



Urban Infrastructure and Metropolitan Planning: Connection and Disconnection

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Abstract

In most large Australian cities recent metropolitan strategies have become prominent in state political affairs. At the same time, newly-discovered but long-brewing constraints to economic growth have brought infrastructure issues to national prominence. This might seem propitious for urban affairs. However, there is too little real connection between them. Misfits exist in at least four dimensions: between metropolitan strategies adopted by state (and in Brisbane's case also local) governments and the often unrelated practices of urban infrastructure procurement, between the national focus on economic and industrial infrastructure and urban infrastructure service backlogs, between older metro-wide infrastructure systems that made them primary instruments for urban management and newer technologically-enabled splintering of infrastructure supply options (after Graham and Marvin 2001), and between a public-sector-centric model of urban growth management made less relevant by private provision and public-private partnerships through which compliance with metropolitan plans and priorities is often absent. At a time of opportunity for integrating infrastructure development with metropolitan planning, these misfits present a huge challenge to urban sector planners and managers. The paper explores these misfits, and their occasional felicitous connections, in the context of greater Sydney, metropolitan Melbourne and SE Queensland, where there are now headline debates about the way we wish to live in those cities and about the standards and modes of procurement of urban infrastructure to support such life.

Introduction

In the three mainland east coast capital cities there is a continuing debate about the state of urban infrastructure and the adequacy of metropolitan plans and planning systems. Urban infrastructure can be defined as the stock of basic facilities, capital equipment and networks that support city functions. Thus water and sewerage systems, roads and rail networks, communications systems, human services facilities such as schools and hospitals are included, along with parks and open space.

Management of the connection between strategic plans and infrastructure development has been at the centre of the metropolitan plans that replaced the land use plans of the post-war period. In Sydney, Melbourne and Brisbane there have been several iterations of published plans and strategies (see table 1) and continuing evolution of infrastructure coordination and management systems. Thus there have been many opportunities to establish good connections between the two. However a continuing concern among professionals in the field, and now, loudly, through the media and from the public at large, is how poorly connected these two realms are.

This paper explores the extent to which metropolitan strategic plans and their planning systems are adequately connected with infrastructure provision, and if not, what can be done to connect them better. It attempts to make a modest contribution to the tradition of asking what a difference a plan can make (McLaughlin 1992, Gleeson and Darbus 2004: 8). Some reports claim that there are serious gaps (e.g. Engineering Australia 2005, ACIL Tasman 2005), others (e.g. Allen Consulting Group 2003b Australia Exports and Infrastructure Taskforce 2005) that there is no infrastructure crisis. Some economists

make the case in principle that benchmarks for adequate levels of infrastructure provision simply cannot be made.

The present period ought to have been favourable for good links between the plans and their infrastructure requirements, with state and, particularly in the case of Brisbane, local governments investing significantly in metropolitan planning; all jurisdictions extending recourse to development contribution finance for infrastructure to new urban development areas and to redevelopment projects (in NSW this will fund 75 percent of metropolitan growth centre infrastructure, with the remainder of growth centre infrastructure funding, and road backlog spending, coming from state revenues); prosperity-driven favourable utility operating surpluses (in Victoria 75 percent of capital expenditure is funded from operating surpluses) and thus low use of state debt to finance infrastructure; post-GST state windfalls from intergovernmental transfers improving state capital positions; financial options for infrastructure procurement, replacement and upgrade widening with more common use of public private partnerships (PPPs); and economic policy (e.g. compulsory superannuation and other saving incentives) encouraging huge private capital funds (the Australian capital funds market now being one of the world's largest, and a massive Future Fund is in formation) looking for more domestic infrastructure investment opportunities. 'Infrastructure investment in Australia is not being constrained by a lack of money, but by a shortage of deals...' (Sampson 2005).

But as Prasser (2005) points out, government capital as a proportion of GDP has halved from the late 1970s as governments have pursued debt reduction and budget surpluses ahead of financing infrastructure for the long term. Instead of keeping pace with urban infrastructure demands, the past decade can be characterised by 'smart deferral' of new urban infrastructure, as well as maintenance and replacement which, via PPPs and privatisation, have taken control over metropolitan infrastructure one step away from governments and metropolitan managers and despite the favourable conditions have tended to under-invest in social overhead capital i.e. infrastructure characterised by high externalities or low contestability. Political aversion to debt – understandable in the case of Victoria's recent history – has until recently prevented timely infrastructure investment.

Government at state and local levels should view that recapitalising our cities is essential to maintain and enhance their economic, social and environmental sustainability. The situation where many public infrastructure projects that have been analysed exhaustively and found to be worthy, but are on hold because of a lack of funds, is unsustainable – it is bringing new meaning to the term 'government failure.' (Allen Consulting Group 2005:13)

Instead, national attention to infrastructure has been focussed on bottlenecks to Australia's export or production capacity, particularly on ports, inter-urban road and rail and freight facilities (e.g. see Australia Exports and Infrastructure Taskforce 2005). While such infrastructure is often located in metropolitan regions, it does not comprise the main part of what is meant by urban infrastructure. This is not to say that the infrastructure lobby has failed to notice the state of urban affairs, nor, notably, the urban development industry (e.g. UDIA's 'call for action' for the Sydney region – UDIA 2004) but by and large the key reports have addressed urban shortfalls and inequalities in passing.

In the three capital cities the public has come to understand that urban infrastructure has fallen well behind demand and reasonable levels of provision for the future, and that, as promoted by newspaper campaigns in each of the cities, metropolitan plans and the urban planning systems have failed in this respect. Responsibility is slated to state governments though the absence of tangible federal involvement is a related concern.

