

APPRAISING METROPOLITAN ADELAIDE'S STRATEGIC PLANNING FOR URBAN TRANSPORT IN THE 21ST CENTURY

RESUMEN

En 2010, el Gobierno del Estado de Trabajo de Australia del Sur bajo la presidencia de Mike Rann presentó el Plan de 30 años para el Gran Adelaide (30YPGA). Este Plan tiene un papel clave en la transformación de Adelaide en una nueva forma urbana compacta y sostenible. En una ciudad que se caracteriza por la dependencia del automóvil y el desarrollo de baja densidad, esto representa potencialmente un momento crucial en la futura planificación de Adelaide. Sin embargo, una deficiencia crítica de la 30YPGA era que carecía de detalles explícitos sobre la naturaleza de las infraestructuras de transporte y movilidad en el transporte que se requeriría para apoyar un creci-

miento de la población prevista de 560,000 personas a la población actual de entonces de 1,15 millones de Adelaide. La debilidad en el 30YPGA en la planificación para el transporte está a punto de ser rectificado con una próxima a estrenarse Integrado de Transporte y el Plan de Uso del Suelo (ITLP) para el estado australiano de Australia del Sur. Una versión preliminar del ITLP fue lanzado al público para consulta a la comunidad a finales de 2013. Este documento se plantea si el enfoque legislativo adoptado para hacer frente a los problemas en el ITLP son adecuados para alcanzar los objetivos globales de planificación para la 30YPGA, particularmente en lo relativo a la

transformación del sistema de transporte público de Adelaide y en la creación de nueva forma urbana basado en una red de Orientado al Tránsito desarrollos (tods) y corredores de tránsito (CT). También examina si la movilidad y la accesibilidad serán significativamente mejorada por el Plan, y, por último, si tiene el potencial de reducir significativamente las emisiones de carbono.

PALABRAS CLAVES: DESARROLLOS ORIENTADO AL TRÁNSITO; CORREDORES DE TRÁNSITO; PLANIFICACIÓN ESTRATÉGICA METROPOLITANA; SOSTENIBILIDAD DEL MEDIO AMBIENTE

ABSTRACT

In 2010, the South Australian State Labor Government under the premiership of Mike Rann introduced the 30 Year Plan for Greater Adelaide (30YPGA). This Plan has a key role in transforming Adelaide into a new compact and sustainable urban form. In a city that is characterised by car dependency and low density development, this potentially represents a pivotal moment in Adelaide's planning future. However, a critical shortcoming of the 30YPGA was that it lacked explicit detail about the nature of transport infrastructure and transport mobility that would be required to support a planned population

growth of 560,000 people to Adelaide's then current population of 1.15 million. The weakness in the 30YPGA in planning for transport is about to be rectified with a soon to be released Integrated Transport and Land Use Plan (ITLUP) for the Australian state of South Australia. A draft version of the ITLUP was released to the public for community consultation at the end of 2013.

This paper considers whether the legislative approach taken in addressing the issues in the ITLUP are suited to achieving the overall planning objectives for the 30YPGA, particularly as they relate to transforming Adelaide's public transit

system and in creating new urban form based on a network of Transit Oriented Developments (TODs) and Transit Corridors (TCs). It also examines whether mobility and accessibility will be significantly improved by the Plan, and lastly, whether it has the potential to significantly reduce carbon emissions.

KEYWORDS: TRANSIT ORIENTED DEVELOPMENTS; TRANSIT CORRIDORS; METROPOLITAN STRATEGIC PLANNING; ENVIRONMENTAL SUSTAINABILITY

INTRODUCTION

This paper examines and appraises the new draft Integrated Transport and Land Use Plan (ITLUP) for the Australian city of Adelaide, the state capital of South Australia. This draft Plan was released for community consultation in October 2013, and if adopted, the State Government claims that it will contribute to a more compact and more sustainable Adelaide, with more people using public transport, walking and cycling, and a greater proportion of the population living in denser housing that is well serviced by public transport. Three critical questions arise in reviewing the Plan: firstly, will this new transport plan result in a transformation of Adelaide's urban form to a compact urban form, characterised by a networked system of Transit Oriented Developments (TODs) that is interconnected with Transit Corridors with high density residential

development; secondly, how will mobility and accessibility be improved through adoption of this Plan; and thirdly, to what extent will carbon emissions be reduced?

The structure of this paper begins with a discussion of how past planning decisions and history had created the preconditions for a car-oriented city, that until recently, planners have been unwilling and ineffectual in responding to. The paper then discusses the land use-transport nexus in planning, and the concept of the need for an integrated transport and land use planning approach in any major urban planning undertaking. The question is asked: what should be the functional requirement of an integrated transport and land use plan for metropolitan Adelaide. An overview is then provided of the draft Integrated Transport and Land Use Plan. The detailed appraisal of the draft Plan is then completed with respect to

its governance, its contribution to the compact city concept, whether it will make a difference to mobility and accessibility, and whether it will reduce carbon emissions from urban travel. The paper then concludes with recommendations for improvement and a conclusion.

