# TABLE OF CONTENTS

1 Executive Summary .......................................................... 3

2 Introduction ........................................................................ 4
   2.1 Purpose and scope ......................................................... 4
   2.2 Background and definitions ............................................ 4

3 About the Issue ................................................................. 6
   3.1 Demand for infrastructure: population, economic growth and settlement needs ................................................. 6
   3.2 Infrastructure supply: overview, audits, benchmarks ......................................................................................... 7
   3.3 Enabling infrastructure .................................................. 8
   3.4 Overview of infrastructure planning, prioritisation, budget and delivery processes .............................................. 8
   3.5 Infrastructure roles and responsibilities in the Australian Planning context ....................................................... 9
   3.6 Megatrends context ....................................................... 14

4 Infrastructure Planning Principles ....................................... 15
   4.1 Integrated strategic planning .......................................... 15
   4.2 Models for infrastructure planning: predict and provide / scenario analysis .................................................. 16
   4.3 Project appraisal, Business Cases, EIA and BCA ................. 16
   4.4 Infrastructure planning principles .................................... 17

5 Infrastructure Funding Principles ....................................... 18
   5.1 Who pays in what mix: user / beneficiary / public ............... 18
   5.2 Infrastructure funding mechanisms and value capture .......... 19
   5.3 Funding principles ......................................................... 23

6 Infrastructure Project Delivery ........................................... 24
   6.1 Planning outcome achievement ....................................... 24
   6.2 Entrepreneur led delivery models .................................... 24

7 Key Observations and Findings .......................................... 24
   7.1 Integrated land use and infrastructure planning and prioritisation ............................................................ 24
   7.2 Infrastructure funding .................................................... 25
   7.3 Infrastructure project delivery .......................................... 26
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PIA advises that the information contained in this publication comprises general statements based on research. It is not intended to cover all aspects of planning in relation to the topic of this paper. It is intended to provide background information to inform planning professionals about the corresponding PIA Position Statement.
1 EXECUTIVE SUMMARY

This is a discussion paper prepared by the Planning Institute of Australia to assist in formulating a national policy position on the role and key influences of the planning profession on the planning, funding and delivery of infrastructure to support growth – and create sustainable and productive places, communities and businesses.

There is a critical nexus between infrastructure, planning, design, and development. The provision of appropriate, effective, efficient and timely infrastructure is essential to achieve affordable and sustainable living conditions in our cities and regions – and for the movement of goods to market. In the context of current infrastructure provision, population increase, climate change and infrastructure institutional management, devising the means to fund and provide necessary infrastructure is a major and urgent national challenge.

Planners have an important role in devising and communicating scenarios that take account of growth and change, expressing visions, spatial outcomes and the implications of trade-offs to set realistic infrastructure priorities for communities and businesses.

Planners interpret and sequence development needs in ways that define the delivery task for both social and economic infrastructure. Planners and the development industry are well placed to determine where value is created along the supply chain for the allocation of development rights and to balance benefits with potential sources of funds.

The overarching finding of the paper is that the achievement of place outcomes based on sound strategic planning should drive infrastructure planning and option appraisal. Funding (including value capture) and delivery mechanisms should be consistent with meeting these outcomes. To achieve this, integrated land use and infrastructure planning is essential to ensure that community expectations are met for improvements to living conditions and economic performance to accompany population growth and change.

The key observations and findings of this discussion paper are outlined in Section 7.
2 INTRODUCTION

2.1 Purpose and scope

This discussion paper is an overview of infrastructure planning, funding and delivery challenges. Its aim is to outline the key considerations and findings that will inform a PIA Policy Position Statement. It also highlights insights from planning that have the potential to improve the overall process of infrastructure delivery.

The paper deals primarily with public infrastructure but recognises that privately provided infrastructure has an important role to play. It is generally applicable to all jurisdictions, but recognises that circumstances and possibilities will vary from place to place. The paper focuses on the planning and provision of new infrastructure serving growth but is cognisant of the importance of infrastructure maintenance. It addresses both economic and social infrastructure that might be delivered by any tier of government. The paper discusses the context and contemporary knowledge about infrastructure and then analyses how it relates to the planning profession with respect to:

- Regional planning, settlement and major infrastructure / corridor needs
- Integrated infrastructure and strategic planning, focusing or promoting growth – involving development sequencing and local development assessment
- Infrastructure project appraisal, consideration of alternatives and the valuation of costs and benefits
- Infrastructure funding sources relating to property, including value capture, impact mitigation levies and aspects of user charging
- Governance arrangements for funding and project delivery

2.2 Background and definitions

Appropriate, efficient and timely infrastructure is essential to achieve affordable and sustainable living conditions in our cities and regions – and to get goods to market.