Has the Commonwealth vacated the field? These three city regions are still not seen as worthy of national policy despite occasional parliamentary reviews, perhaps because of the scale of funding implied by Commonwealth involvement. Prime Minister Howard has entered the fray to join the Housing Industry Association and attack developer charges, calling for 'more adventurous land release policies rather more realistic development policies to be adopted by state and federal government' (Harley 2005). Have state governments become overly habituated to capital works deferrals? Yes, but the media and the public know that now. Is the public sector too prone to procure capital assets amenable to PPPs where user fees can be readily charged, and too prone to overlook providing services that have the character of public goods? Perhaps, though recourse to procurement off balance sheet – including full privatisation (e.g. gas, electricity, telecommunications) can relieve the burden of public finance on those services not able to pay their own way. Perhaps as there is no agreed economic standard for the adequacy of infrastructure it can be argued there is no particular problem to be addressed. Or perhaps we are at risk of losing the art and science of urban infrastructure coordination.

The paper reviews recent metropolitan plans and strategies to see the extent to which infrastructure requirements were identified and actions proposed to address them. It examines arrangements for the coordinated, timely provision of urban services. It looks at what has happened with implementation, to see the relative state of disconnection, and to make suggestions for how it might be better done in the future.

Infrastructure in Metropolitan Strategies

Post-war metropolitan planning schemes were prepared in Melbourne and Brisbane by authorities that were also responsible for water, sewerage, drainage, parks and roads and in Brisbane's case more. Therefore coordinated development of key urban infrastructure was possible in-house, notwithstanding the importance of some functions outside their control such as state-funded rail and public transport in Melbourne in particular. Indeed in Melbourne the planning function developed in part to manage the infrastructure systems grafted onto the original local government based Melbourne Metropolitan Board of Works (MMBW) once that became a statutory authority of the state (Collins 2005). In Sydney the plan was prepared by the Cumberland County Council of local governments without further operational responsibilities for infrastructure. This generation of plans was not explicit in describing how infrastructure development would be managed and linked to the plans and state authorities tended to see the plans as coming from local government. Nevertheless in a post-war social climate of acceptance of planning the urban plans of all three cities were prescriptive about land use in the hope if not the expectation of implementation by state agencies.

The next set of metropolitan plans in Sydney and Melbourne sought extensive infrastructure provision (including for land reservations) but were prepared in outline only. In Sydney implementation relied on authority and influence beyond the new State Planning Authority (from 1964) even though it had a state-wide mandate. In Sydney and Melbourne the status of the planning agencies as statutory authorities caused continuing concern among ministers of state governments as they sought to match policy priorities to urban development, particularly with hitherto unaccustomed support from federal government in the mid-1970s.

This lack of direct state ministerial control over relatively independent planning agencies such as the MMBW in Melbourne and the State Planning Authority in Sydney, including frustrated efforts to address infrastructure coordination and inequalities in the cities, eventually brought moves to bring the planning functions under closer ministerial control. Frustration at the inability to mobilise the infrastructure agencies caused governments in NSW and Victoria (Queensland later) to relocate

planning functions under closer ministerial control and this gave rise to a third generation of metropolitan plans, one that Gleeson et al (2004) characterise as adopting a ‘systems approach’. In Melbourne the MMBW was broken up so that metropolitan planning moved to a new state ministry and infrastructure coordination became a whole of government exercise, and, along with Sydney, a cabinet committee took responsibility for oversight of both metropolitan planning and urban development programming. In Brisbane the task was intergovernmental with the State Coordinator General and Department of Local Government working from time to time with SE Queensland local authorities. The building up of capacity for metropolitan planning in the SE Queensland regional organisation of councils coincided with the formation of a metropolitan strategy for Brisbane City but the two were not integrated until later.

This generation of metropolitan plans and strategies, born out of crises in land supply (most marked in Sydney) and a practical inability to manage urban growth, reduced visionary horizons about the future of the metropolitan regions to the practical job of coordinated infrastructure provision for suburban expansion, backed by a belief that adaptive strategies and systems management could steer the metropolitan regions through variations in housing markets, overseas migration and economic conditions. Engagement of the statutory planning systems seemed less important to the new breed of metropolitan managers than monitoring urban development programs and making efforts to create regional budgets even though new planning legislation in all three states was there to be used. Performance fell short of expectation as economies did indeed fluctuate and as laissez-faire governments at least in NSW and Victoria loosened their grip on residential land releases and activity centres, and let slide metropolitan development corporations like the Macarthur Development Board and the last of the regional planning authorities in Victoria. The lack of clearly identified needs, the absence of a publicly-communicated long-term perspective on infrastructure, let alone integrated strategies for funding it, and the lack of governance arrangements to tie different elements of government strategy for metropolitan regions together all characterise all three regions to different degrees.

A newer generation of plans and planning system reforms seeking to promote long-term sustainability, a higher degree of stakeholder ownership and a greater engagement with the statutory planning system is now coming into effect across the three regions under review, through what Gleeson et al (2004) call an ‘integrated approach’.

