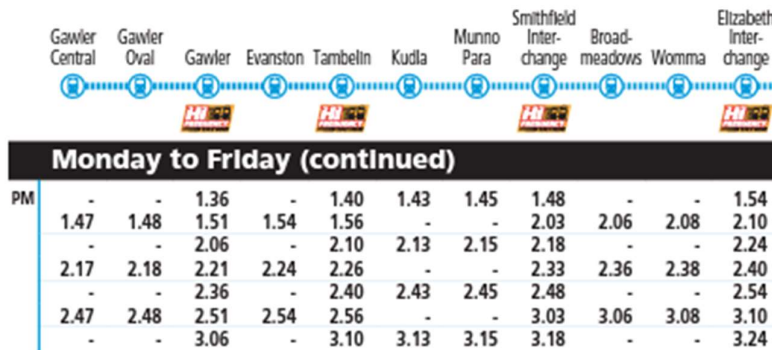
Figure 12

Figure 13 shows the Seaford line off peak services between Seaford and Brighton are at a consistent 15 minute interval. Due to the Flinders line only having a capacity of one train every 20 minutes, the off peak services are only operated every 30 minutes. This results in a 10 minute/20 minute pattern between trains from Woodlands Park to Adelaide.

	Seaford	Seaford Meadows	Noarlunga Centre	Christie Downs	Lonsdale	Hallett Cove Beach	Hallett Cove	Marino Rocks	Marino	Seacliff	Brighton
Monday to Friday (continued)											
AM	11.38	11.40	11.43	11.45	11.47	11.51	11.53	11.55	11.56	11.58	**12.00**
	-	-	-	-	-	-	-	-	-	-	-
	11.53	11.55	11.58	**12.00**	12.02	12.06	12.08	12.10	12.11	12.13	12.15
PM	12.08	12.10	12.13	12.15	12.17	12.21	12.23	12.25	12.26	12.28	12.30
	-	-	-	-	-	-	-	-	-	-	-
	12.23	12.25	12.28	12.30	12.32	12.36	12.38	12.40	12.41	12.43	12.45
	12.38	12.40	12.43	12.45	12.47	12.51	12.53	12.55	12.56	12.58	1.00

Figure 13

In total there are currently approximately 66 trains each way per day on the Gawler line compared to 108 trains each way on the combined Seaford and Flinders lines.

Why is the time between trains important?

The longer the time between trains means that waiting times increase. A simple approach is to assume half of the time between trains is the waiting time. The benefit from a 15 minute service compared to a 30 minute service is 7 to 8 minutes reduction in waiting time which has significant customer attraction benefits.

To achieve more frequent station stops while retaining a good transit speed from the outer stations, the purpose-built Elizabeth turnback should be used. The Parliamentary Public Works Committee[21] reported "The primary objective associated with this submission is to construct a train turnback facility on the northern side of Elizabeth Station that provides the operational flexibility required to introduce a more frequent train timetable planned for 2016".

It is recommended that higher frequency trains services are introduced on the Gawler line to enable 15-minute services to the majority of stations on the Gawler line whilst retaining good transit speeds for stations further out on the Gawler line.

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[21] RAIL REVITALISATION PROJECT – ELIZABETH TURNBACK FACILITY 418TH REPORT OF THE PUBLIC WORKS COMMITTEE

An example stopping pattern that achieves these objectives would be:-

- A train every 30 minutes from Gawler Central stopping all stations to Salisbury then express to Mawson Interchange to Adelaide (the single line north of Gawler means that 15 minute regular services are not viable)
- A train every 30 minutes from Gawler stopping all stations to Salisbury then express from Mawson Interchange to Adelaide
- A train every 15 minutes express from Elizabeth to Salisbury and then all stops to Adelaide between 7am and 7pm
- In the peak periods additional trains every 15 minutes from Gawler, stopping at Smithfield, Elizabeth, Salisbury and Mawson Interchange

There are two other changes proposed for the stopping patterns:-

- All weekend services should stop at all stations, not the current situation where Ovingham, Dudley Park, Islington and Kilburn only have a train every hour.
- There should be a review of trains that stop at North Adelaide station. The station is only 250 metres from Bowden and is ideally situated for passengers who want to travel from Bowden to locations such as Mawson Lakes.

3.4   Proposed changes – late 2020's to early 2030's

In the medium term there are several problems that will need to be addressed.

- The current electric train configuration is three railcars which will be overcrowded during peak periods if patronage continues to grow and exceed that of 2018/19. The train capacity can be increased by combining two, three railcar sets but this would provide excess capacity in the medium term and require station lengthening.
- Trains on the Outer Harbor, Grange, Port Dock and Belair lines will approach life expiry in the next 5 to 10 years and their replacement is currently the subject of a study by the Department of Infrastructure and Transport.
- There are limitations to the track configuration that do not allow regular 15 minute train services including
    - Flinders (Single track only allows a train every 20 minutes)
    - Outer Harbor (single track past Midlunga after the double track was rationalised to a single track in the early 1980's)
    - Belair (single track)
    - Gawler Central (single track from Gawler)
- The network does not extend far enough to directly serve growth areas at Concordia, Roseworthy and Aldinga

One concern regards platform lengths. A staged approach to lengthening trains over time will enable investments in platform lengthening to also be staged.

- The Seaford and Flinders lines can currently accommodate four and five railcar long trains and six railcar long trains with four stations requiring extension.
- The Gawler Central line could accommodate four railcar long trains with only the extension of Gawler Oval, five railcars if four more stations were extended, but 17 stations to accommodate six railcar long trains
- The Outer Harbor corridor could accommodate four railcar long trains with only four platform extensions, two of which are on the Grange line.
- The Belair line is restricted to two railcar long trains now and three if one station was extended. Three railcar long trains, four times an hour, should provide adequate capacity

Seaford — Railcars (2=50m, 3=74m, 4=100m, 5=125m, 6=150m)

Station	Length	2	3	4	5	6
Mile End	134	✓	✓	✓	✓	
Showground	160	✓	✓	✓	✓	✓
Goodwood	160	✓	✓	✓	✓	✓
Clarence Park	152	✓	✓	✓	✓	✓
Emerson	152	✓	✓	✓	✓	✓
Edwardstown	152	✓	✓	✓	✓	✓
Woodlands Park	152	✓	✓	✓	✓	✓
Ascot Park	152	✓	✓	✓	✓	✓
Marion	123	✓	✓	✓		
Oaklands	160	✓	✓	✓	✓	✓
Warradale	152	✓	✓	✓	✓	✓
Hove	122	✓	✓	✓		
Brighton	152	✓	✓	✓	✓	✓
Seacliff	152	✓	✓	✓	✓	✓
Marino	152	✓	✓	✓	✓	✓
Marino Rocks	140	✓	✓	✓	✓	
Hallet Cove	152	✓	✓	✓	✓	✓
Hallet Cove Beach	152	✓	✓	✓	✓	✓
Lonsdale	152	✓	✓	✓	✓	✓
Christie Downs	152	✓	✓	✓	✓	✓
Noarlunga Centre	170	✓	✓	✓	✓	✓
Seaford Meadows	160	✓	✓	✓	✓	✓
Seaford	160	✓	✓	✓	✓	✓

Flinders Line — Railcars (2=50m, 3=74m, 4=100m, 5=125m, 6=150m)

Station	Length	2	3	4	5	6
Mitchell Park	120	✓	✓	✓		
Tonsley	160	✓	✓	✓	✓	✓
Flinders	160	✓	✓	✓	✓	✓

Gawler Central — Railcars (2=50m, 3=74m, 4=100m, 5=125m, 6=150m)

Station	Length	2	3	4	5	6
North Adelaide	125	✓	✓	✓	✓	
Ovingham	125	✓	✓	✓	✓	
Dudley Park	120	✓	✓	✓		
Islington	115	✓	✓	✓		
Kilburn	100	✓	✓	✓		
Dry Creek	152	✓	✓	✓	✓	✓
Mawson	100	✓	✓	✓		
Greenfield	152	✓	✓	✓	✓	✓
Parafield	152	✓	✓	✓	✓	✓
Parafield Gardens	152	✓	✓	✓	✓	✓
Chidda	122	✓	✓	✓		
Salisbury	150	✓	✓	✓	✓	✓
Nurlutta	100	✓	✓	✓		
Elizabeth South	122	✓	✓	✓		
Elizabeth	160	✓	✓	✓	✓	✓
Womma	122	✓	✓	✓		
Broadmeadows	160	✓	✓	✓	✓	✓
Smithfield	100	✓	✓	✓		
Munno Para	160	✓	✓	✓	✓	✓
Kudla	122	✓	✓	✓		
Tambelin	140	✓	✓	✓	✓	
Evanston Gardens	122	✓	✓	✓		
Gawler	120	✓	✓	✓		
Gawler Oval	85	✓	✓			
Gawler Central	122	✓	✓	✓		

Table 3

Outer Harbor — Railcars (2=50m, 3=75m, 4=100m, 5=125m, 6=150m)