BACKGROUND

Metropolitan Adelaide is a moderately sized low density conurbation of 1.15 million people extending nearly 80km from north to south along the shores of the Gulf St. Vincent and up to 22km in breadth between the Gulf and the Mt Lofty Ranges to the north. Its urban spatial extent forms a triangular outline with a dominant north-south axis, and the apex of the triangle in the south where the Willunga Hills merge with the coast. In its urban form, Adelaide echoes the linear city form concept "Ciudad Lineal" which

was originally put forward in 1882 by the Spanish architect Arturo Soria y Mata (Ratcliffe, 1981). The city was first established by free settlers in 1836, and it expanded rapidly, reaching a population of 51,103 in 1871, over 141,000 people by the time of the Federation in 1901, the birth of the Australian nation (Hutchings, 2007), and 600,000 by the time of the 1962 Plan for Metropolitan Adelaide (GSA, 1962). As Adelaide grew during the 20th century, it emerged as the quintessentially 20th century city built around the private car, with its urban densities, functions, form and structure having developed to facilitate the bulk of urban travel and movement of goods and services by private car and commercial road transport. However, before the advent of universal private car ownership (i.e. prior to the Second World War in 1939), although Adelaide's urban form was essentially characterised by low density suburban development in the form of semi-detached or free-standing single storey suburban bungalows, public transport dominated urban movement with buses, trains or trams. Indeed, in the early 1900s and up to the mid 20th century, Adelaide was a public transport oriented city, with a relatively low modal share for private cars and high levels of public transport usage which were made possible by a comprehensive network of railways and horse-drawn tramlines radiating out from Adelaide's city centre to virtually all points of the compass.

However, the urban form choices that were made at that time in terms of governance, legislation, urban planning, development preferences, urban services (i.e. water, drainage, sewerage, gas, electricity and telephony) and transport infrastructure, perhaps unwittingly established an urban development template that whilst initially oriented towards public transport, was easily adapted to accommodating the private

car as the dominant urban transport mode. The city's early urban form spread out under the control of separate Town Planning Schemes that would form distinct suburbs across a broad and generally level coastal plain, and was characterised by wide arterial through roads radiating out from the city centre, serving an orthogonal grid network of local streets, with spacious housing allotments of a quarter acre or larger, that allowed households to achieve some measure of self-sufficiency in growing their own food and capturing rainwater on-site to ensure self-sufficiency through Adelaide's long hot and dry summers. The early 20th century British Garden City Movement was highly influential in the planning of Adelaide's suburbs, with numerous garden suburbs and model estates established during the era 1917-1929 such as most notably Colonel Light Gardens, Hampstead Gardens and Linden Park. When private car ownership did become financially feasible in the late 1950s, even in Adelaide's established suburbs from the 19th century, households were able to make and easy and practical transition to car ownership with minimal adaptation to their dwellings. Moreover, the orthogonal street networks of the suburbs, the abundance of road space, and the gun-barrel straight arterial roads providing direct access to Adelaide's C.B.D. were naturally attuned to the needs of direct and effective urban motoring, which whilst not at freeway speeds, nevertheless the general urban speed limit of around 60km/h allowed most parts of the metropolitan area to be reached within half an hour. Indeed, in the latter half of the 20th century, Adelaide was popularised in local culture as the "20 minute city", because everything you needed was accessible within a 20 minute trip by car.

Paradoxically, early 20th century urban planning being done with apparent conscious purpose (at

least this is the argument presented by a range of urban planning historians and experts in Hutchings (2007)), there was little in the way of a coherent metropolitan structure plan to guide investment in transport infrastructure and an ordered hierarchy of urban sub-centres. Adelaide's 1919 Town Planning and Development Bill could be characterised as an urban managerial approach, although the first draft of this Bill in 1916, by the urban visionary Charles Reade, was much more far reaching and strategic in putting forward a comprehensive metropolitan structure plan with regulatory provisions for Adelaide that included an outer greenbelt, model garden suburbs, an expanded urban area guided by independent and customised planning schemes, a hierarchy of roads, public transport routes and utility corridors, building densities and forms, zoning of land uses and community facilities. Unfortunately, political compromise fatally weakened the content of this draft bill, and what followed in terms of state legislation until the introduction of the 1962 Adelaide Metropolitan Plan was an ad hoc, fragmented planning approach that allowed local authorities to pursue their own planning agendas. In the post World War 2 era, up until the introduction of the 2010 30 Year Plan for Greater Adelaide (30YPGA), government actions with regard to legislation, housing, development and industry policy, and affordable energy, combined with an overwhelming consumer preference for suburban bungalows in garden suburb settings, which could only be adequately serviced by private cars, reinforced the dominance of the private car. This suburban mindset was not surprising given the abundance of cheap easily developable land, and a marvellous temperate Mediterranean climate with an outdoor oriented lifestyle complementing the concept of the private domestic back-yard.

After the shock of the Second World War, and the ongoing fear of the communist threat to Australia's internal security during the Cold War, both the Australian Commonwealth and South Australian Governments were anxious to provide a solid and robust industrial base for Adelaide's economy, which was done through the establishment of two large car manufacturing plants (General Motors-Holden in 1958 centred around Elizabeth in the northern suburbs and Woodville in the western suburbs; and Chrysler in 1962 (latterly Mitsubishi), in Adelaide's southern suburbs) to serve the Australian car market. Under the guidance of the then Liberal-Country League Party Premier, Sir Thomas Playford (1937-1965), Australia's longest serving political leader, Adelaide's urban economy was transformed from that of a large agrarian service centre to an industrial powerhouse. The physical manifestation of these massive car plants, the largest urban structures in Adelaide up until the end of the 20th century, and a perception by Adelaide's workforce, the mass media and politicians that Adelaide's car industry was the lynchpin of its economy, encouraged a collective mindset that cars were an intrinsically important part of Adelaide's culture and therefore, it was not hard to understand why Adelaide's car dependent urban form, was a natural outcome of these forces. A Google Earth eye view of metropolitan Adelaide, suggests an urban form anchored by the central business district at the centre, with the car factories anchoring sub-metropolitan centres of employment and the port to the north-west providing a balanced urban system, at least in terms of the distribution of jobs and housing. The thinking expressed by the Town Planning Committee (set up in 1955) in the 1962 Metropolitan Plan for Adelaide was openly comfortable with the notion of Adelaide becoming a sprawling predominantly two dimensional city.