Table 1: Sydney, Melbourne and Brisbane/SEQ Metropolitan Plans

Sydney	Melbourne	Brisbane/SEQ
County of Cumberland Plan 1948	Melbourne Metropolitan Planning Scheme 1954	
Sydney Region Outline Plan 1968	Planning Policies for the Melbourne Metropolitan Region 1971	S E Queensland Regional Framework for Growth Management 1994, Updated 1996, 1998
Review Sydney Region Outline Plan 1990	Metropolitan Strategy 1980	S E Queensland Regional Framework for Growth Management 2000
Sydney Into Its Third Century 1988	Amendment to the Melbourne Metropolitan Planning Scheme 1981	
Sydney’s Future 1993	Shaping Melbourne’s Future 1987	
Cities for the Twenty-First Century 1995	Living Suburbs 1995	
Shaping our Cities 1998	Melbourne 2030 2002	S E Queensland Regional Plan 2005-2026, S E Queensland Regional Infrastructure Plan and Program 2005-2006.
City of Cities: a Plan for Sydney’s Future 2005		

Sydney

The County of Cumberland Plan of 1948 was prepared by a metropolitan county council created through amendment of local government legislation. Although the plan obtained parliamentary approval it was not tied to the infrastructure priorities of the state government, where most of the construction power lay (Ashton 2004). County funding did enable land to be acquired for infrastructure corridors and open space but the all-important priorities and financing remained with different authorities covering roads, public transport, water, sewerage, drainage, gas, electricity, telecommunications and human services and they were not well tied together. Implementation arrangements were not sufficient to enable the provisions of the scheme to cope with growth more rapid than forecast and consequently water, sewerage and transport infrastructure provision fell well behind demand. Winston (1957: 85) found the 'task... of a comparatively new and untried authority, such as the Cumberland County, of guiding a number of senior authorities in a co-ordinated and harmonious scheme of operations ...of the very greatest difficulty' and wanting in its effectiveness through the abandonment of a 'Stage Implementation Committee.'

In reaction the Sydney Region Outline Plan that followed and the associated effort to cater for massive growth caused plans for water, sanitation and transport services to overprovide, to the extent that a metropolitan plan from a statutory authority, never adopted by state cabinet, was able to influence affairs at all. As acknowledged by the government's review (NSW PEC 1980: 31) that plan emphasised reticulated services to the exclusion of others and Sydney's growth management was preoccupied with the nexus between residential land release and water supply and sewerage provision. Main road reservation providers followed the outline plan.

Long lead times and physical constraints to Sydney have in this way produced classic 'hog cycles' whereby planning supply and infrastructure provision, at least for water, sewerage and local planning services, underprovide serviced land as adequate stocks run down, and then overprovide past when demand exceeds supply. Non-state, privatised and quasi-private providers, for example of energy and telecommunications services, less caught up in how realistically to represent the likely success of the government's own policies, generally made more realistic forecasts of the demand for urban development, though current outer-suburban shortfalls in broadband connectivity do cause concerns about Telstra's service priorities as it takes a hard line, pre-privatisation, distancing from its community service obligations.

The movement of responsibility for metropolitan planning to a central ministry of government and an all too familiar land-price-induced sense of urgency about the management of land supply brought, from the 1980s onwards, a more whole-of-government approach to metropolitan strategy in Sydney, a widening of the scope of what services were encompassed by urban infrastructure to include human services and attention to equity, and an effort to base urban consolidation policy on urban infrastructure efficiency in planning policies for established areas (NSW PEC 1980, Troy 1996, Wilmoth 2004). The Troy report into urban development and the underlying causes of land price increments in the early 1980s caused metropolitan planning to be geared closely to land supply. The belief that good monitoring and urban management could take the bumps out of urban growth and remedy some of the worst inequities in the region was widespread. However the hard work of tying the infrastructure consequences of expanded land releases and urban consolidation targets to state capital works programs in particular were kept mainly outside the public gaze, for fear of regional capital budgets raising undeliverable expectations.

Into the 1990s Sydney's infrastructure management became more routine, if not entirely forgotten, as focus shifted more to established areas, pre-Olympic Games transport investment and support for other major projects including tunnels and toll roads procured through PPPs. Changes of government broke continuity. In the mid-1990s a Ministry for Urban Infrastructure Management was established separate from the Department of Planning which had not been able to link planning and infrastructure provision, but did result in the departmental co-location of urban infrastructure and metropolitan planning. With changes of government came a series of metropolitan strategy documents, essentially variations on a 'can do' managerial theme. A combination of inertia and a belief that a belt of suburban land supply constraints could strengthen Sydney's midriff through supply-shortage-forced urban consolidation, and an inability to create an effective mechanism to meet infrastructure needs and set priorities, brought on another land price spiral and public scepticism about government inaction on urban infrastructure grew. In particular planning for large land releases faced barriers of weak links between planning and infrastructure procurement, lack of a long-term view on infrastructure financing and lack of a suitable governance mechanism (Collins 2005).

The metropolitan strategy while still in preparation addressed this misfit in a number of ways, two of which are addressed here – first, to make targeted infrastructure one of its key directions, and, second, to create a Growth Centres Commission with wide powers for coordinated planning, services procurement and financing for the NW and SW sectors which will accommodate most of the 30-40 percent of metropolitan growth that will occur in urban release areas. Though covering only part of Sydney's urban development, both subregions are now covered by the one authority to avoid duplication and achieve some economies of scale.

Direction 8 of the 2004 draft metropolitan strategy discussion paper sets out as follows:

To continue the high priority placed on infrastructure investment, the Government implemented important changes in 2003. Among these is a centralised budget process that unites infrastructure, planning and funding. Infrastructure will be better timed for delivery, driven by the strategic priorities of government and targeted to support the economic, social and environmental outcomes for New South Wales. The Minister for Infrastructure and Planning [since separated into two portfolios] now has a central role in reviewing and endorsing major infrastructure proposals, and asset strategies for roads, transport, energy and utilities, education, health and housing. The Metropolitan Strategy will outline the strategic directions for the region, which will guide Government's decision making for investment. (NSW DIPRN 2004)

Intended priority actions are described:

- Encouraging growth to occur in areas where spare infrastructure capacity exists will make the most of the State's assets.
- Clear direction on urban development priorities will guide new infrastructure investment decisions.
- New technologies or new ways of providing services need to be considered before building new and expensive infrastructure. This is intended to save the community money and scarce natural resources. If new infrastructure is needed, the preferred option should provide the optimum benefit for the community. (NSW DIPRN 2004)

While recent changes of state government leadership and portfolios have brought uncertainty as to how this will be done, the government is proceeding with the GCC and with expedition of infrastructure projects elsewhere via a new government infrastructure group with powers similar to those assigned to organisers of the Sydney Olympics.