Station	Length	2	3	4	5	6
Bowden	120	✓	✓	✓		
Croydon	122	✓	✓	✓		
West Croydon	124	✓	✓	✓		
Kilkenney	126	✓	✓	✓	✓	
Woodville South	130	✓	✓	✓	✓	
Woodville	124	✓	✓	✓		
St Clair	120	✓	✓	✓		
Cheltenham	113	✓	✓	✓		
Alberton	136	✓	✓	✓	✓	
Port Adelaide	120	✓	✓	✓		
Ethelton	120	✓	✓	✓		
Glanville	150	✓	✓	✓		✓
Peterhead	122	✓	✓	✓		
Largs	140	✓	✓	✓	✓	
Largs North	120	✓	✓	✓		
Draper	140	✓	✓	✓	✓	
Taperoo	126	✓	✓	✓	✓	
Midlunga	123	✓	✓	✓		
Osborne	80	✓	✓			
North Haven	80	✓	✓			
Outer Harbor	180	✓	✓	✓	✓	✓

Grange Line — Railcars (2=50m, 3=74m, 4=100m, 5=125m, 6=150m)

Station	Length	2	3	4	5	6
Albert Park	120	✓	✓	✓		
Seaton Park	100	✓	✓	✓		
East Grange	84	✓	✓			
Grange	80	✓	✓			

Belair — Railcars (2=50m, 3=75m, 4=100m, 5=125m, 6=150m)

Station	Length	2	3	4	5	6
Mile End	88	✓	✓			
Showground	160	✓	✓		✓	✓
Goodwood	112	✓	✓	✓		
Millswood	80	✓	✓			
Unley Park	80	✓	✓			
Mitcham	180	✓	✓		✓	✓
Torrens Park	90	✓	✓			
Lynton	80	✓	✓			
Eden Hills	140	✓	✓		✓	
Corromandel	92	✓	✓			
Blackwood	140	✓	✓		✓	
Glenalta	80	✓	✓			
Pinera	60	✓				
Belair	110	✓	✓	✓		

Table 4

The recommended strategy for the railcar fleet is to:-

- **Extend** the **existing 4000 class trains to four railcars long**, to meet overcrowding concerns. If it is decided that electric/battery hybrid trains were to be adopted then the 4th railcar could be fitted with batteries. Progressive extensions to trains up to six railcars would be the longer term aim. Six railcar long trains as a single consist, having higher passenger capacity than two, three railcar consists are now the standard configuration in Melbourne, Perth and Brisbane.
- **Acquire additional trains** to replace the remaining 3000 class railcars on the **Outer Harbor, Grange, Port Dock and Belair corridors**
- **One or two extra trains** to cater for extensions to Concordia and Roseworthy

There will be some infrastructure changes to support the new timetables.

- Determine and implement what changes are required to allow a 15 minute service to Flinders.

- Simplify Glanville station and reinstate the second rail line north of Midlunga to North Haven to allow more trains to service the Osborne Maritime precinct.

Figure 14

- **Extend** services 2.8 km from **Gawler Central to a new Gawler East station adjacent to the Barossa Valley way level crossing** as shown in Figure 13. This will require one additional train, track and signalling upgrade and if electric/battery hybrid trains are adopted by extending the existing length of the 4000 class fleet then no extension of the 25,000 Volt overhead traction system would be required.
- **Extend** services 6 km from **Gawler to a new St Ives station adjacent to Twartz road** as shown in Figure 13 providing a train service to the St Yves and Roseworthy developments. This may not require any additional trains as based on the current timetabled trains stop at Gawler for 23 minutes.
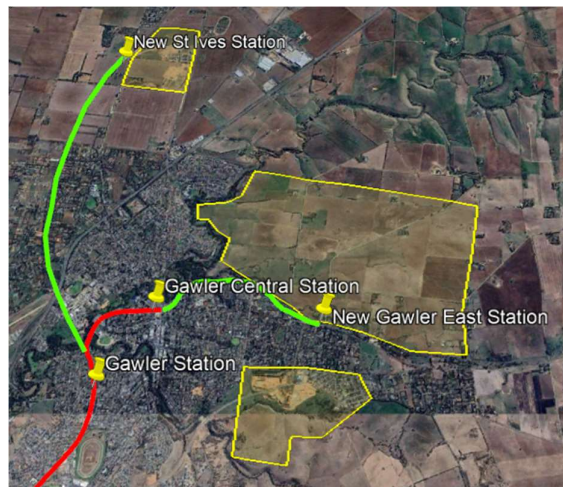

Figure 15

3.5   Proposed changes – up to 2045

Within the next 20 years the following projects should be considered:-

- **Extend** services 10 km from Seaford to a new station at **Aldinga**
- **Commence planning, and if funding is available, commence construction of the CBD rail link** through the City of Adelaide
- **Progressively introduce new high capacity signalling system commencing with the CBD rail link,** allowing for an increase from around 18 trains an hour to between 20 and 30 an hour.
- Progressively **remove all pedestrian crossings on high frequency corridors** and automatic barriers at others before more frequent trains are introduced
- **Remove all Road level crossing between Elizabeth and Ascot Park** (including the three at Heaslip Road, Kings Road and Park Terrace Salisbury, currently under investigation by the Department of Infrastructure and Transport)
- **Continue to upgrade stations** that are too short and of poor amenity**.**
- **Increase train lengths** to meet capacity requirements

3.6   Train service changes

Table 5 shows the number of trains operating across the network for the various scenarios discussed above, excluding potential higher frequency services following the completion of the CBD rail loop and road and pedestrian grade separations between Elizabeth and Ascot Park.

	Current		Immediate		St Ives and Gawler East extensions		Aldinga extension	
	Peak	Offpeak	Peak	Offpeak	Peak	Offpeak	Peak	Offpeak
Seaford	9	4	8	4	8	4	4	-
Aldinga	-	-	-	-	-	-	4	4
Flinders	3	2	4	4	4	4	4	4
Belair	4	2	4	4	4	4	4	4
Gawler Central	4	2	4	2	-	-	-	-
Gawler	4	2	4	2	4	-	4	-
St Ives			-	-	2	2	2	2
Gawler East			-	-	2	2	2	2
Elizabeth	-	-	4	4	4	4	4	4
Outer Harbor	4	2	4	4	4	4	4	4
Glanville	2	-	-	-	-	-	-	-
Grange	2	2	2	2	2	2	2	2
Port Dock	-	-	2	2	2	2	2	2
	32	16	36	28	36	28	36	28

Table 5

4. Recommendations

In summary there are 11 recommendations:-

Recommendation 1
A table showing the estimated tonne kilometre land freight task in South Australia of 25.7 billion tonne kilometres (with road carrying 60% and rail 40%), increasing by 42% for rail and 28% for road to a total of 34 billion tonne kilometres by 2040 should be included to the 20 Year Infrastructure Plan.

Recommendation 2
The Australian Rail Track Corporation continues to invest in key interstate rail infrastructure including replacement of light rail and on the Adelaide to Melbourne corridor, having unrestricted 1,800 metre train paths and ultimately double stacking.

Recommendation 3
The private sector, National Intermodal Corporation, Australian Rail Track Corporation and South Australian Government plan and invest in high efficency intermodal facilities, including connections to the road network.

Recommendation 4
Increase access to the Interstate rail network and regional Victorian rail network for the lower south east and upper mallee regions, including the Glenburnie to Heywood (Victoria) and Tailem Bend to Murrayville (Victoria) railway lines

Recommendation 5
Upgrade the Gawler Central train timetables to give the majority of stations a train at least every 15 minutes during the weekday while provding good transit times.

Recommendation 6
Carry out key investments to remove bottlenecks on the Outer Harbor and Flinders rail lines that do not allow trains to operate at a regular 15 minute interval

Recommendation 7

When required due to overcrowding increase the length of existing electric trains by adding intermediate carriages.

Recommendation 8

Continue the program of railway station improvements to lengthen stations, improve ammenity and increase safety (by removing pedestrian crossings or upgrading with active crossings)

Recommendation 9

Continue the program of road grade separations, expanding it to removal of pedestrian crossing, with a priority being between Elizabeth and Ascot Park

Recommendation 10

Plan and implement train service extensions to St Ives (Roseworthy) and Gawler East

Recommendation 11

Continue planning for a CBD rail loop and network extension to Aldinga

████████████████████████████████

Dear Sir/Madam,

The consultation questions do not ask about the role of, opportunities for and investment in active travel. Active travel is the answer to (or could play a large role in addressing) many of the issues raised in the paper: decarbonisation and sustainability, improved resilience, accessible and inclusive infrastructure, health and liveable and well-planned places.

I would point you to the Engineers Australia Urban Transport Systems Policy and Planning Advice August 2023, which highlights the role of vision-led transport planning (and avoidance of "predict and provide" traffic modelling) to achieve smart growth and multimodal, sustainable transport. It is essential that land use and transport planning and integrated, and with accessibility thinking - considering not just distances between places people want to get to (including social infrastructure) but also the quality of the routes with respect to walking/wheeling, cycling and public transport.

As the Engineers Australia paper states, "Each city should develop a vision that is unique to its own circumstances, but should consider:
• Improved global and local environmental outcomes
• Liveable streets and neighbourhoods
• Safe well connected street systems for all users
• Accessible city with a reduced level of car dependence"

The Discussion Paper does not place enough focus on meeting the transport needs of children, nor an ageing population. In developing an integrated approach to infrastructure provision, it is important that it is predicated on children being able to travel independently to key destinations, such as schools, libraries and open space. Likewise, infrastructure provision needs to provide for older adults (and people with disability) who can (no longer) drive.