Indeed, in the first chapter of the Report on the Metropolitan Area of Adelaide, the Town Planning Committee stated (GSA, 1962:6):

"The central business district in the City of Adelaide will continue as the principal centre for State and metropolitan wide functions. Secondary business centres and industrial areas will develop in the suburban areas which will provide substantial employment and shopping facilities for the surrounding district.

The possibility of curbing the spread of the metropolitan area was considered to be remote, because of the preference for single-storey detached dwellings and the increasing demand for larger sites for factories, schools and other buildings.

The continued spread of the metropolitan area means that distances increase, and that the cost and time of travel increase; therefore the provision of improved means of communication is inherent if this form of expansion is accepted. New highways and fast public transport must be provided between the various centres of business and employment."

The last paragraph in the quote above exposed naked intent to develop an urban freeway network for metropolitan Adelaide, and in 1968, when the Metropolitan Adelaide Transport Study was released, prepared by an American Engineering Consultancy firm De Leuw, Cather and Company, political opposition from the Labor side of politics focused on the 96km of freeways and 34km of expressway, and a massive 1km² freeway interchange at Hindmarsh on the north-western edge of the parklands belt that skirted the Adelaide C.B.D. and North Adelaide. The most

disturbing likely environmental impact, however, was for the proposed Modbury Freeway along the River Torrens river channel, with the River Torrens to be buried in an underground drainage culvert under the proposed freeway.

The 1992 Planning Review which provided the basis for the 1994 Planning Strategy, did attempt to change Adelaide's urban form, through the introduction of a clear and distinct hierarchy of urban centres, crowned by a densely developed city centre that dominated metropolitan employment activity. However, the centres' policy in the 1994 Planning Strategy amounted to little more than a constellation of retailing centres, offering only a very limited numbers of jobs, and did little to address the massive spatial imbalance of jobs and housing across the extent of metropolitan Adelaide. As a Centres' Policy, the 1994 Strategy proved to be ineffectual in failing to elevate Port Adelaide, Elizabeth and Noarlunga to the status of the dominant sub-metropolitan centres, whilst allowing the Westfield Shopping Centre group to intensify its "big-box" car oriented Shoppingtown branded centres that were modelled on Victor Gruen's American suburban car oriented shopping mall concept, such as Marion, West Lakes and Tea Tree Gully, to become the dominant sub-metropolitan centres around metropolitan Adelaide. Whilst the Westfield Shoppingtown at Tea Tree Gully in Adelaide's north-eastern suburbs was eventually linked to the Adelaide CBD by a 13km long high speed 100km/h guided busway (known locally as an OBahn), Westfield's other major centres of Marion in the southern suburbs, and Arndale and West Lakes in Adelaide's western suburbs, were developed only on suburban arterial roads, and at retail densities far in excess of what the Planning Strategy had planned for. Indeed, despite the Planning Strategy nominating Noarlunga

26km south of the Adelaide CBD as the sub-regional centre serving the southern half of the metropolitan area. Westfield's massive investment into the Marion Shoppingtown complex in the mid 1990s, making it one of Australia's largest suburban shopping malls with approximately 133,000m² of retail floor space, easily eclipsed the Noarlunga Shopping Centre, which resembled a small District suburban shopping centre serving a relatively downmarket clientele. This occurred despite superior public transport serving the Noarlunga Shopping Centre in the form of a commuter train line and bus interchange, whereas Marion Shoppingtown, 13km to the north of Noarlunga, had to make do with a bus interchange only, with the nearest commuter railway station a suburb away. Widespread car usage effectively overcame this distance disadvantage, with retail commuters happy to factor in an additional 26km to a shopping round trip to access the relative cornucopia of retailing options at Marion. Industrial policy and land zoning practices favoured a focus on providing industrial sites across a wide band extending from the city's industrial port in the north-western corner of the metropolitan area on the Lefevre Peninsula to the eastern edge of the metropolitan area, and a large hub of industry in the southern suburbs at Clovelly and Tonsley. Even today, the average commuting distances to places of employment or education in the last ABS Census was approximately 12km, and with employment opportunities either highly centralised in Adelaide's Central Business District or widely dispersed across the metropolitan Adelaide in areas relatively poorly served by public transport, the default transport mode of choice has been the private car. Against this backdrop, in 2014, South Australian legislators, policy-makers, and urban planners in government, together with urban developers