The Growth Centres Commission (GCC) is intended to bring regional planning and coordination provision together for the two growth sectors of Sydney by streamlining the local planning and

development approval process (seen by the development industry as too slow), consolidating state government approvals, collecting newly designated and previously-enabled regional developer contributions and, to an extent yet to be determined, procuring and financing infrastructure. The preliminary infrastructure program prepared by the Department of Infrastructure Planning and Natural Resources left the final resolution of development contributions policy to the commission [NSW DIPNR 2005b].

The key tasks of the GCC are to:

- develop land use and infrastructure plans
- manage funding for and innovative and cost effective infrastructure delivery
- co-ordinate orderly rollout of land release and infrastructure
- achieve co-ordination between small land holders

The commission will also be a water authority to enable it to consolidate state provision of urban infrastructure.

This will permit early and coordinated provision in the growth areas, potentially with a level of adequacy not seen before in Sydney's development. How arrangements for growth areas are coordinated with metropolitan-wide systems remains to be seen, though there is a state acknowledgement that catch-up road infrastructure and the balance of unfunded growth centres infrastructure will come from government as new allocations or as re-prioritisation of existing agency allocations (NSW DIPNR 2005: 13). The cost for regional infrastructure in the two growth centres is estimated at around \$7.8 b over 25 to 30 years, covering roads, rail, buses, education and health.

This commitment to Sydney is significant in acknowledging the difficulties, shared by the three state governments under review, of funding good services for new areas when there are significant, if not massive, backlogs to be overcome to meet reasonable standards of service in the established areas. The emphasis on sustainability for Sydney and the use of new technology may reduce the demand for coordinated access to some metropolitan-wide systems, particularly water and energy. For example the plan is to dispose fully of household liquid wastes to local or regional agricultural land through the Western Sydney Water Recycle Initiative.

Beyond establishing the GCC and targeting infrastructure, the new metropolitan strategy covers economy and employment, centres and corridors, housing, transport, environment and resources, parks and public places, governance and implementation. Clearly, the governance and implementation strategies include the means of linking infrastructure provision with the other elements of the statement. Those means are set out in a clear way. The overall actions proposed to implement the strategy are to align sub-regional and local planning with strategy aims, improve state involvement in strategic places and projects, inform state investment priorities, consider funding, pricing and project delivery, keep the strategy current and ensure stakeholder involvement. Actions for state involvement in strategic plans and projects include streamlining planning and assessment processes for state-significant projects and critical infrastructure, leveraging state assets to support the strategy's aims, identifying appropriate mechanisms to fund state infrastructure, and financing and delivering strategic projects.

This package therefore addresses matters at the heart of NSW's response to criticism of disorganised project development. While the metropolitan strategy merely 'informs' state investment decisions it is clearly a driver of state infrastructure policy and indeed has triggered a decision to frame an overall

state infrastructure strategy. State agencies will incorporate metropolitan strategy aims and directions in project formulation and asset strategies as well as agency-wide total asset management plans. They are required to mobilise government assets for metropolitan strategy purposes to get the best value over time from existing assets including through their maintenance, enhancement and replacement. The State Infrastructure Strategy is to be prepared by the Office of Infrastructure Management through the NSW Treasury, to provide a 10 year horizon for infrastructure development and link to longer term plans, such as the metropolitan strategy, with shorter term projects set out in annual budgets.

The metropolitan strategy and more detailed sub-regional plans are intended to alert state agencies to the strategic role of key centres and corridors for agencies, so as to assess their internal asset management and capital proposals against the aims and directions of the metropolitan strategy before capital projects are prioritised in the State infrastructure strategy. This does not guarantee consistent linkage but it is certainly a step in that direction.

Of course government assets include land and property assets which in NSW have been more active instruments of metropolitan strategy, extending to policies for the spatial deployment of departmental staff and the procurement of goods and services. The government intends to use this set of instruments for urban renewal and redevelopment and the development of strategic centres.

NSW also appears to be learning the lessons brought to it through public scrutiny about using financing instruments appropriate to the social and private purposes of particular infrastructure projects.

Given the range of beneficiaries of infrastructure and services it is likely that funding for most projects will be spread across a number of mechanisms, however, practicality will exclude many funding options. At a conceptual level three basic groups of funding sources may be accessed to fund Strategy initiatives: budget funding, user or producer charges and value capture mechanisms.

In practice, funding tools are likely to have features of each of these categories, while in different economic circumstances the fairness and efficiency of any funding tool may change. For example an infrastructure charge on development (or a rate on existing development) may act as a means of capturing land value uplift, where value is created as a result of Government zoning decisions or investment.

The challenge is for a project to have an optimum mix and balance of funding mechanisms - to both fund a project and introduce appropriate signals and incentives to promote project outcomes.

The general approach to funding project infrastructure needs will include elements of the following:

- continue to fund public goods from the consolidated revenue (or the rate base for local infrastructure);
- where practical design funding instruments which efficiently and fairly capture a component of private value uplift resulting from Government land use and infrastructure investment decisions; and
- ensure that public costs for infrastructure arising from private demands are recouped via efficient and fairly targeted user and producer charging mechanisms.