The recent 2023 Benchmarking Adelaide Report highlights that SA needs urgent investment in public and active transport (not roads such as South Road, which will just lead to induced demand and further entrench automobility). The Strategy should focus on how the accessibility needs of a growing population can be addressed better:

> Development of a package of metropolitan cycle routes linking the suburbs to the City of Adelaide, and between other key suburban destinations, which would be submitted to Infrastructure Australia for funding.
> Tram and train extensions/new routes, with cycle-public transport integration: a public transport network planned together with safe cycling access. Cycle-public transport trips are a scalable replacement of significant levels of driving. Cycle access can be relatively fast, flexible and cover larger stations catchments, and provide an opportunity for enjoyable, incidental physical activity, while train use can also be a utility (while time spent driving is a disutility).
> Planning for active and public transport networks with coordination with social infrastructure and with a focus on accessibility, including for children (and children's independent mobility) as a transport, health, inclusivity and decarbonisation/sustainability outcome.

On the issue of improved resilience:

> Plan walking/wheeling and cycling routes to incorporate greening, especially for resilience for climate change (and simultaneously address wider urban heat island issues).

Finally, it would be great to see the Infrastructure SA 20 Year Strategy and Strategic Assessment framework incorporate social equity (eg consider gender impact assessment and have a child friendly city as a key outcome), and the links between transport and health and sustainability.

Regards,

Penelope Bennett MIEAust CPEng NER BSc BE (Hons) MUP

From: Ron and Avon Reeves ███████████
Sent: Monday, 16 October 2023 10:31 PM
To: Infrastructure SA

Hi Tara, I tried to get onto the questionnaire about future transport needs for SA, but I couldn't get past go. It doesn't seem to accept anyone who is South Australian, but lives overseas. Reeves Plains and Reeves Point are named after my family, and I still like to put my 2 bobs worth in on anything that will improve the State. The most obvious to me is the lack of Rural Rail Services, that have been completely ignored for many years. Even just from Murray Bridge to the city also. There is no normal link to Victoria, yet Vic Rail goes to Ararat daily 5 times! Places like Pt Augusta and Peterborough, have platforms operating for the Indian Pacific, but not even one railcar every 3 days to the capital? SA seems to be the only state ignoring the rural populations. Ron Reeves.

████████████████████████████

Build a new railway from Port Augusta to Kimba. Build a new rail line from Whyalla to Iron Knob and then connect to the Augusta/Kimba Railway. Reinstate the Eyre Peninsula rail network in full. Provide passenger rail services that were discontinued in the 1960's.

Build the nuclear waste dump in Kimba that the Federal Government has abandoned. Build to allow to store High Level Nuclear Waste per the SA Royal Commission on the Nuclear Fuel Cycle.

Upgrade EP ports to allow nuclear waste to be transferred to new/upgraded rail services.

Build a nuclear power plant next to the Kimba waste dump and transmission lines to Whyalla to bolster the green hydrogen initiative. Build transmission lines to Kyancutta and along the Eyre Highway to WA to connect to their electricity grid. Solar farms should also be built along or above rail lines and highway.

Goog's track should be turned into a highway, again with freight/passenger rail line to ease Thevenard freight pressure.

Outback roads such as Wirrulla to Iron Knob and Kingoonya and Glendambo be highways for freight transport.

Regards,
Stefan Lewandowski,
Wirrulla, SA

Submission re South Australia's State Infrastructure Strategy Discussion Paper, October 2033
by
Tom Wilson
Retired State Government Public Transport Planner

<u>My Background</u>

I have devoted much of my life to an interest in public transport and urban planning in Adelaide. I set out below a summary of my interest and work as much of it related to public transport developments in Adelaide which are relevant to this submission. I have a lot of experience with what is right and wrong with Adelaide's public transport, and what works and doesn't work.

- *During my childhood beginning in the late **1940s** Adelaide still had a **large and popular electric tramway network** (on which I travelled to school) and Australia's largest trolley bus network. Then Adelaide switched primarily from trams (1958) and trolleybuses (1963) to diesel buses, changed from steam to diesel trains (1955-1967), and experienced a rapid rise in private car use, a lowering of public transport use, and a significant rise in the spread of Adelaide's urban area. I followed with interest these changes, and **every conversion from electric trams and trolley buses to diesel buses resulted in patronage reductions.***

- ***In 1962 the Metropolitan Development Plan** was published, followed by the **Metropolitan Adelaide Transportation Study – (MATS)** in 1968, both of which I found of great interest. The MATS Plan was largely a Freeway plan which was roundly rejected by Adelaide's population, but it also contained a major proposal for a City Underground rail link which was a popular proposal but quietly forgotten as part of the rejection of the Freeway plan.*

- *The community's interest in town planning increased in the community in the 1960s and I was fortunate in becoming **the first undergraduate in a town planning course in Adelaide in 1965**, obtaining an Associateship Diploma in Town Planning at the **SA Institute of Technology** and completing a thesis "The Relations between a Transportation Link and Land Use Development between Adelaide and Port Adelaide" in 1968. This was followed by a Bachelor of Town and Regional Planning at the **University of Melbourne** in 1970, completing a thesis "**Town Planning Implications of Bus Operation in Low Density Urban Areas**". Another planner and I from the SA Institute of Technology topped the class in the final year of the University of Melbourne's planning course.*

- ***From late 1970 until early 1973** I worked for then well-known urban and transport planning consultancy firm **PG Pak-Poy & Associates**, and during that time I switched from town planning to public transport planning. One of the projects I instigated was the publication of Adelaide's first comprehensive public transport map - a project with which I was associated for many years, and which, sadly, ceased production in the late 1990s – so nowadays few people know even their local bus route numbers!*

- ***In 1972** the State Government was becoming frustrated with the disjointed nature of Adelaide's public transport planning and operations, so it engaged a **Director-General of Transport, Dr Derek Scrafton,** to supervise transport planning and research and to better coordinate South Australia's public transport. I worked for Dr Scrafton for several years from 1973 during which the **State Transport Authority (STA)** was established, private bus services were taken over, and the Municipal Tramways Trust and South Australian Railways were absorbed. Dr Scrafton still lives in retirement in Adelaide.*

- ***From 1976 until 1994 I worked for the STA**, mainly in **planning public transport services** - particularly bus services - and in **coordinating that with urban planning** through the State and local Governments and with developers. I was successful in that process for much of the time but also faced difficulties with both local government and developers who had little interest in public transport. I was heavily influential in the design of today's network.*

- *During that time the STA was constantly under pressure from successive State Governments to reduce the public transport deficit. Often the only way to provide bus services in new outlying suburbs was to reduce services in the well-served inner suburbs. **This contributed to on-going patronage reductions, as buses added in low density outer suburbs would never generate the higher rates of public transport use normal in the higher density inner suburbs.***

- ***In 1977 I was sent overseas by the STA** on a 10 week fact-finding study of public transport in various world cities, and have since travelled on holiday to many other cities with a variety of public transport systems. Between 1981 and 1989, in addition to my normal STA work, I was a member of the project team designing the very successful **O-Bahn**, and was responsible for its bus network and bus operations planning. This was one of the few occasions in which the State Government increased the funding for bus services.*

- *I continued with planning public transport services with the new **Passenger Transport Board (PTB),** which privatised the bus services. From 2000 until 2010 bus patronage turned around from progressive patronage reductions to progressive patronage increases as the private operators were paid good incentives to increase patronage, and many bus service improvements were made, incentives never available to the previous publicly owned providers. The PTB was absorbed into the various forms of the **Department of Transport until my retirement in 2010.** One of the many things I did in that position was to raise serious concerns about the then-proposed residential developments at Riverlea and Mount Barker for their lack of consideration to the provision of public transport.*

- *In 2011, after my retirement, the incentives for increasing patronage paid to private operators were significantly decreased, I understand due to pressure from Treasury, so the rate of patronage increase dropped off.*

- *Since my retirement I have written a 6,400 page digital book **"Adelaide's Public Transport - the First 180 Years"**, published by Wakefield Press. Apart from describing the public transport history it also mentions some of the successes and mistakes made by various authorities in planning public transport.*

Because of the above long interest and experience I feel that I am well qualified to comment on the public transport aspects of South Australia's 20-Year State Infrastructure Strategy Discussion Paper. I was a major contributor to a submission by TAN - the Transport Action Network of which I am a member, and most of whose comments I support. The Transport Action Network (TAN) comprises community organisations, active and public transport advocacy groups, urban and transport planners, practitioners, and researchers concerned for the future of sustainable transport and land use integration in South Australia.

My personal comments here relate mainly to matters with which I have had some experience.

I have also made a submission to the Greater Adelaide Regional Plan Discussion Paper.