pursuing a new sustainable urban development paradigm, and Adelaide's environmentally conscious citizens, have found that despite a positive public debate during the past two decades calling for a compact and efficient urban form, that there has been considerable inertia. However, Adelaide does appear to be on the cusp of a radical change in its collective thinking. The factors initiating this change are global drivers such as a deregulated national economy open to global economic forces, climate change and a vulnerability to oil price shocks, but in the short to intermediate term, the impending total collapse of the Australian car industry (with Mitsubishi having ended manufacturing in 2008 and General Motors-Holden to close its factory in 2017) may irretrievably fracture Adelaide's love affair with the car, and open up the possibility of Adelaide's economy oriented towards economic activities that are more predisposed to the notion of a compact and efficient Adelaide, whose urban form is structured around public transit, accessible via walking and cycling. The 2010 30 Year Plan for Greater Adelaide (30YPGA), has put forward a strategy that includes a template for a new urban form for metropolitan Adelaide based on a network of Transit Oriented Developments (TODs) and Transit Corridors (TCs), with intensified development that would co-locate jobs and housing at urban densities sufficiently high to not need the use of private cars. Taken at face value, the 30YPGA should have been sufficient to ensure the future development of a more compact and sustainable Adelaide. The reason it wasn't was because the 30YPGA was only a broad brushed precis of what was needed in terms of future transport infrastructure, and it did not nominate specific projects, or the funding model to achieve new transport infrastructure. However, during the Rann Labor led state government from 2002-

2011, the draft Transport Plan of the previous Liberal State Government was abandoned, and instead, the Rann Labor government opted for an Infrastructure Plan as a means to implement transport related projects, many of which were road based. In the latest framework of plans and policies governing urban development and form in Adelaide, the Infrastructure Plan remains, but is now complemented by the Integrated Transport and Land Use Plan, which is designed to ensure that future investment in transport infrastructure is consistent with land use and urban form changes proposed in the 30YPGA.

THE LAND USE – TRANSPORT NEXUS

Planning theory (Badcock, 2002) has from its earliest times focused on spatial efficiency of human activities in urban settings. Society compartmentalizes human activities and in urban planning, this is manifested in the urban environment through the zoning of land for particular uses, and in structuring land uses (and by inference, human activities), in a manner that seems ordered, functional and aesthetically pleasing and which will facilitate the greatest efficiencies in terms of time, energy and effort. Reduced to its simplest level, the city should maximise the potential for economically and socially beneficial activities to occur, with minimal costs, particularly with regard to transport. This therefore implies that the balance of housing and employment in particular areas is balanced, although in a free-market in which travel costs are low, perverse spatial imbalances can occur between housing and employment, housing and retailing, housing and recreation (i.e. sports centres), housing and schools, housing and essential services (i.e. hospitals and specialist medical services). Modern planning has attempted to overcome the tendencies for spatial imbalances

through ordered and hierarchical organisational approaches of centres and transport systems, but solutions have been thwarted by innovations in transport technology that have effectively shortened people's perception of distance through increased travel speeds of mechanised public and private transport and in greatly lowered transport costs in accessing distant urban locations.

In recent years, there has been intense debate in planning circles about what constitutes an optimal urban form (Dittmar and Ohland, 2004). The New Urbanism movement instigated by Peter Calthorpe that emerged in the United States in the early 1990s, recommended a central focus to urban design being mixed use neighbourhoods that are walkable and that maximise the potential for human interaction through design. TODs also attempt to do what the New Urbanists advocate in terms of walkable access and living locally, however, it recognises that access to quality public transit is essential to allow a TODs residents to access locations for activities such as employment or education within a wider metropolitan urban area. The TOD approach implies not only a hierarchical urban centres' policy, but it also requires a hierarchical transit system to ensure travel efficiency. What has often worked against hierarchical approaches to managing and planning urban form in the past, has been that early urban zoning practices had tended to favour segregated zoning with land uses kept homogenous and buffers used to separate incompatible activities, such as heavy industry from housing. The effect of segregated zoning, particularly in a city such as Adelaide, is a vast jobs-housing imbalance, particularly as it relates to industrial, manufacturing and services based employment. And although Adelaide has a coherent hierarchy of networked urban retail centres and urban transport, sub-optimal zoning

of land uses has worked against the achievement of spatial efficiencies being achieved in the city. The 30YPGA has acknowledged the importance of the transport-land use nexus with its proposed network of hierarchically ordered TODs, TCs and allocation of future housing and employment by area. However, it has taken the draft ITLUP to articulate exactly how and when this would occur. The next sections in this paper explore how the ITLUP has risen to the challenge posed in the 30YPGA, and whether it has adequately addressed the transport-land use nexus.

ADELAIDE'S DRAFT INTEGRATED TRANSPORT LAND USE PLAN (ITLUP)

In understanding why the Draft ITLUP came into being, it is necessary to examine some of the politics behind the preparation of a metropolitan planning strategy for Adelaide. Soon after the 30YPGA was introduced in 2010 by the South Australian State Labor Government under the premiership of Mike Rann, the media, community and political opposition to the government were critical of the 30YPGA in lacking explicit detail about the nature of transport infrastructure and transport mobility that would be required to support a planned population growth of 560,000 people to Adelaide's then current population of 1.15 million. The Labor Party would argue that their urban policies are their own, however, given that the environmental movement under the Australian Greens had become the third force in Australian politics across the full political spectrum (from local to state to federal governments) policies were modified to secure political endorsement from voters who supported political parties such as the Australian Greens, who whilst not able to govern in their own right, are nevertheless hugely influential in the Senate at both state and federal levels of government.