The challenge will be to get the best mix of the above approaches for a particular project subject to value for money assessment.

...

Infrastructure costs will be allocated among new development, existing land holders and the public at large (via the State Infrastructure Strategy and budget process) according to both the

source of the demand for the infrastructure and the distribution of beneficiaries. In existing urban areas the beneficiaries will be blurred among existing and new land and it would be unlikely that development contributions could collect the majority of the costs. (DIPNR 2005b: 271-2)

The Infrastructure Implementation Group in the Premier's Department was established to assist implement strategic infrastructure projects consistent with the metropolitan strategy, working closely with agencies to assist projects through the planning process and to ensure the delivery of key infrastructure is entitled to become the proponent of a particular project.

This detailed strategy will help take Sydney's metropolitan strategy and administrative arrangements for infrastructure provision out of the confusion of recent years. There is a promising level of resolve and commitment to adequate, timely and appropriate infrastructure for the two major growth areas, and a resurgence of commitment to the rest of the region born out of system failure in suburban rail, toll road, tunnel and other areas of infrastructure. In a theme reminiscent of Melbourne, the NSW government claims that this will provide for future urban growth in a way that is very different from what has traditionally been carried out in urban fringe areas, namely provide it on time.

These arrangements enable the ready use of PPPs: NSW claims to have invested around \$11 b in infrastructure. Plans to use PPPs in the two growth centres include social infrastructure projects – schools, hospitals and social housing. The advantages of this mode are claimed to be faster construction time and the use of one contractor for maintenance, security and cleaning. The extent to which public interests are sacrificed to the success of private provision, including particularly a new cross-city tunnel, has created widespread criticism, and the new metropolitan planning and infrastructure principles face a sceptical public.

For example the development industry supports the new suburban development arrangements (with the obvious major exception of the level of developer contributions) but has been very critical of poor infrastructure coordination in established areas:

If the NSW Government can't fix the rail system how can we expect this government to deliver a city? It is the gap between vision and action that creates disbelief ... The ability to fund and deliver infrastructure is perceived by the industry to be the primary constraint to urban development. UDIA-NSW's submission [to the metropolitan strategy] is therefore principally concerned with delivery. Specifically, UDIA-NSW would like to know how the implementation of Metro Strategy will be funded and managed over its 30 year existence (UDIA 2004: 3).

Hopefully, release of 'City of Cities' will answer this question. Whether, with more sustainable service provision, metropolitan planners' dependence on the argument that good plans make savings from timely public works will be removed is another issue raised. The opportunity costs of poor infrastructure coordination have always been undersold as urban expansion plans appear, in the public's mind, to be causing fringe urban growth rather than accommodating it. Whether the new growth area arrangements survive political transitions ahead, and whether an equivalent level of planning and infrastructure coordination and financing set out in the metropolitan strategy can be applied to the 60 percent of development occurring outside the growth areas, and thus to the metropolitan region as a whole, is the main question still open.

Melbourne

In contrast to Sydney, Melbourne's metropolitan planning grew out of an infrastructure agency, the Melbourne Metropolitan Board of Works (MMBW), but after many permutations has since moved away from departmental cohabitation with infrastructure provision. The 1954 Metropolitan Planning Scheme went well outside its own utilities and services and encompassed municipal gas, electricity,

telephone, telegraph and other services. In the absence of a metropolitan roads authority it also prepared a plan for the main roads system and much of the public transport system as well. As clearly stated

Each of the larger authorities has a specialised knowledge of particular problems associated with its undertakings. Each has well-considered plans for meeting future needs and is carrying out these plans within the limits imposed by available labour and finance. However, because of the lack of an overall planning scheme as is now presented, each authority has been compelled to make its own independent estimates, not only of how many people it will have to provide for in the years to come, but also where those people are likely to live and where industry is likely to be located... The advantage of a planning scheme is that it enables such authorities to plan on a common basis, and thus eliminates much uncertainty... There is no part of the metropolitan area to which these utility services cannot be extended, but the cost of installation varies greatly in different parts of the metropolitan area. (MMBW 1954: 87)

Planning policies for the metropolitan region in 1968 and later were led by the MMBW and infrastructure implementation undertaken in-house or left to other authorities. The 1971 scheme required considerable more land releases than forecast by the 1954 scheme (as in Sydney) with the result that land requirements spilt beyond the MMBW's jurisdiction (McLaughlin 1992: 169). 'The metropolitan strategy is one of incremental growth' (MMBW 1981: 3). Further extensions were needed in the 1983 scheme and through amendment 150 which became the metropolitan plan. By virtue of its power and independence the MMBW sometimes came into conflict with state government, and the MMBW and other authorities in conflict with changing community aspirations, for example when freeway and slum clearance programs were stopped during the 1960s and 1970s.

By the early 1980s low confidence in the coordinated management of urban development, involving government-wide mechanisms overseen by state cabinet, was among a number of grounds for restructuring the MMBW and the Town and Country Planning Board in 1981 and bringing lead responsibility for metropolitan planning more closely under ministerial power through a Department of Planning. State infrastructure policy recognised the importance of urban coordination, particularly for housing, and addressed such issues as standards of provision, the use of existing infrastructure, maintenance and replacement (Victoria DPH 1991). The metropolitan planning schemes that followed – e.g. *Shaping Melbourne's Future* in 1987 – relied on arrangements within government – e.g. an Urban Infrastructure Committee of Cabinet, an interdepartmental Urban Infrastructure Technical Committee and a Metropolitan Services Coordination System (MSCS). The MSCS, and within it an urban development program that survives to this day, became the main means of monitoring urban development and adjusting land supply and infrastructure provision to fluctuations of markets and the economy at large. However public and private infrastructure provision was not always forthcoming, and significant backlogs emerged both in established areas and for fringe developments.