Item 6.3 Public Transport in the Infrastructure Strategy paper says:

"Adelaide's public transport network is reasonably good at connecting the suburbs to the CBD during peak commuter periods and providing high coverage service to those with limited choice. Future planning and designs should aim to optimise the utilisation of the road network through maximising the use of public transport. There is an opportunity to improve and redesign the bus network to create a more streamlined and efficient network that provides better cross-suburban connectivity and modal integration. Improving the bus network may encourage a greater modal shift towards public transport and make it the option of choice".

COMMENT:

There are always opportunities for improving the design of the public transport network, but it is important to note the following:

"A more streamlined and efficient network that provides better cross-suburban connectivity and modal integration":

This was one of the aims of the 2019 plan of Minister Stephan Knoll to speed up the bus network and make it more frequent, which were excellent aims, but those proposing such changes to the network completely ignored the need for the network to also be convenient, and removing many bus routes certainly would not have made the network more convenient. So much so that the proposal was defeated by huge opposition from the many people who would have lost a service within walking distance of their homes.

Public transport needs to be <u>convenient</u>, fast and frequent, not just fast and frequent. It can be made faster by providing greater bus priority, and it can be made more frequent by increasing subsidies to provide more frequent services. Go Zones have worked well, but there need to be more of them, and the operating times of the 15 minute frequencies have to be increased, e.g., to include later evenings and weekends. Over the last 20 years or so shopping hours have been extended, but no funding has been provided to increase service frequencies during the extended shopping hours.

The need for better cross-suburban connectivity is mentioned in your statement. However, many people are unaware of just how much cross-suburban connectivity is already there, and which is not publicised sufficiently by the Department of Transport. Many people still think that bus, trams and train routes only go to the City. Lack of suburban connectivity seems to be a comment made mainly by people who rarely use public transport and are unaware of just how much connectivity there already is. Since the 1970s (when I started working in public transport planning) many changes have been made to the network to improve cross-suburban connectivity:

- The Circle Line bus service, Route 100, was introduced (1977), circling the suburbs about 4 to 8 kms from the City centre. It has been well patronised during school peaks but relatively poorly patronised outside the peaks.

- In 2011, the Cross-Suburban Connector, Route 300, was introduced replacing much of the former Route 100 Circle Line. Route 300 operates on a bigger circle from Arndale, along Regency, OG, Portrush, Cross, Belair, and Springbank Roads, Fiveash Drive, Flinders Uni and Medical Centre, Sturt Road, Marion Centre, Diagonal Road, Glenelg, Henley Beach, Grange, Findon and Woodville Roads and back to Arndale. Like the Circle Line, the service

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is relatively poorly patronised outside school peaks. It carries fewer passengers than the 1977-introduced Circle Line.

- Also in 2011 a new peak period branch of the old Route 100, was introduced between the north western suburbs and Flinders University as Route 101, with three round trips each weekday.

- In 2000, a cross suburban service (Route 580) which had operated from Mawson Lakes via Paradise Interchange to the eastern suburbs was extended from Burnside Village along Greenhill Road to Mile End. The purpose of this extension was to cater primarily for workers living in the eastern suburbs and working in the many offices along Greenhill Road south of the City. The service extension operated in that way for some time but was eventually cut back in 2005, and now features only two or three round trips per day because few people used it. The offices served by it generally have copious parking.

- A bus service between Tea Tree Plaza and Port Adelaide (Route 361) was introduced many years ago and has been progressively improved, but is generally poorly patronised for much of the day. Commencing in 2018, for about 18 months, an express service was operated at peak times between Tea Plaza and Port Adelaide to assist public servants working in the Port. It was eventually withdrawn, with drivers reporting that they were lucky to carry 3 passengers!

- In outer suburbs there are many rail feeder services that satisfy the "Modal integration" desired in your paper. As well as connecting with trains or the O-Bahn, they provide cross-suburban transport in many outer suburbs.

- In the area generally within 20 kms of the City, the structure of the bus network has been changed considerably. Planners knew that bus routes which are purely cross-suburban are generally poorly patronised, so instead, many of Adelaide's radial (city-based) bus routes were progressively changed or extended to service major suburban centres, either terminating at those centres or passing through them. This means that many people living within 20 kms or so from the City can travel on one bus either to/from the City or to/from a major suburban centre. They can also travel across the suburbs by changing buses in the City or at these major suburban centres. Unfortunately, partly through lack of publicity, many people are not aware of this. They think that because there is no direct bus to where they want to travel, Adelaide has poor cross-suburban transport, yet there would be no large city in the world where it is possible to travel from anywhere to anywhere else on one bus or train. Prior to the 1970s they would have had to pay two fares if they had to transfer on the way to their destination, but our ticketing system allows them to make such transfer journeys no more costly than a single journey.

- Major suburban centres served by a number of bus, tram or train routes include: Munno Para, Elizabeth, Salisbury, Mawson Lakes, Modbury (Tea Tree Plaza), Port Adelaide, Arndale Kilkenny, West Lakes, Norwood, Burnside, Stirling, Mitcham, Glenelg, Marion, (Flinders Medical Centre and Uni), Noarlunga Centre, and Seaford.

As an example of the above, Marion Shopping Centre is served by the following bus routes:

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G10: Blair Athol – Prospect Road – North Adelaide – City – Goodwood Road – Fiveash Drive – Flinders Uni – Flinders Medical Centre – Sturt Road – **Marion Centre**

M44: Golden Grove – Ladywood Road - Tea Tree Plaza – O-Bahn – City – Anzac Highway – Marion Road - **Marion Centre**

W90: Paradise – Felixstow – Marden – St Peters – City – Wayville – Clarence Park – Daw Park – Mitchell Park – **Marion Centre**

241: City – Kurralta Park – South Plympton – Edwardstown – Warradale – **Marion Centre**

248: City – Anzac Highway – Plympton Park – Glengowrie – **Marion Centre**

262: City – Anzac Highway – Glenelg – Brighton Road – Brighton – **Marion Centre**

263: City – Anzac Highway – Glenelg – Brighton Road – Dunrobin Road – **Marion Centre**

265: City – Anzac Highway – Glenelg – Somerton – Hove – Brighton- Seacliff – **Marion Centre**

300: (Suburban Connector) Arndale Kilkenny – Regency Road – OG Road – Portrush Road – Norwood – Glen Osmond – Cross Road – Belair Road – Mitcham – Springbank Road – Fiveash Drive – Flinders Uni – Flinders Medical Centre – Sturt Road – **Marion Centre** - Diagonal Road – Glenelg - Henley Beach – Grange Road – Findon Road – QEH – Woodville Road – Arndale Kilkenny.

600: Marion Centre – Sturt Road – Flinders Medical Centre – Flinders Uni – Shepherds Hill Road – Blackwood Station – Coromandel Parade – Manning Road – Aberfoyle Hub – Reynell Road – Old Reynella Interchange

601: **Marion Centre** – Sturt Road – Flinders Medical Centre – Flinders Uni – Shepherds Hill Road – Eve Road - Blackwood Station – Main Road – Oakridge Road – Aberfoyle Hub – Reynell Road – Old Reynella Interchange

645: **Marion Centre** – Dover Gardens – Seaview Downs

646: Marion Centre – Morphett Road – Seacombe Heights

720: City – Mile End – South Road – Sturt Road – **Marion Centre** – Seaview Downs – Hallett Cove – Old Reynella

734: **Marion Centre** – Sheidow Park - Old Reynella – Lonsdale – O-Sullivan Beach – Christies Beach – Noarlunga Centre

In addition to the above, on some of the routes listed above, buses change route numbers in the City and continue to suburbs on the other side of the City.

Similar lists can be prepared for a number of other centres. These show the large proportion of bus routes that can cater for non-radial / cross suburban travel.

It is also important to note that Adelaide has, since the commencement of electric trams in 1909, had a practice of through-linking of suburb to City bus routes, which, as well as providing access into the City, can also be used to travel from suburbs on one side to suburbs on the other side of the City, without the need to change buses in the City. In most cases these buses change route numbers on the way through the City but public timetables provide information on the linked routes. Since the first decade of this century, a few through-city routes have been renumbered to provide the through-linking information (e.g., the G10 from Blair Athol via Prospect Road, the City, and Goodwood Road to Flinders University and Marion Centre).

Encouraging cross-suburban travel by public transport could be made more convenient by frequency improvements. As it is impossible to provide services that link every possible

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passenger origin with every possible passenger destination, making cross-suburban trips (even via the City) often involves catching two or more buses, trams or trains. It is physically and mathematically impossible to ensure that all services are coordinated at every route intersecting point, so in many cases transferring requires a wait at the transfer point (this is also not made convenient by the road authority's insistence on locating bus stops well away from the intersections). These waits can be made more convenient by making the services more frequent. While Go Zones operate every 15 minutes, a large proportion of services during the day on weekdays operate every 30 minutes, so a passenger transferring may have to wait up to 29 minutes at the transfer point, not a pleasant experience on a busy arterial road! Are Governments prepared to fund the increased services to provide, say, 15 minute frequencies on most routes? A good test might be to increase the normal frequency of the 300 Suburban Connector from 30 minutes to 15 minutes.

Such frequency improvements would be more likely to be justified with other changes, such as increased urban densities (rather than outward growth), improved public transport publicity (so that people would be aware of the range of destinations reachable by public transport), better signage etc.