Types of infrastructure

Cities and regions require both economic and social infrastructure to be prosperous, productive and liveable. Economic infrastructure provides the physical structures and facilities that provide a major organising element of our cities and regions and includes transport systems, energy, water and telecommunications networks. Social infrastructure includes the mix of facilities and services that maintain quality of life such as hospitals, schools, justice and emergency facilities, community centres, local parks and sporting reserves. Ensuring adequate infrastructure is available to meet the needs of a growing and changing population is at the heart of planning for successful places, businesses and communities.

Social infrastructure is the interdependent mix of facilities, places, spaces, programs, projects, services and networks that maintain and improve the standard of living and quality of life in a community.
Dept of Planning WA (2012)

Economic infrastructure is the facilities of a country that makes business possible, such as communication, transport and distribution networks, financial institutions and markets and energy supply systems.
The diagram below outlines the infrastructure types provided by different tiers of government using Queensland as an example. The figure is an extract (Figure 17) from the Queensland State Infrastructure Plan (2016).1

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**Funding and delivery of infrastructure**

Governments are involved in the delivery of infrastructure to facilitate desired development, reduce development risk, and respond to some market failures where delivery of public goods and the reduction of negative externalities is important. Enabling future growth and change of communities is part of the contribution that urban planning can make to improve living conditions and investment conditions. Where markets for infrastructure operate well, the role of government is less needed and may be limited to ensuring that planning regulation does not impose unnecessary barriers (eg telecommunications code).

Infrastructure is not provided for its own sake. The way infrastructure needs are determined, projects selected, funded, financed and delivered is integral to achieving the planned outcomes for a place. PIA (2013)2 has adopted planning systems principles that expect evidence-based strategic planning at all levels of government, and a demonstrated commitment to implement plans aligned with timely infrastructure funding and delivery.

**Funding and Financing**

While funding refers to the primary stream of money to deliver a need, financing is the means by which these funding streams are manipulated to make money available when needed. This paper focuses on infrastructure funding.

Infrastructure Australia (2016)3 noted that, traditionally, Australian Governments have provided grant funding for major economic infrastructure investment through the States from general taxation, supplemented by user charges. They also note that this model is less likely to meet all our future needs and that infrastructure users and other beneficiaries will need to take a greater share of the funding burden. This would also assist a current weakness in policy by making tax dollars available to meet the increasing social infrastructure and service needs of a growing and ageing population to sustain quality of life, a point highlighted in the Intergenerational Report (Treasury 2015)4 and PIA’s (2016)5 study of megatrends shaping Australia.

The provision of economic and social infrastructure at a local scale by councils, state agencies, private operators and non-government organisations (NGOs) is already based on a wider range of funding and delivery models including property taxation (via rates), user charges, value capture, as well as allocations of tax revenue from the States and the Commonwealth.
The core idea is that a new piece of infrastructure such as a railway creates economic value (eg the value of land near a station would typically increase), and tapping into part of this increase offers a source of funds to contribute towards the cost of a project.

DIRD (2016)

The Productivity Commission (2014) argues that the infrastructure challenge should not be viewed as a problem about how Australians should fund an infrastructure backlog – but how we consistently make the best economic choices in response to identified infrastructure needs. This means understanding how we manage demand through pricing, consider all infrastructure (and non-infrastructure) alternatives, ‘sweating’ our existing assets harder and getting best balance the economic pros and cons of investment options.

3 ABOUT THE ISSUE

3.1 Demand for infrastructure: population, economic growth and settlement needs

As Australia’s population grows, government and industry will be challenged to sequence the right infrastructure to support changing needs of society. PIA has provided a snapshot (below) of a range of the demand factors influencing our future infrastructure needs in the ‘Journey towards Australia at 50M’ initiative.
Advances in ever more affordable technologies, increased use of sensors and the ‘internet of things’, coupled with data analytics capability will see greater use and efficiency delivered by our existing networks and existing asset base. However, new and denser settlements will continue to see demand for essential economic infrastructure and we will need to get better at integrating planning and infrastructure to get the best outcomes for our communities while maintaining secure access to essential services including energy and water.

However, both economic infrastructure and investments in social infrastructure like schools, hospitals and emergency services are necessary to maintain the liveability of communities. the latter does not automatically follow the former. It is necessary to demonstrate how to measure the success or otherwise of social infrastructure in the same way we assess the adequacy of economic infrastructure.

It is already clear, that expectations for the quality of life and the connectivity of our cities and centres will continue to increase alongside higher density living. The social infrastructure needs will rise accordingly, as will demands for improved accessibility both via transit networks and virtually. As our population ages, health infrastructure will be under increasing pressure and the ability to deliver services through non-built infrastructure solutions will become more acute. Advances in fields like e-health, internet banking and financial services and working from home will see the demand for traditional infrastructure solutions change.