With a change of government these were addressed through a more relaxed metropolitan plan – *Living Suburbs 1995* – radical corporatisation and privatisation of state infrastructure provision, sometimes successful within each project area and sometimes not, but on the whole making the coordination of metropolitan infrastructure significantly more complex. Metropolitan strategies evolved but ad hoc development decisions brought the practice into controversy if not disrepute.

Labor's return to power re-established government interest in having a comprehensive metropolitan plan. It brought metropolitan planning to a mega-Department of Infrastructure from where housing, transport, water and other areas of infrastructure such as ICT services procurement could in principle be coordinated within one agency, while retaining inter-agency arrangements within state government and inter-governmental arrangements with local councils. A multi-year strategy with a 10-year horizon for identifying and ranking by priority formal infrastructure projects was established in that department

to link more clearly infrastructure capital program to outcomes. It was taken up by Treasury and applied government-wide. Further rigour has since been brought to infrastructure delivery and management through application of state 'Gateway' arrangements for consideration of PPP options and performance monitoring (Victoria DOI 2004, Victoria DTF 2001) and the creation of an Infrastructure Funding Council (Victoria 2002).

For the Melbourne region, a major new metropolitan strategy, Melbourne 2030, set the framework for urban infrastructure. The first answer to its own question 'who will use Melbourne 2030?' is that it 'will guide government agencies in matters such as infrastructure investment...', an appropriate answer for a plan produced by the then Department of Infrastructure (Victoria DOI 2002: 19). Planning functions have since been separated out from that department and combined with sustainability.

Of nine sets of policies and initiatives for directions of growth, Direction 2 is towards the better management of metropolitan growth. Five suburban growth areas became the only permissible broadhectare release areas:

In designated growth areas, preferred development sequences will be defined to better coordinate infrastructure planning and funding. This will include an indicative 10-15 year development and land-supply program, regularly updated, to identify the areas (both greenfield and major infill/redevelopment sites) in which development is expected to meet projected housing demand.

Growth will be managed to produce an urban form that can be serviced efficiently so that public transport services are provided concurrent with development. This will avoid delays in public transport provision... (Victoria DOI 2002: 34)

The metropolitan strategies reviewed do not indicate in detail how the adequacy of infrastructure provision will be measured; a by-product of differentiated implementation. For example implementation measures to promote activity centres in established areas are necessarily different from those for the designated suburban growth areas (which, like Sydney, are expected to accommodate only 30-40 percent of housing starts and even less if the 'aspirational' strategy of higher urban consolidation is successful). Policies and initiatives for the nine directions of growth are translated into six draft implementation plans, of which three – growth areas, activity centres and integrated transport – are of most interest to infrastructure coordination and are reviewed in turn here.

Melbourne's fringe development is less constrained than Sydney's and water, sewerage and drainage provision generally keep pace and are fully user-funded. The main challenges for infrastructure linkage are with public transport including road-based, for which backlogs in established areas are acknowledged by government and services to new areas not assured without changes to policy and / or priorities. Melbourne 2030 did lock in a transport network to the metropolitan strategy and was jointly signed off by transport and planning ministers. The Infrastructure Planning Council examined infrastructure areas of water, energy, transport and communications.

Melbourne 2030 addressed the need to coordinate infrastructure within the urban growth areas, with the prospective use of development contributions and PPPs made clear.

A more efficient and sustainable pattern of settlement is required at metropolitan level. Conversion of land on the fringe to urban use must be done in a way that contributes to the overall directions of a sustainable and compact city. New land will be released in growth areas in a timely fashion to facilitate coordinated and cost-efficient provision of local and regional infrastructure, such as roads, public transport, water supply, sewerage, drainage, local parks, schools and local health and recreational facilities. Coordinated service delivery in these areas must also supply enough affordable land.

Fragmented urban growth in the growth areas could lead to significant extra financial, environmental and social costs, if infrastructure agencies dealing with multiple development fronts are forced to invest in new capacity before the existing capacity is efficiently utilised.

Proper sequencing of development will avoid these costs and ensure that new communities will not have to wait for extended periods for taxpayer-funded education, health and public transport facilities because limited budgets have had to be spread over a wider range of growth fronts than necessary.

Developments will need to be structured to make a substantial financial contribution to the provision of infrastructure such as public facilities, public transport and roads – this may be achieved through partnerships between the public and private sectors.

Preferred development sequences will be defined, to ... include regular updating of an indicative 10 to 15-year development and land-supply program to identify the areas in which development is expected to meet projected housing demand. (Victoria DOI 2002: 65)

A set of 'smart growth committees' developed framework plans for the five urban growth areas that encompass the majority of prospective urban releases. On the basis of their reports the government has released extensions to the urban growth boundary – which in Victoria are probity-protected by requiring ratification of both houses of Parliament – brought in a new developer contribution charge to augment present user charges and state and local levies for infrastructure, and announced the formation of a new growth areas authority to assure adequate and timely infrastructure provision to and for the five urban growth areas of Casey-Cardinia, Hume, Melton-Caroline Springs, Whittlesea and Wyndham (Victoria DSE 2005). This package is consistent with new arrangements in Sydney and SEQ as well as Perth and other cities and points to better linkages ahead for designated suburban growth areas if not whole metropolitan regions.