Modal Integration

Large parts of Adelaide's public transport network are already modally integrated, with bus services in the Outer North beyond Mawson Lakes, the Mitcham Hills beyond Blackwood Station, and the Outer South beyond Noarlunga Centre already closely integrated with rail, with coordinated services.

- Attempts were made in 1993 to better integrate bus and train services beyond Port Adelaide at both Ethelton and Glanville Stations but these were unsuccessful because residents of those areas already had buses that took them into Adelaide's Central Business District (CBD) and they didn't take kindly to having those bus services removed. The LeFevre Peninsula north and west of Port Adelaide is still suffering from poor public transport – it is no longer possible to travel on one bus between Port Adelaide and Semaphore – a once very popular bus route!
- At Mawson Lakes in 2008 a number of bus services were diverted from direct routes into the City (King William Street) to feed trains at the new interchange. There were very strong protests for the same reasons and some modifications had to be made to the changed bus routes.
- Buses feeding into Brighton Station reverted back to radial to the City or to connect with other City buses at Marion as few passengers were transferring to trains at Brighton,
- The number of bus-train connections at Blackwood (first introduced in 1984) have reduced due to poor patronage.

While some improvements could be made to those rail feeder services by improving frequencies, the previous experience has been that passengers who have direct buses into the CBD (King William or Grenfell Streets), even though they might be slower than the train, did not wish to transfer to a train which deposits them on North Terrace on the edge of the CBD, 500 metres from the City core. The same applies to motorists who have easy parking available in many parts of the CBD.

Potential Heavy Rail Extensions

Rail extensions will be costly, but if the Government is serious about increasing public transport use and reducing the physical, environmental and social costs of motor vehicles, it must include the costs of both bus and rail extensions in its evaluation of the future shape of Adelaide.

Potential heavy rail extensions which should be considered, or at least ensure that corridors are provided to allow for them in the future:

- Following adjacent to the interstate line branching from the Gawler Line at Salisbury, to Virginia, then via a route to be determined to serve **Riverlea, Two Wells** and beyond; alternatively to branch from the Gawler Line in the vicinity of Dry Creek, following the projected freight rail corridor roughly parallel with Port Wakefield Road to Virginia, then to Riverlea, Two Wells and beyond.

- Extend from Gawler to **Roseworthy and/or Concordia**, and in the long term to the **Barossa**.

- Subject to proposed trials showing that a rail service could be time-competitive with bus or car travel form Adelaide, upgrade and reopen a suburban passenger rail to **Mount Barker or near Mount Barker Junction** and in the longer term to **Murray Bridge**. However, due to the much greater distance from Adelaide to Mount Barker by rail (55 km) than by bus (33 km) it is desirable that fast and frequent bus services, with convenient park and ride facilities, also be introduced (or existing ones upgraded) between Adelaide and Mount Barker, with extensive bus priority, especially along Glen Osmond Road where buses are subject to major congestion delays at peak times. Fixing Glen Osmond Road for buses should be a high priority.

- In the longer term, extend the **Flinders Line** over the escarpment to **Old Reynella** then following the old Willunga rail corridor to **Hackham** and possibly link with the Seaford Line near Seaford Meadows. This possibility has been shelved in the past due to the likely extensive earthworks but it is possible that today's electric trains may be capable of dealing with steeper grades than previous rolling stock.

- Extend the Seaford Line to **Aldinga** *i*mmediately, and in the near term to **Sellicks**, making provision for its longer term extension via the Hindmarsh Valley to **Victor Harbor** and Goolwa, a much shorter route to the South Coast (about 90 kms) than the old Victor Harbor Line via Strathalbyn (132 kms).
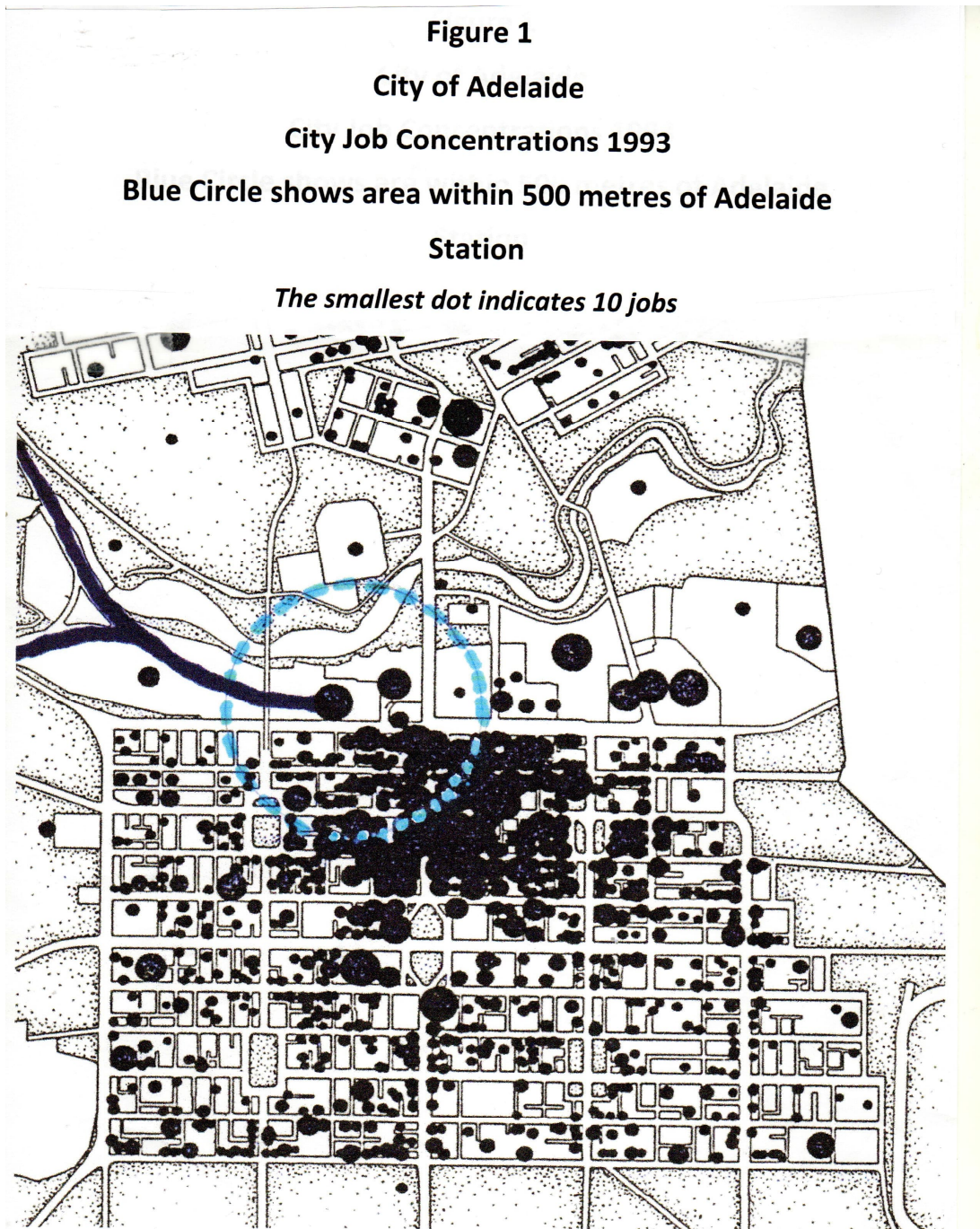
Rail should be the Network Spine – an Underground Link so the spine includes the CBD

The rail network should become the spine of the public transport network, but it will not assume such a strong place in the network unless it serves the Central Business District (CBD) in a much better way than it does at present. When Adelaide Station was first located on North Terrace West, competition from other (horse drawn) modes was minimal, so its location was not very important. Today it has competition from other modes, so its location becomes much more important. The lack of interest by bus passengers from outer suburbs in transferring to trains to the City is a demonstration of this poor location on Adelaide Station. The rail system can serve the CBD much better if the northern and southern rail lines are linked under the City by an underground tunnel, just as has happened and continues to be strengthened in Melbourne,

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Sydney, Brisbane and Auckland, and to a lesser extent in Perth. It can also assist in the CBD's competition with suburban centres.

The direct linking of northern and southern lines, particularly those to Gawler and Seaford, would also improve public transport access from north to south, as many people would be able to travel over long distances by train without the need to change trains in Adelaide. The need to improve rail access into the CBD will become more significant either with desirable increases in population density along the rail lines and / or increasing populations served by rail in outer suburbs.

The map below shows how poorly the rail system serves jobs in the City.