The draft ITLUP reflected the political tensions of the time and reflected a conservative stance, pro-business, yet inoffensive to the environmental lobby, and was thus carefully crafted to help secure a 4th term in office at the March 2014 election, which it did win as a minority government and support from an independent conservative politician Geoff Brock and the defection of Martin Hamilton-Smith from the Liberal Party opposition to join the Labor Government as a Minister. The draft version of the ITLP that was released to the public for community consultation at the end of 2013 is the focus of the discussion in this paper.

Figure 1 illustrates how the draft ITLUP relates to the legislative planning framework of policies and plans that control development in metropolitan Adelaide. The State of South Australia has an overarching plan "South Australia's Strategic Plan" that identifies seven strategic priorities. The three priorities of direct relevance to urban planning, are: creating a vibrant city; safe and healthy neighbourhoods; and affordable living. Under the mantle of the State Strategic Plan, three related planning instruments are used to determine specific sectoral transport strategies and transport initiatives. These three instruments are: The 30 Year Plan for Greater Adelaide; the Strategic Infrastructure Plan; and the Integrated Transport and Land Use Plan. The controlling Plan out of these three instruments is the 30YPGA (i.e. the Planning Strategy). Modifying influences on these three planning instruments are the Commonwealth Government through the Council of Australian Governments (COAG), the Commonwealth's Department of Infrastructure, other State Government Departments, local government and private sector strategies. Local government is not identified as strategically important, because the Australian Constitution treats local government as being subservient to

state governments. Hence apart from managing a local road network within their jurisdiction, and running a community bus, a local government has minimal influence in making strategic metropolitan transport planning decisions.

The Plan's priorities for Greater Adelaide are solution oriented outcomes as illustrated in figure 2 and include (GSA, pages 14-16):

1. Continued improvements to the public transport network. This includes electrification of the urban rail system, upgrading the amenity of stations; an underground rail link in the city; real-time timetabling information; grade separation of crossings; more efficient modal transfer at transport interchanges; investment in park and ride facilities at stations to expand public transport catchments; and preservation of corridors for extension of the network.
2. A re-introduction of trams to the C.B.D. and the inner suburbs of Adelaide.
3. An improved and modernised bus network, with a greater emphasis on 'Priority Corridors', improved local bus services connecting to trunk routes; and new 'Super-Stops'.
4. A more compact Adelaide in which public transport networks will serve major suburban activity centres that are either TODs or located along TCs. Public transport investments will be co-ordinated and integrated with Land releases for new developments.
5. Upgrading freight and road corridors which involves completion of the North-South road corridor (to express road standards), targeting bottlenecks and in providing efficient road and freight route connections to Port Adelaide, the Airports, interstate highways, tourist areas, industrial and employment centres.
6. Less reliance on motor vehicles by concentrating new development in TODs and TCs,

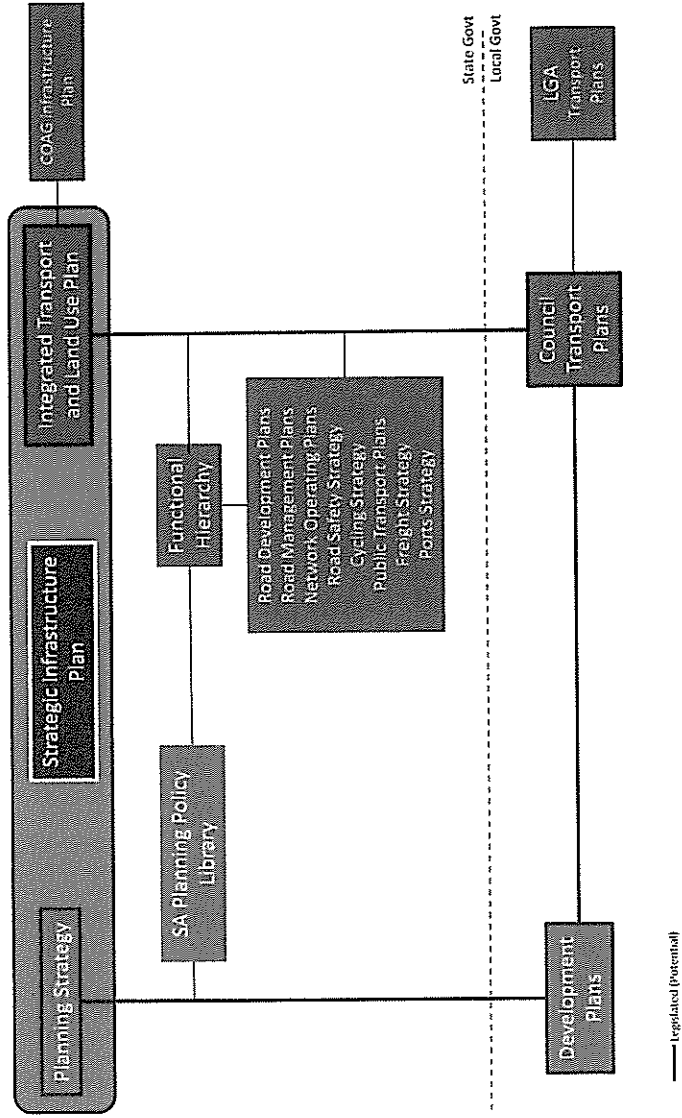


Figure 1 - The relationship of the draft ITLUP to Other Planning Instruments Source: GSA, page 78, 2013.

increased use of public transport and providing an optimal housing-jobs spatial balance across the metropolitan area.