Development contributions will support the provision of transport (roads and public transport), environmental facilities (such as regional open space, trails and creek protection) and State-supported community infrastructure (including libraries, neighborhood houses and major recreation facilities)...

The new Growth Areas Authority will work with councils and developers to progressively introduce Development Contribution Plans for each growth area, incorporating State and local contributions... There will be flexibility for contributions to be met, either completely or in part, but direct 'in-kind' provision and/or cash payments if that is what is chosen (Victoria DSE 2005: 11-12).

Charging developers for part of the cost of infrastructure provision for urban growth areas locks in the state government to completing its own part of the schedule, so that there is a good chance of funded provision in the growth areas and outside the growth areas where a direct causal nexus can be established. As with Sydney, these arrangements do not over other areas of suburban development, nor the major accumulation of infrastructure needs in the rest of the metropolitan region.

For activity centres, including transit-oriented development, infrastructure coordination is more difficult to generalise than for growth areas because the combination of requirements varies widely according to the particularities of centres and the extent to which infrastructure intervention is for remedying backlogs that have held back centre development or for expansion of mixed activities with the centre. In Melbourne implementation work has focussed on the 'transit cities' of Box Hill, Broadmeadows, Epping, Footscray, Frankston, Ringwood, Sydenham and Werribee, with considerable work on structure plans preceding infrastructure development and major VicUrban land development funding.

The most important linkage between Melbourne 2003 and infrastructure is through the transport system, and the state's transport strategy makes more than passing reference to the joint goals of

Melbourne 2030. While there is no one performance scorecard for Melbourne 2030, its transportation targets will be difficult to meet without significant linked investment in transport systems, not necessarily new capital procurement but traffic and public transport management. The government has recognised the urban infrastructure bottlenecks caused by transport congestion and its Infrastructure Planning Council identified the West Gate Bridge, Dynon rail terminal and rail access to Port of Melbourne as bottlenecks (IPC 2002: 14). The IPC's finding, that '[t]here is no published, integrated, long-term plan that articulates Victoria's future infrastructure requirements and how those will be met in the best way possible' (IPC 2002: 21) remains true. A transport and liveability statement planned for early 2006 is expected to address public disquiet at the lack of clarity of transport infrastructure commitments and a spate of competing privately-sponsored new transport infrastructure proposals.

Melbourne's work on metropolitan planning has been thorough and sophisticated, with ambit targets and a long list of implementation actions without a clear statement of how infrastructure provision will be linked. Recent growth area decisions will tie in infrastructure provision to suburban expansion in an unprecedented way, and metropolitan-wide infrastructure coordination for public transport, transit-oriented development and redevelopment, not yet clearly or strongly yoked to Melbourne 2030 may still be addressed.

Brisbane/ SE Queensland

The conventional view that Brisbane and its region are late-comers to coordination between metropolitan planning and infrastructure coordination (e.g. Gleeson et al 2004) should be modified in two respects. First, the Queensland Office of the Coordinator-General, established in 1938 to coordinate public works programs, was national leader in the strategic use of infrastructure for regional development (see Minnery 2000b). Though it had a bias away from SE Queensland in the interests of decentralisation and away from urban infrastructure and urban planning in favour of industrial and mining infrastructure, it nevertheless sponsored a number of significant early SE Queensland planning exercises.

Second, the Brisbane City Council itself, formed in 1925 from an amalgamation of 25 local authorities, had a considerable capacity to coordinate works in support of urban expansion until new urban development overtook its boundaries. As late as the 1990 draft Brisbane City Strategy twelve residential land release areas were identified for a coordinated approach to urban management that sought to transcend the confines of statutory planning (BCC 1991a: 11-3) and commit city funding to coordinated infrastructure provision at 17.2 percent of the overall costs of implementing the City's strategy in a staged sequence (BCC 1991a: 238 and BCC 1991b: 216).

While the City is a major player in new plans and strategies for SE Queensland, has underwritten major infrastructure works such as the Inner-City Bypass and North-South bypasses with virtually no state involvement, and still holds the key to coordination arrangements for infill and redevelopment, the infrastructure coordination tasks for major new urban development have now clearly moved to the regional scale. The present Brisbane City Plan, prepared under the Integrated Planning Act 1997, is understandably less concerned with new urban development though critical of the SEQ Infrastructure Plan and Program (Queensland OUM 2005), arguing that state government agencies must better align their infrastructure planning and budgetary processes with the Regional Infrastructure Plan jointly prepared with them (BCC 2005:15).

The evolution of arrangements for regional planning in SE Queensland from SEQROC's formation in 1990 through the production of the Regional Framework for Growth Management (1994), which 'marks the beginning of metropolitan planning in Queensland' (Gleeson et al 2004: 88), has led to the

present major initiatives whereby a collaborative state and local government process has produced the South East Queensland Regional Plan 2005-2026 (Queensland OUM 2005b) and a linked Infrastructure Plan and Program intended to be produced annually (Queensland OUM 2005a).

This exercise and the plans and programs it has produced, or at least linked with the regional plan, set a high benchmark for the integrated consideration of urban development and infrastructure provision. The plan itself takes a comprehensive view of infrastructure, making one of its desired regional outcomes that 'regional infrastructure and services are planned, coordinated and delivered in a timely manner to support existing and future settlement patterns and desired community outcomes.' (OUM 2005b: 92). This plan is then fleshed out in a programmatic form, with chapters on each infrastructure sector and identified further potential infrastructure investments.