Figure 1

City of Adelaide

City Job Concentrations 1993

Blue Circle shows area within 500 metres of Adelaide Station

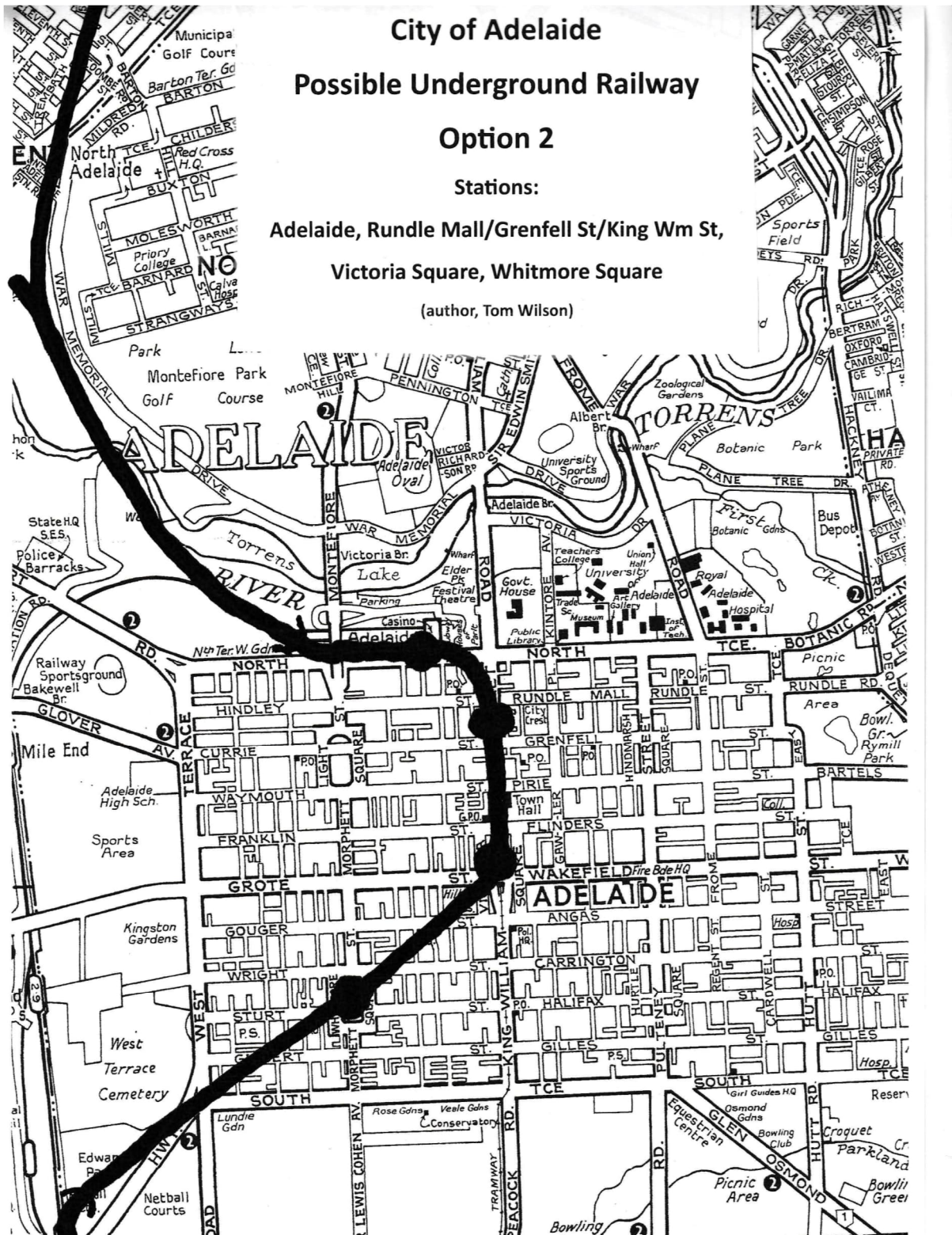*The smallest dot indicates 10 jobs*

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A potential underground link would run for about 4 kms from Adelaide Station (preferably under the Station Tram stop to provide for tram-train interchange) eastwards towards the eastern end of Rundle Mall and Hindmarsh Square, then turn south west to stations under Victoria Square and Whitmore Square, then emerge to the north of the Keswick Bridge, linking with the southern lines on the approach to Showgrounds Station.   It could be largely built by the increasingly popular Tunnel Boring Machines (TBMs) being used elsewhere – including in Australia, thus avoiding the disruption caused by cut and cover tunnelling. See Option 1 below.

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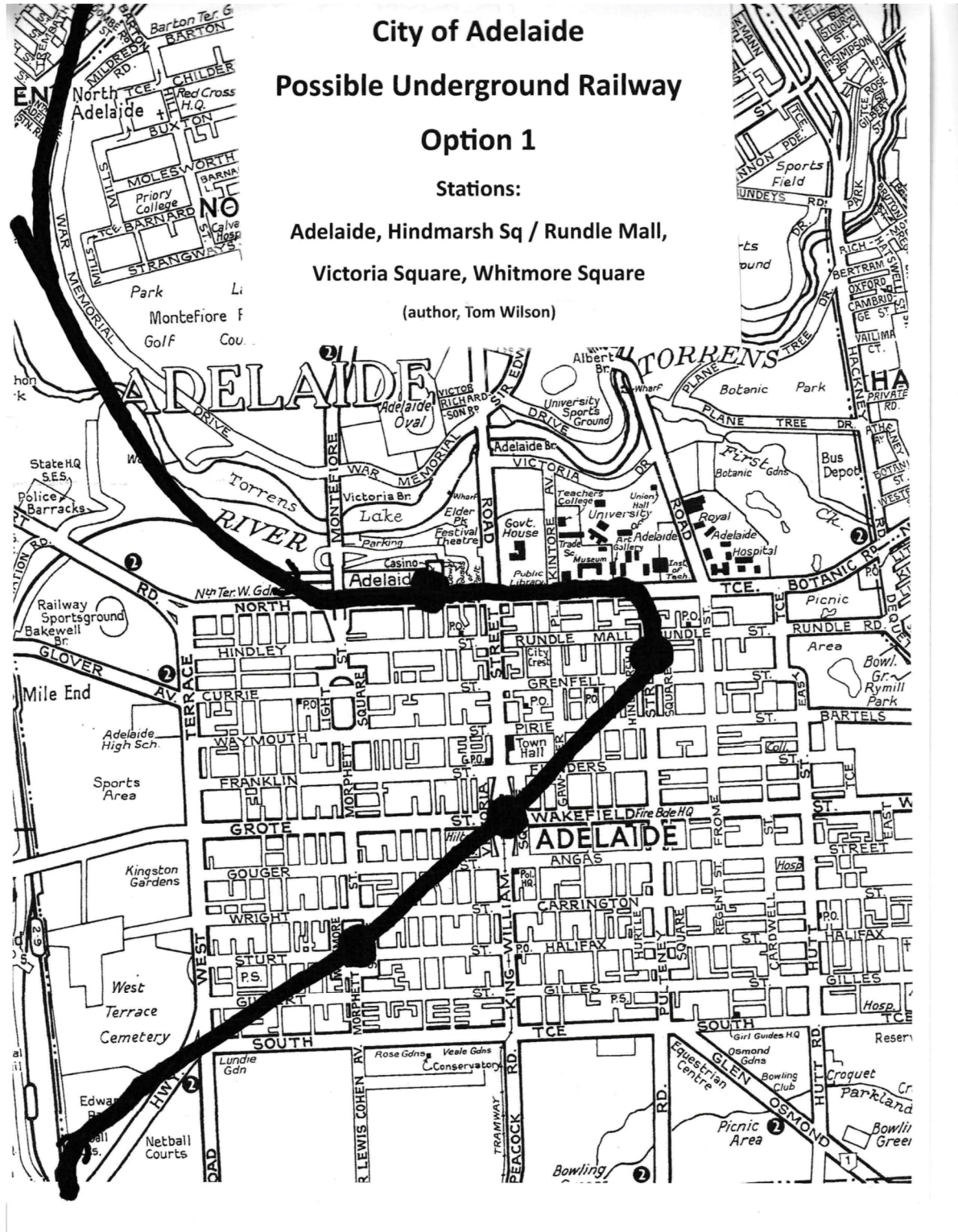
An alternative option would be to shorten the above underground route by turning south from Adelaide Station to a city centre station in the city core – Rundle Mall / Grenfell Street / King Willim Street – then to Victoria Square and resuming the first option (above) via Whitmore Square to the Keswick area. See Option 2 below.

City of Adelaide
Possible Underground Railway
Option 2
Stations:
Adelaide, Rundle Mall/Grenfell St/King Wm St,
Victoria Square, Whitmore Square
(author, Tom Wilson)

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Better serving the City centre by rail has been an obvious aim of many cities. Melbourne has had an underground loop encircling the CBD for many years, but at present is building a 9 km north west – south east line under Swanston Street with 5 stations at a cost of $12 billion. Using the same cost per km., Adelaide's cost would be around $5.3 billion, significantly less than the South Road Tunnels, the cost of which I now understand is approaching $15 billion.

An interesting example of providing better CBD rail access (but with trams rather than trains) is Manchester, where in the 1990s two suburban railways which terminated at the city's edge were converted to light rail (tram) and linked through the City centre. Patronage on those former heavy rail lines increased by 60%. A number of other cities have carried out similar conversions or undergrounded their suburban railways in the CBDs. A 60% (or more) increase in Adelaide's rail patronage would be well worthwhile, and the greater convenience provided for rail access to CBD destinations would make the densification of Adelaide suburbs close to railway stations much easier to achieve.

Adelaide is committed to the South Road Tunnels, the cost of which I being supported by the Federal Government. Both Governments would demonstrate their support for public transport by committing to build a City Underground Link.