7. A greater emphasis on active transport where possible. This implies encouraging walking and cycling through investment in networks to support these modes, and in ensuring that active transport modes complement public transport networks.

infrastructure that existed during the previous Commonwealth Labor Governments led by Kevin Rudd, then Julia Gillard and then Kevin Rudd, which supported Commonwealth investment in urban public transport infrastructure. Short term uncertainty prevails however, with the Head of Renewal SA, Fred Hansen and the Head of Transport and Infrastructure Rob Hook, both sacked when the South Australian Labor Government was re-elected in March 2014. The change in management at the helm of these two state government agencies, which had been at the centre of implementing the 30YPGA's focus on transforming Adelaide from a car-oriented two dimensional mono-centric suburban metropolitan area into a public transit oriented integrated network of TODs and TCs appears to be in limbo. For example, it is illuminating to consider that the draft ITLUP had dropped reference to TODs and TCs, instead referring to centres in more generic planning terminology that does not commit to the strong public transit emphasis implicit in the terminology of TODs and TCs. This appears to reflect the new Labor Premier Jay Weatherill's active disinterest in the concept.

THE COMPACT CITY

The 30YPGA when it took legal status in 2010 was direct and explicit in embracing the concept of a networked system of Transit Oriented Developments and Transit Corridors. Its conceptual thinking reflected a wave of enthusiasm in academic circles, championed by influential Australian urban transport planning academics such as Professors Peter Newman and Carey Curtis in Australia for Transit Oriented Developments, and US planning academic Professor Robert Cervero's work. The Portland Oregon model was often upheld by South Australian Governments of both sides of politics

(Labor since 2002, and the Liberal-National's prior to 2002), to the extent that the CEO of TriMet in Portland Fred Hansen was recruited by the South Australian Government to lead South Australia's Urban Renewal Authority as CEO in 2012. However, whilst the draft ITLUP still supports the idea of a "more compact Adelaide" and indeed, legally, it is meant to implement the transport infrastructure components of the 30YPGA, the content in the ITLUP as mentioned previously has dropped all mentioned of TODs or TCs. Whilst this may appear to be arguing over semantics, this apparent disconnect between the 30YPGA and the ITLUP will eventually have to be resolved, either through revising the ITLUP or the 30YPGA. Much of the analysis discussed in the ITLUP, appears to revert to the traditional transport engineering approach of identifying long term transport planning trends and then supplying the likely transport infrastructure to meet anticipated demand. Despite the apparent emphasis on land use in the ITLUP, in practice, with the exception of detailed discussion about the Adelaide CBD, the Plan makes negligible reference to the management of land use in the TODs and TCs that are centrepiece in the 30YPGA. This may reflect a State Government in a budgetary crisis, wanting to distance itself from investment commitments to invest in higher density development, when it could be argued that the market could take on this role.

Taken at face value, from the draft ITLUP, it appears that the State Government will no longer be as pro-active as was suggested in the 2010 30YPGA in advancing the compact city concept. Indeed, on p36 of the ITLUP it states

"In aiming for a more compact city, it is clear that we will achieve better results by going with the emerging market trend and supporting and facilitating people moving to the Adelaide CBD and inner Adelaide."

It appears that the responsibility for increasing urban densities in the nominated TODs and TCs will therefore rest in the hands of the 17 local government councils that make up the Adelaide metropolitan area, and then only if they look to the 30YPGA rather than the ITLUP for guidance in their planning decisions. However, local governments, with the exception of Adelaide City Council, do not have the financial capacity to undertake large scale urban redevelopment, hence it is unlikely that a more compact city will result within the 30 Year timeframe of the plan. Local governments could rezone land at higher residential and commercial densities in the catchment areas of the TODs and TCs nominated in the 30YPGA, but often this does not happen because of existing uses rights for current property owners and a risk averse development industry in Adelaide that seems unwilling or unable to develop medium density developments outside the Adelaide C.B.D.

TRANSPORT MOBILITY AND ACCESSIBILITY

The draft ITLUP is ambitious in its scope, and unlike the 30YPGA which was conceived when Australia's economy was performing strongly as a result of a mineral resources boom, the ITLUP now has to guide transport infrastructure in the South Australian economy in an era of deficit government budgets (at both the state and federal levels), hence the emphasis now appears to be very much on transport infrastructure that will have demonstrable economic benefits. The public debate surrounding the Darlington Plan and the Torrens to Torrens Plan for the North-South corridor, focused on the relative benefit to cost ratio of each project as the primary determinant of whether it would proceed. The Plan claims that its primary purpose involves creating "transport networks that connect people

to places and business to markets" (GSA, 2013, p40). Interestingly, in analysing anticipated future transport demand, the draft ITLUP structures greater Adelaide into three concentric zones, with an inner zone taking in the inner ring of suburbs up to 5km from the city centre; a middle ring extending up to 25km out from the city centre; and outer Adelaide, which encompasses peri-urban settlements such as Mt Barker and Gawler, and rural towns such as Nuriootpa and Victor Harbor, that have strong functional dependency on Adelaide.