Because identification of the full infrastructure requirements of the Brisbane, Gold Coast, Sunshine Coast and Ipswich conurbation has overtaken a pattern of infrastructure deferral and leapfrogged development there is a significant backlog of works and a daunting program ahead, including persuasion of people to settle inland rather than near the coast, even if negotiated voluntary agreements for major new urban developments over 1000 ha fund new infrastructure arising from new development. The preparation of more detailed structure plans as precursors to much of the infrastructure commitment could perhaps delay programming further, and the BCC appears to remain somewhat suspicious of state intent. Nevertheless the state government has a major commitment to fund a significant part of its share of urban infrastructure backlog and new growth area spending as part of a 20 year infrastructure plan for which the state is also, and sensibly given best practice internationally, willing to go into debt (see Engineering Australia 2004: 7).

There has been a focus more on mega-projects in the region than long-term, less visible urban infrastructure, and a 'lack of a well-institutionalised means for setting rational priorities for state development' (Prasser 2005), particularly since the OUM does not now report to the same active and supportive Treasurer who established the planning and infrastructure arrangements but to a busier Premier.

The government of Queensland recognises that for it to succeed as a 'smart state' the liveability of its capital city region is now a critical asset to be protected and promoted, much as earlier state governments sought to provide export industry infrastructure out of the region. All recognise long-standing misfits between plans, when available at all, and urban infrastructure. The question is whether present plans and infrastructure arrangements, admirably set out, will permit adequate provision to be made for new urban development and to catch up for established areas. Here, again, it is too soon to tell, but the intent appears promising.

Discussion

No criterion for best fit: 'Disconnection' implies knowledge of what it is to be connected, to have metropolitan plans and planning systems that take into full account of infrastructure needs, and infrastructure providers and managers who match services to needs identified in plans and planning systems, at the right place, in the right time and sequence, with the right mix of services at the right standards for current and future users. All of these measures require judgements that are social and political. The public impression is that such judgments are not well made and err on the side of under-provision.

But there are major misfits: In the past decade in Australia, there is no doubt that metropolitan plans designed to rule the patterns of urban growth and development have not been well coordinated with infrastructure provision, and particularly that the timing and adequacy of provision have fallen behind

needs and demand other than in areas where provision can be privatised or provided via PPPs with financially viable revenue streams. Even the three state governments reviewed acknowledge that. The case is particularly clear with public transport where shortfalls are serious. (For the record Engineers Australia rated roads at C+ nationally, rail C- with D for rail freight, and no rating for the moving stock of buses, trains, trams and ferries that make up the main investments in public transport. See Engineers Australia 2005).

Risk of growth area solutions deferring metropolitan area solutions: The solutions to connecting infrastructure with metropolitan planning lie not so much in administrative reorganisation – coexistence of metropolitan planning with infrastructure in super-departments just means intra-departmental challenges (and potential burial of scrutiny) rather than inter-departmental conflict and inertia. The popular creation of special commissions for managing urban development on the urban fringe in Sydney and Melbourne, and funding infrastructure provision for major new urban developments through development levies in all the states, could enhance intra-regional coordination at the risk of harmonisation with or deferring provision of other elements of metropolitan strategy in other parts of the metropolitan areas (e.g. for subregional centres, urban consolidation).

Better public understanding and a more informed debate are important to establishing a stronger connection. No longer can governments get away with smart deferral of infrastructure investment or folding restraints on the public interest into PPP deals. The public perception of disconnection, fed by media campaigns about the risk to quality of life in the three big cities from poor infrastructure coordination and provision, is well founded. However, it is vital that public debate on these issues be well informed, and incumbent on professionals in this area to raise their own understanding through research and engagement with policy and communicate this well. Well-grounded critics of metropolitan planning and urban infrastructure are all too rare.

Infrastructure deferral is not a long term solution: Whether for maintenance, replacement or procurement of new infrastructure, deferral of infrastructure is now better understood by the public – through disasters on systems as well as through media exposure – and less acceptable politically. There is fundamentally no financial constraint on infrastructure warranted by proven feasibility: governments should finance public assets over their useful life say through loans or bonds, or meet it from budgetary resources, and are in a position to tap infrastructure funds currently in abundance. Governing principles for infrastructure financing are set out well in Sydney's new metropolitan strategy which echo World Bank principles (1994).

Financially packageable services get PPP priority but distort planning implementation: The public debate about urban infrastructure has shrunk to those services for which there remains a funding gap in state government provision, particularly public transport (fixed rail, rolling stock, roads), regional open space, district community centres and major items of human services including education and health. Water supply, sewerage, drainage and energy supply are of less concern, and despite local backlogs and non-provision of local government services, the multiplication of development charges, including voluntary agreements, is able to go some way to remedy the worst of local government service shortfalls. The most difficult services to provide have been those less easily able to privatise or procure through PPPs, including some services such as public transit inappropriately so procured. Moreover to make particular infrastructure proposals profitable system managers have allowed the public interest in future infrastructure management to be compromised – e.g. distortions of accessibility to stack up toll road feasibilities.

Understand infrastructure technologies better: The technology of provision, and the nature of household and establishment demand, are changing fundamentally, if not obviously day to day, with a shift to more environmentally sustainable modes: the hydrogen economy, local water reuse and waste disposal, wireless broadband telecommunications, district electricity generation and distribution,

smaller commuter and charter airports, etc. The effect of these largely ‘unbundled’ services will be to increase the fragmentation of metropolitan areas. Too many infrastructure providers hear the metropolitan planners but are ignoring them or deferring their compliance, and the metropolitan planners are not monitoring changes to urban infrastructure provision or future plans as they are made. The risk is that, with all the financial and organisational capacity in the world, with the strongest of planning powers, there will remain misfits of knowledge of infrastructure to compound the historical accumulation of misfits.

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