Trams / Light Rail

One method of making bus services significantly more attractive is to replace them with trams as was proposed by AdeLINK, or similar. Trams are much more obvious and attractive to passengers than are buses, and the urban development that has already taken place along tramlines like North Terrace and King William Street South demonstrate the success more tramlines would be likely to have. Many people will use a tram or train but will not use a bus. I was advised by older co-workers when I was first working in public transport, that when the old trams were being replaced by modern buses, patronage on each line dropped by about 20%.

On days on which a large number of people use public transport as a "one-off", such as the Christmas Pageant, the trams and trains are well patronised, but buses are not subject to similar one-off patronage increases. At present Adelaide has a partially completed tram network, with lines like that to the Entertainment Centre, Festival Plaza, and the Botanic Gardens, all originally proposed for extension, not being used for the purpose for which they were intended. Any plan for Adelaide needs to include a review of potential new tramlines or extension, and development of the tram network can help with urban consolidation.

I believe that one of the factors that may have made some people wary of reintroduction of trams was the AdeLINK proposal to operate trams along major roads, and the implications that would have for traffic congestion and possibly its impact on the progression of the trams involved.

As Adelaide people are not accustomed to significant use of main roads by trams, it may have been better for the AdeLINK Project to have proposed a progressive introduction of trams by introducing them in areas where it would be possible to limit their on-street operation, and the ideal location to do that would be to replace the Outer Harbor and Grange heavy rail lines with light rail that would only operate on-street:

- in the CBD, as at present,
- between the City and the Entertainment Centre,

  (note that in both of the above cases, the trams are largely segregated from other traffic by medians, and a similar treatment could apply to much of the below:)
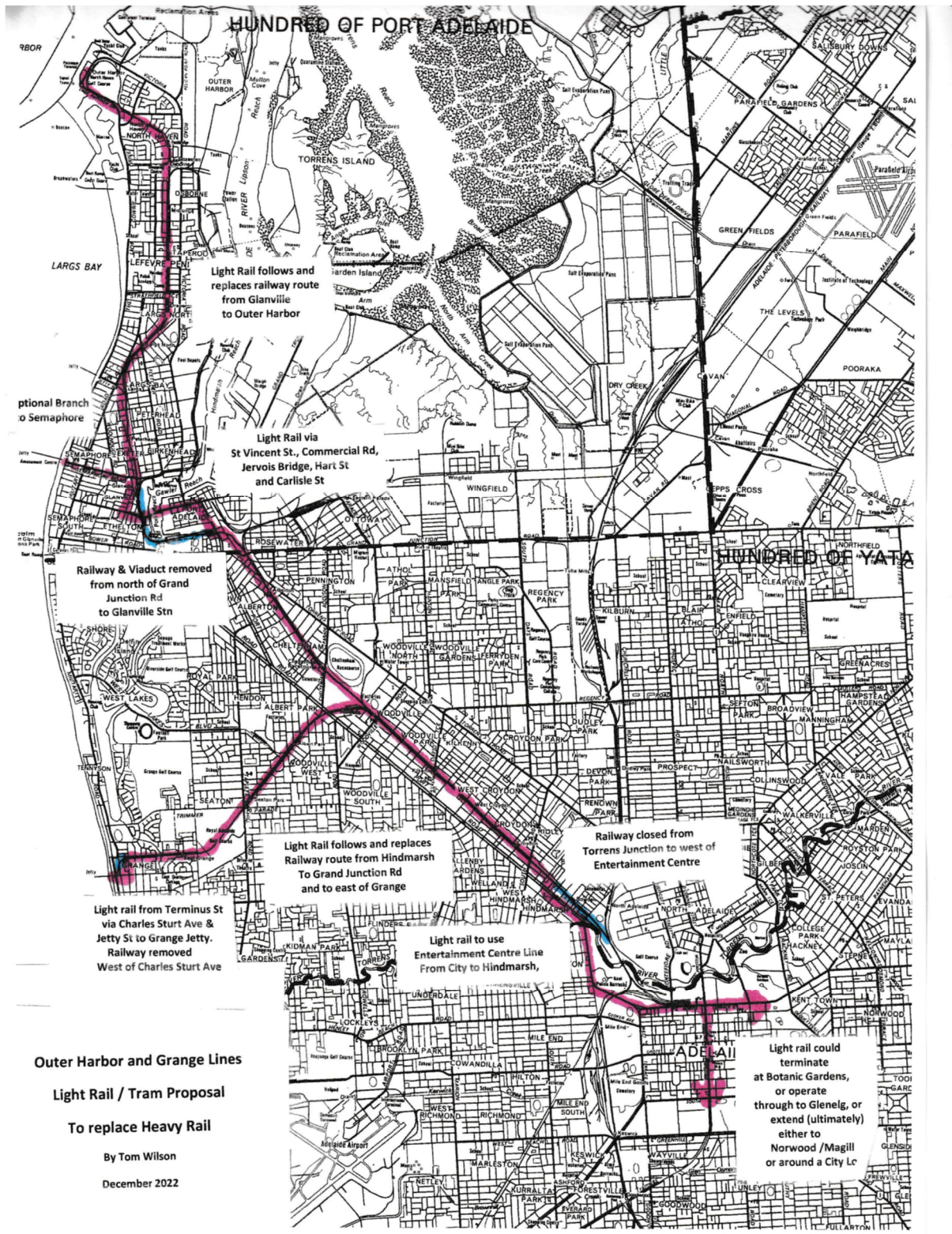
- through Port Adelaide centre,
- for a short distance along streets in Grange, and,
- possibly, along Semaphore Road.

For the remaining distances the trams would operate in the existing rail corridors

- between Hindmarsh and Port Adelaide,
- between Glanville and Outer Harbor, and
- between Woodville and to the east of Grange.

I am suggesting the option of converting the Outer Harbor and Grange Railways to light rail as an alternative to having all suburban railways as part of the Underground Rail proposal described earlier. There are already tram tracks in the City that could be used by trams to Outer Harbor and Grange, and the use of trams on these lines would allow the Port Adelaide Centre and Grange to be much better served than would heavy rail, as that cannot run on-street. Much of the Outer Harbor system has been laid with gauge convertible tracks, so its conversion to light rail would be relatively simple (as was done in Melbourne with the St Kilda and Port Melbourne lines). The conversion of these lines could be carried out more quickly than the construction of the Underground, and it would leave greater capacity for growth on the longer lines that would be using the Underground, especially if the heavy rail system is to be expanded into areas such as Riverlea, Concordia, Mount Barker and Sellicks. It would also give residents of the north western suburbs at an early date better access to the Adelaide CBD than does the existing heavy rail service. The map following shows the Outer Harbor and Grange lines being discussed here.

Consideration needs to be given to other potential tramlines, especially the completion of the currently incomplete City lines, by extension at least to North Adelaide and possibly Magill via Norwood, together with a long-suggested tramline to the Airport (perhaps via the Keswick Creek corridor). There are of course, other possibilities – I am just suggesting initial projects.

HUNDRED OF PORT ADELAIDE

Light Rail follows and
replaces railway route
from Glanville
to Outer Harbor

Light Rail via
St Vincent St., Commercial Rd,
Jervois Bridge, Hart St
and Carlisle St

Railway & Viaduct removed
from north of Grand
Junction Rd
to Glanville Stn

Light Rail follows and replaces
Railway route from Hindmarsh
To Grand Junction Rd
and to east of Grange

Railway closed from
Torrens Junction to west of
Entertainment Centre

Light rail from Terminus St
via Charles Sturt Ave &
Jetty St to Grange Jetty.
Railway removed
West of Charles Sturt Ave

Light rail to use
Entertainment Centre Line
From City to Hindmarsh,

Light rail could
terminate
at Botanic Gardens,
or operate
through to Glenelg, or
extend (ultimately)
either to
Norwood /Magill
or around a City Lc

Outer Harbor and Grange Lines

Light Rail / Tram Proposal

To replace Heavy Rail

By Tom Wilson

December 2022

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Public Transport an Essential Service

There is a tendency among some planners and politicians to not regard public transport as infrastructure and as an essential service, like roads, water supply and sewerage, electricity etc. My experience has been that many members of the community regard public transport as an essential service, and this was demonstrated, as indicated earlier, in 2019 when the then Transport Minister Knoll endeavoured to speed up some bus services and make them more frequent by eliminating a lot of bus routes, which would have significantly increased the distances that people had to walk to access public transport. This resulted in a very significant public outcry, so much so that the then Government abandoned the idea.

It is important to note that public transport in a low density / high car ownership city like Adelaide needs to be heavily subsidised, and this is especially so in new suburbs when the number of residents is small. The only cities in which public transport is profitable are those with very high population densities, where patronage is high through most of the day. In Australian cities large numbers of public transport vehicles and drivers are required only at peak times, so their productivity is low.

The public transport services need to be introduced at a very early stage of development. If this is not done, then new residents will purchase more cars than they will ultimately need, and so will not be interested in public transport when it finally arrives. Of course such early provision will need to be even more heavily subsidised, and ideally the developer should be expected to contribute to that provision. In my time planning new bus services it was very difficult to obtain the necessary funding, so we had to reduce services in well-served suburbs in order to provide services in the new suburbs. The result was an on-going reduction in public transport patronage, as patronage in the older suburbs fell at a greater rate than the increase in outer suburbs, which are more difficult to serve.