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**Predicted growth rates of infrastructure sectors**

**Faster than GDP:**
- Transport, ports, telecoms, gas pipelines, airports

**Slower than GDP:**
- Water, petroleum, electricity, non-urban roads / rail

*The Australian Infrastructure Audit (2015)*

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In regional areas, access to cities and global markets will become more important – not only for products, but for tourism and a wide range of industries and services. Access to secure water and energy will remain important, but the social essential infrastructure to attract and serve businesses and employees, particularly middle managers, is vital.

### 3.2 Infrastructure supply: overview, audits, benchmarks

In 2014, the World Economic Forum\(^2\) ranked the quality of Australia’s infrastructure twentieth out of 144 countries (Figure 15). Some of the poorest scores were for the quality of Australia's roads and ports. The World Bank’s Logistics Performance Index 2014 ranked Australia’s trade and transport infrastructure sixteenth in the world. These results emphasise that improving Australia’s international competitiveness requires ongoing attention. The Australian Infrastructure Audit 2015 found that without action, Australia’s productivity and quality of life will be tested, with population and economic growth set to cause increasing congestion and bottlenecks with significant economic costs.

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The avoidable costs of congestion for Australian Capital Cities is estimated around $16.5Bn for 2015–16, up from $12.8Bn for 2010–11.

*BITRE (2015)*
However, the Productivity Commission argues against viewing our infrastructure supply as in ‘deficit’, because a policy of funding a backlog could lead to uneconomic investment decisions. This may be the case where non-infrastructure alternatives are available, where patterns of demand are changing rapidly or where there may be induced demand by the further provision of infrastructure. These factors are relevant where there is path dependency in infrastructure assessment such as for urban motorways.

However, there are many indications of where infrastructure supply capacity is not meeting demand, where the available infrastructure is inappropriate or where the distribution of supply is inequitable. A range of abstract metrics are often used in estimating a demand supply balance such as the concept of levels of service (eg road performance), port throughput (eg tonnages or TEU’s / day), data (Mbits / second) open space (ha / popn), hospital beds or school places per population. However, infrastructure supply benchmarks are not useful out of context – or without the adoption of desired productivity, amenity outcomes for a place, community or industry.

Planners have an important role in devising and communicating scenarios that take account of growth and change, expressing visions, outcomes and the implications of trade-offs to set realistic infrastructure priorities.

3.3 Enabling infrastructure

In addition to the distinction between economic and social infrastructure – there is a critical concept of enabling infrastructure. This is infrastructure that is a necessary pre-requisite for settlement or the operation of an industry, without which other types of infrastructure cannot be supported. For example, this concept is reflected in headworks (and trunk mains) in contrast to reticulation infrastructure in water systems; generation in relation to distribution in power supply and transmission. In transport planning, analogous concepts of arterial and local roads occur, but the full integration of public transport, cycling and walkability need to be considered. With social infrastructure, for example, a base and local system of hospitals, libraries or schools might apply.

However, the concept of what is enabling infrastructure is dynamic and subject to rapid and disruptive changes (eg the uptake of distributed generation of electricity via solar PV and wind; emphasis on urban design and the 20-minute neighbourhood.

The concept is critical to infrastructure planning for two reasons:
• Different needs – enabling infrastructure capacity is conceived and designed to achieve a new outcome for a place – while local networks respond to and distribute that capacity according to local needs
• Different beneficiaries – enabling infrastructure supports the entire catchment of the infrastructure – or serviced community – while local networks support the immediate local beneficiaries

These differences are important in considering their funding when considering who pays:
• the community at large for a public good
• specific users who directly benefit
• individuals, businesses or properties who indirectly benefit in terms of land value uplift or reduced costs

Planning has a key role in defining these needs and identifying the beneficiaries as part of the strategic planning process for a place.

3.4 Overview of infrastructure planning, prioritisation, budget and delivery processes

The Infrastructure Australia Project Assessment Framework4 (on page 9) is the basis for the prioritisation of nationally significant infrastructure for inclusion on the IA Priority List. Being on the list influences but does not ensure Commonwealth funding of a State project.

The process is analogous to that undertaken by State jurisdictions whereby projects pass through successive gateways before inclusion on a State Agency’s Asset Strategy, and ensure capital and maintenance programs are balanced among competing claims and reported in the States’ budget. State Government’s also maintain longer term infrastructure priority lists which respond to early identification of major infrastructure needs often linked to early strategic planning.