The draft ITLUP has a strong emphasis on increasing public transport capacity into the Adelaide CBD, on the basis that CBD based jobs are 9% more productive than jobs on the city fringes (GSA, 2013, p37). However, in the same paragraph, the plan does re-engage with the 30YPGA by stating that "development needs to be encouraged around activity centres and precincts with good public transport, and limit the expansion of the city's footprint" (GSA, 2013, p37). For now into the foreseeable future, it does appear that the focus in the ITLUP for the inner to middle areas of Adelaide will be on future public transport investment with a new network of tram routes along strategic corridors likely to encourage redevelopment at higher residential densities such as Adelaide-Port Adelaide in the north-west, Adelaide-Henley Beach in the west, Adelaide to Mitcham in the south, Adelaide to Magill in the east, and Adelaide to Gepps Cross in the north. The Adelaide O'Bahn is enhanced with a \$200m tunnel to bring it under the Adelaide parklands into the Adelaide CBD. The key improvements to public transport to suburbs in Outer Adelaide includes electrification of the Adelaide-Gawler commuter rail corridor, and the opening of the electrified Adelaide-Seaford commuter rail line. However, the bulk of the public transport task

is largely undertaken by buses, and in the ITLUP, this would not change, particularly in the middle-outer areas of greater Adelaide.

Active transport receives some mention in the ITLUP with measures that could significantly increase cycling such as expanding secure bicycle parking at stations and a bike sharing scheme that is accessible through the public transport Metro-ticketing system, community education programs to increase walking and cycling amongst children, and improved wayfinding for pedestrians and cyclists in the catchments around public transit stations. The ITLUP does identify 'enhancements' of the cycling network with 140km of cycling paths over the next 5 years and 95km beyond the next 5 years. What remains unclear is whether this includes maintenance of existing off-road cyclepaths or completely new cycling infrastructure. The ITLUP commits little in the way of capital works funding to achieving greater modal share for walking and cycling, and instead relies on local government councils to deliver whatever infrastructure is deemed necessary, unless it is developed within road corridors that the state government has jurisdiction over (i.e. arterial road corridors). This exposes critical weaknesses in the ITLUP, in that it lacks funding to invest in significant integrated and connected networks outside its direct jurisdiction (i.e. 90% of areas), and the plan adds no further specific details about the specific aspects of the cycling and pedestrian networks to be improved than is evident in the 30YPGA.

Unfortunately the ITLUP does not indicate what will be the likely change in mode share if the Plan is implemented in full. Research by Mees and Groenhart (2012) found that for the journey to work or study, the mode share for all public transport in Adelaide had remained constant at about 9.9% for the 2006 and 2011 ABS Census,

although this was an improvement over the mode share in 1996 and 2001 when it was at its lowest at 8.9%, but a far cry from the mode share peak at the 1981 ABS Census of 16.0%. The Technical Report supporting the ITLUP does not provide any direct projections for public transport mode share, however, from the 30YPGA (2010), of the planned added population growth of 560,000 people, 51.3% (i.e. 287,400 people), would reside within a public transit corridor and therefore theoretically, could use public transit for their commuting. The 30YPGA assumes that 50.3% of this population growth will be in employment, hence it could be inferred that from the additional population growth for Greater Adelaide in both new areas and with urban infill, an additional 133,431 commuters would be using public transport, bringing the total number of additional commuters from new areas to 181,022 by 2040, a fourfold increase. This would compare with car commuting increasing over the same period from 399,489 to 536,607 commuters, a significant but relatively modest increase of 34% and which is consistent with average increases in motor vehicle sales of 1.5% per annum (ABS, 2011). With the total number of journey to work commuters increasing by 40.6% from 484,368 to 681,169, based on the assumptions and demographic projections in the 30YPGA, the modal share for public transport in 2040 could theoretically rise from 9.9% to 26.6%. By international standards, this modal split for public transport may not be impressive, however, for a still sprawling, car and road oriented city such as Adelaide this would be remarkable transformation.

REDUCING CARBON EMISSIONS

The 30YPGA anticipated a 25% reduction in carbon emissions per house (i.e. home), from introducing the urban form of a compact city by 2040

(30YPGA, 2010, p202). Nearly all of these savings are expected to come from land use changes leading to both a reduction in travel demand and a modal switch to public transport from private motor vehicles. However, the 30YPGA relied on Peter Newman's work on Transit Oriented Developments in making this broad estimate and discounting his estimate with an arbitrary halving to adapt his work to Adelaide's low density urban context (GSA, 2010, p202). In a business as usual approach to commuter transport activity, where the current carbon emissions profile for all transport modes remains at 2010 levels for Adelaide, by 2040, total carbon emissions savings for the additional 133,431 commuters would be reduced by 122,070 tonnes of CO2 from an estimated 1.37 million tonnes of CO2 emissions, a 9% metropolitan wide reduction, which increases to a saving of 299,235 tonnes of CO2 emissions, an overall savings of 22% if all public transport in 2040 is powered by renewable energy. Carbon emissions free public transit in South Australia is entirely feasible given that between one third and one half of electricity in South Australia is generated from either solar or wind power. Public buses are more problematical, given that all of the current metropolitan bus fleet runs on either LPG or diesel, but Adelaide City Council does operate an electric bus, hence it is technically feasible to convert the bus fleet to electric vehicles or plug-in hybrid diesel/LPG electric. These estimates assume that improvements in Greater Adelaide's carbon emissions profile is only achieved via residents living within the transit corridors or within a more compact urban areas that are public transit rich (i.e. TODs). What this analysis overlooks, is that fuel efficiency is rapidly improving in private motor vehicles, with electric vehicles likely to secure a growing share of new vehicle sales and plug-in petrol or diesel

electric hybrid cars achieving a 75% reduction in fuel consumption compared to equivalent petrol/diesel powered cars. What is impossible to predict 30 years out is when a where a tipping point will occur, where the preferred choice of living is in a public transit rich, compact urban area where private car ownership is relinquished, or restricted to recreational pursuits. The challenge for urban planning is that putting aside the built environment benefits of carbon emissions reductions achieved through more dense urban living and more energy efficient building stock, proponents of technological solutions to carbon emissions could claim with some legitimacy that replacement of the private vehicle fleet with low or zero carbon emissions cars powered by zero carbon emissions electricity may achieve better carbon emissions reductions than the achievement of the compact city and at less cost to government.