Bus services require the buses and the roads on which to travel, with the local roads they use needing to be more heavily constructed than non-bus roads, so such roads need to be identified prior to construction of new housing developments. They also need to be linked to other roads accessing new developments along a sensible, fairly direct route so as to minimise bus travel time. I experienced many situations in which bus services could not be provided because there was no decent road access to the development, or the staging of development was such that the buses could not be introduced or had to follow temporary routes, thus upsetting residents along the temporary route who did not want a bus in their street, and upsetting established passengers when the final route was introduced. In planning a new housing development, the principal road layout for a large area needs to be planned initially with a plan for the bus routes to serve all of the proposed development area, then the development should be staged so that bus routes can be progressively introduced along their ultimate routes, without having to have temporary arrangements which will inconvenience people when they are changed.

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Serving Suburbs on the Outskirts

"Servicing growing communities on the outskirts of the city and in our regional cities and towns remains a challenge, as delivering public transport in lower density areas costs more per capita. Approaches such as on-demand bus services, as currently being trialled in Mount Barker, can support greater levels of uptake for public transport in a more-cost effective way than investing in new infrastructure. When coupled with urban design and active travel modes, demand can be reduced for private car usage."

If Adelaide is to be permitted to grow ever outwards, serving those outer suburbs by public transport will be difficult, but it is important to be aware that on-demand services won't necessarily serve more than a very small part of the need. The problem with on-demand dial-a-ride type services is that the more successful they become, the more unattractive they become, because to serve a number of different passenger demands the buses have to wander all over the place, resulting in some passengers taking much longer to travel between their origin and destination. They are thus most popular with the passengers who are the only ones on board, which then makes the service costly to operate.

A conventional bus service can operate at fixed times, and, subject to having a decent road pattern, can follow a reasonably direct route, or at least along a route that most users are aware of. Conventional buses also do not require the users to make bookings. I understand that the service at Mount Barker is primarily used by passengers making local trips, where travel time taken is of lesser importance, and that few passengers use them to transfer to the normal bus services to the City. Making sure that connections with the normal bus services must be difficult when an on-demand service cannot guarantee its arrival time at the connecting point.

Before any rail services are extended to serve new outlying development it will be necessary, at least temporarily, to introduce relatively fast and direct bus services operating at a reasonable frequency using fares that are interchangeable with Adelaide Metro train or bus services to Adelaide. This should be done by extending the Adelaide Metro fare system to include towns as far out as Two Wells, the Barossa, Murray Bridge, Strathalbyn and Victor Harbor. Ideally a tap-on, tap off fare system should be introduced that can allow higher fares for the longer distances, while at the same time allow the reintroduction of lower fares for short distances (e.g. Unley to the City, or Hackham West to Noarlunga Centre), which would be more equitable and would assist in encouraging urban consolidation.

Answer to Discussion Paper Question

How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

Note that the outer suburban rail extensions are dependent on the Government's desire to extend suburbia outward. If the Government opts for increased densities closer to Adelaide, then those outer suburban rail extensions would be a lower priority.

	Short Term	Medium Term	Long Term*
Low Cost	- Reopen City Info Office. - Improve Information and marketing, including public transport map, more info on stops etc. - Improve frequencies, esp early evenings & weekend shopping hours. More Go Zones & Extended times. - Fast Bus to Mt Barker - Reserve corridor Aldinga to Sellicks - Plan for Underground Rail	- Extend Adel Metro buses and fare system to outer towns (e.g., Two Wells, Murray Bridge, Victor Hbr.) - Tap on, Tap off fares to allow for different short and long distance travel.	
High Cost	- Extend Seaford Line to Aldinga - Convert Outer Hbr & Grange Lines to Light Rail (extend Entertainment Centre Line) - Rail to Mt Barker (if justified by tests), and decide what to do with Belair Line	- City Underground Rail - Extend Gawler Line to Roseworthy and/or Concordia - Rail Aldinga to Sellicks - Trams to North Adelaide (or beyond), Magill (via Norwood), and Airport, (and a City Tram Loop if there is no Underground Rail)	- Rail to Two Wells - Rail to Barossa - Rail to Murray Bridge - Extend Flinders Line southward - Rail Sellicks to Victor Harbor

*The longer of these railway proposals may not be required if an increased density policy is followed.

On-going:

- Better planning of new suburbs to allow for effective public transport, and funding of public transport at an early stage.
- Bus route extensions into new or poorly served suburbs.
- Progressive frequency improvements.
- Increased bus priority.
- Improved bus routes.

Suppression of Private Car Use:

Apart from providing good public transport systems, some cities reduce private car use and increase public transport patronage by making driving less attractive.

We will simply have more and more demands for additional roads, wider intersections, and less priority for pedestrians while we continue to provide more road space.

Greater pedestrianisation and less car penetration of attractive areas is one way of achieving this, e.g., are there more streets in the City that can be pedestrianised? For many years there have been proposals for a transit mall in Grenfell Street, giving improved priority to buses and pedestrians. A good start would be to remove access to parking stations from Grenfell Street.

The State Government should investigate ways of minimising car use at peak times, when congestion levels lead to demands for more roads etc. It is notable that public transport fares are greater at peak times to cover the increased cost, so the same arguments should apply to use of roads. Methods include: congestion charging, cordon charging, car parking levies etc.

Such arrangements need to be applied equitably, e.g. the City of Adelaide would complain if these were only applied to the City, so perhaps they need to also be applied to major shopping centres – after all, the State provides both good road access and public transport to the larger shopping centres. On the other hand the CBD is an obvious location for congestion charging since it is a major attractor of motorists and promotes parking, and the levels of car use severely impact inner and middle suburbs. Alternatively with use of GPS it may be possible to charge car drivers for driving anywhere in Adelaide during peak periods.

While such methods may be unpopular, perhaps they could be offset to some extent by reduction of selected other charges. Congestion charging could be coupled with significant investment in urban amenity and significant improvements in public transport   London is one city that has been using congestion funds to invest in public transport.

It would be worth investigating these possibilities, including how to manage equity issues and how best to use the funds.

What Not to Do:

Park'n'Ride is not a Panacea

Some people might suggest that Adelaide should continue with providing large park'n'ride sites. While such sites might be necessary in very low density areas where it is not possible to justify feeder bus services, this method of access to rail or high-frequency bus services should not be regarded as a complete solution.

A survey carried out by the University of Adelaide after the park'n'ride facility at Hindmarsh was developed at the end of the Entertainment Centre Tramline (opened 2010) indicated that many of the park'n'ride users had previously caught their bus or train into the City from close to their home. Since the facility was opened they had switched to driving their cars a long distance to the park'n'ride facility at Hindmarsh instead of walking or driving a short distance

to their local bus or train service. This had the result of increasing their driving, with the resultant increase in pollution, congestion, and so on.

Often, people will park'n'ride when they know they might be coming home after normal business hours. It is important, therefore, that local feeder services continue until later in the evening to encourage them to use public transport for their total inbound and outbound journeys. If they do not, patronage on the remaining feeder services will drop and the feeder service will become even less justified, thus penalising those people who are absolutely dependent on public transport. The cost of building multi-storey park'n'ride facilities also needs to be balanced against the cost of adequate feeder services.

The greater flexibility in working arrangements means that "after hours" feeder services need to be improved. In addition, activities at interchanges (e.g., coffee facilities etc) need to be encouraged to improve waiting passenger security.

Free Fares – No!

Some people consider that providing free public transport would increase patronage.

In 1990-1992 public transport in Metropolitan Adelaide was provided free for primary and secondary students. As a result, students were given free rein to wander all over the metropolitan area, as they could skip school and travel around without any restrictions. The result was increased juvenile crime rates, bus drivers being stressed and frustrated about the physical and verbal abuse to which they were being subjected, and buses being vandalised in full view of drivers. Over many months, many adult passengers petitioned the Minister to withdraw the concession, the Minister reluctantly withdrew the free travel in 1992.

A report "Public Transport Pricing Research Paper" by the Australian Government Productivity Commission Dec 2021 said:

In the febrile climate of the COVID-19 crisis, some have been tempted by the seductive idea that zero fares would be a good way of reviving public transport. One insight from our work is that this would not be effective in achieving that goal. Instead, it would divert funds better spent on service quality, often to people with higher-incomes who do not need the subsidy.

In my view, any changes to Adelaide's fare system should allow it to be extended to serve towns for future growth that are covered by the Greater Adelaide Regional Plan. This does not mean that there should be flat fares, merely that it should be possible to travel anywhere in that area on the one ticket without being penalised for transferring, and that fares should be equitable, so that the fare charged over similar distances should be the same. In addition, fares should be graduated (similar to the zone system originally introduced in 1979), but with lower fares for short distance travel (as with the old two section fare), which would encourage

increased urban development in inner suburbs or close to district centres. This could be achieved by use of a "tap on - tap off" fare system. The current system is inequitable.

I have also made a submission regarding the Greater Adelaide Regional Plan Discussion Paper.

I would be pleased to discuss these matters with you or your representatives.

Tom Wilson