CONCLUSIONS

The draft ITLUP has a narrow focus on practical transport solutions for Greater Adelaide as one would expect, but whereas one could excuse the 30YPGA for its schematic approach at the expense of detail, the ITLUP is curiously lacking in the technical detail one might expect with a Plan that has a narrow and focused remit on transport. For example, the proposed transport infrastructure upgrades to roads, ports, railways, trams, bicycle and pedestrian networks have only marginal more detail than the 30YPGA. The technical report that supports the ITLUP, has many laudatory objectives and actions, but few if any are costed and the justification for any of the proposed actions is not with quantification of relevant facts. Detailed costings and the setting out of the parameters of each project would have enhanced the credibility of the Plan.

With regard to promoting a more compact urban form, the ITLUP would have been more effective if its terminology had been consistent with the concept of networked TODs linked with TCs, rather than just referring to centres in generic planning terms. The ITLUP leans much more towards a mono-centric Adelaide dominated by a strong C.B.D. rather than a multi-centred metropolis that would actively reinforce a transit oriented city with many destinations accessible by public transit, rather than continuing with the monocentric model of city development that has led to low density suburban sprawl and auto-dependency in the past. The emphasis on road building in the plan as reflected in the north-south Corridor and ring routes is almost certain to guarantee a car oriented future for the city. The proposed tram network upgrade will improve public transport usage within inner metropolitan Adelaide, but it needs to be done in conjunction with the creation of a genuine network of TODs, if the public transit network is to transition to a genuine alternative to car travel, and not just for C.B.D. commuters. Despite the Plan giving the impression in its title that it integrates transport with land use, it actually has very little to say about land use, deferring this aspect to local government. The 30YPGA by contrast, did actually define the width of the TCs, nominate the TODs and provide indicative urban densities for the TCs and TODs. The ITLUP by contrast, has little if any information on land uses adjacent to transport routes, and instead defers to Local Government Councils to respond, which in the past has resulted in complete inaction. If a new compact urban form is to arise, then areas within the nominated TCs and TODs need to at the very least be rezoned. Because Adelaide's local governance is splintered across numerous Councils with independent planning agendas, the State Government needs

to exercise zoning control over not just the transport route, but the land within the immediate catchments of strategically important transit and transport routes.

The ITLUP is effective in making a strong case for how mobility and accessibility will be improved, however, this largely relates to likely travel time savings particularly for freight and commuter traffic that will arise from the Plan's road efficiency and network improvements. Technological solutions, ring routes, trans-metropolitan travel corridors, and hierarchical management systems will help to maximise effective utilization of the road system as an integrated network, allowing relatively speedy cross-metropolitan road travel. When the focus shifts to public transit, walking and cycling, whilst the ITLUP does point out the likely investments, it is impossible to judge what travel benefits will arise. The accompanying Technical Report to the ITLUP does not include significant quantitative analysis on these points for an effective appraisal of the potential efficacy of what is being proposed. The lack of detail about accompanying land uses with proposed transport infrastructure (except for the Adelaide CBD), make it difficult to surmise the extent to which active transport modes (i.e. walking and cycling) will be enhanced.

Lastly, the ITLUP skims over the issue of reducing carbon emissions. The ITLUP does not appear to place a high priority on reducing carbon emissions through transport, and instead emphasizes economic benefits and making Adelaide a more globally competitive city. Given that the Plan was conceived by a Labor Government that had in the past made great progress in developing policies to tackle climate change, this change in tact is surprising, and inconsistent with the 30YPGA, which did attempt to focus on the importance of a more compact city in reducing carbon emissions.

Both the ITLUP and its accompanying Technical Report make it difficult, if not impossible to determine the relative contributions of the proposed investments in transport infrastructure towards reducing carbon emissions. Much of what is proposed in terms of urban form and transport technology is not particularly forward looking. Even with full implementation of the Plan, Adelaide will remain a 20th century city in its mindset. For example, the plan ignores any discussion of the private motor vehicle fleet and how its composition might change, and does not attempt to respond to a future without access to cheap oil. Adelaide would be well placed to plan for all electric urban transport for private cars, commercial vehicles and buses, but the Plan ignores this possibility and while it is meant to project a future 30 years hence, it does little more than use today's transport technology in a slightly more compact urban form.

From a legislative point of view, the ITLUP is an important mechanism to realise fulfilment of the 30YPGA. However, its effectiveness is potentially compromised by its lack of detail, supporting analysis and alignment with the 30YPGA. The distance between the 30YPGA and the ITLUP unfortunately reflects the contrasting political priorities of different State Premiers, with the 30YPGA introduced by Premier Mike Rann, reflecting a focus on transforming Adelaide into a compact city with a genuinely reduced carbon footprint, whilst by contrast, the ITLUP which was introduced by Premier Jay Weatherill focused on achieving greater transport efficiencies, particularly for roads, a dominant city centre and in maintaining the status quo of its current urban form.

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