Infrastructure prioritisation processes typically evaluate project against project by comparing business case evidence. Many jurisdiction prioritisation processes do not fully take account of regional spatial planning outcomes and the opportunities for synergies and achieving cumulative benefits for a place.
The infrastructure planning and prioritisation process should involve consideration of the following steps (SGS 2016):

- **Strategic merit**: How the program / project aligns with the strategic planning outcomes sought based on evidence?
- **Demonstrable need**: How the program / project meets a demonstrated community need?
- **Community welfare**: How benefits generated by the program / project compare to its costs – and who benefits?
- **Affordability**: Is the program / project affordable?
- **Deliverability**: If the program / project delivery risks can be sufficiently managed?
- **Whole-of-life considerations**: what are the life cycle costs (eg. operation, maintenance, disposal)?

The funding and delivery model for a project is generally developed in parallel to the development of the business case and environmental assessment process. It is important that a project is advanced on the basis of all of its economic, social and environmental merits, with clear recognition of any costs / disbenefits. This includes consideration of the viability of infrastructure over the long term, including costs of operation, maintenance and arrangements for transfer or disposal.

The availability of a certain funding or procurement mechanism (eg value capture or public private partnership) should not influence a projects justification or priority. The place outcome developed through the strategic planning process should identify and shape the infrastructure needs.

### 3.5 Infrastructure roles and responsibilities in the Australian Planning context

**National Government**

The Commonwealth Government is responsible for the collection and distribution of tax revenue to the states (and also a grant component to local government). An increasing proportion of Commonwealth funding is through grants contingent on specific spending criteria and performance requirements.

The Commonwealth maintains a variety of infrastructure funds with different governance arrangements and priorities. The Commonwealth’s response to Australian Infrastructure Plan commits to greater pooling of infrastructure funds – implicitly under a common set of priorities.
The major infrastructure items that the Commonwealth funds directly relate to defence, national transport systems and communications networks and aspects of health, social welfare, and education shared with the States and Territories.

The Commonwealth has an advisory and co-ordination role with respect to national infrastructure priorities (via Infrastructure Australia) as well as issuing guidance on city strategic planning, value capture, project delivery and governance principles (via the Department of Infrastructure and Regional Development (DIRD)).

The Commonwealth is now more directly involved as partners in the funding and delivery of infrastructure via City Deals (refer Smart Cities Plan) through the Department of Prime Minister and Cabinet, Cities Division. The Smart Cities Plan highlights city infrastructure as an issue of national significance.

Infrastructure Australia (IA) is an independent statutory authority which advises the government on infrastructure priorities and reform opportunities via their Infrastructure Plan and Priority List. There is a strong focus on the long-term protection of major infrastructure corridors for both passenger transport and freight. IA also performs a performance measurement role publishing the State of Australian Cities Report. The Commonwealth in partnership with the States via COAG have developed national criteria for capital cities strategic planning systems including how metropolitan planning takes account of national infrastructure priorities.

DIRD have responded to the IA Infrastructure Plan seeking better integrated planning across all tiers of government to increase the liveability, sustainability and economic growth of our cities, towns and economic precincts and have proposed national governance principles for infrastructure planning. PIA has included additional elements to recognise synergies and to achieve place outcomes. PIA is concerned that the IA national governance principles are very project based. They should also address how infrastructure project lists are prepared and priorities are identified.

**National Governance Principles – for consideration**

- Regional planning for place outcomes identified in an adopted strategy
- Long term, integrated infrastructure plans linked to the planning strategy
- Project options derived to achieve plan outcomes for places
- Published full project business cases
- In-depth community engagement
- Published post-completion project reviews – linked to achievement of strategic place outcomes

**State and territory jurisdictions**

**Infrastructure budgeting**

State and territories fund and deliver the widest range of infrastructure – either directly, via Government owned corporations or in partnership with the private sector:

- schools and hospitals
- prisons, courts and emergency service facilities
- ports, motorways, arterial roads, rail and urban public transport
- major water and sewerage systems
- social housing
- some waste / resources infrastructure
- some power generation / transmission infrastructure

States typically apply a Strategic and / or Total Asset Management planning approach to the maintenance, capital investment (and disposal) of infrastructure. This is based on clusters of agencies submitting bids to their Treasury for prioritisation annually via the State Budget – and with reference to the longer term via a State Infrastructure Strategy prepared by a separate statutory authority.
Some Example Jurisdiction Approaches: Queensland and Victoria

Queensland: State Infrastructure Plan (SIP)

While detailed land-use planning is primarily the responsibility of local governments in Queensland, the state government’s interest in ensuring regional level actions meet state level priorities is expressed in the statutory regional plans that exist. Going forward, regional plans, including the SEQ Regional Plan, will describe future infrastructure challenges at a regional level, but actual projects will be reflected in updates to the SIP program.

SIP Extract Fig 13: Planning alignment framework Queensland State Infrastructure Plan 2016 (Part A Strategy).

Infrastructure Victoria 30 Year Strategic Plan

Victoria’s existing strategic land use plans were a key input for determining Victoria’s most important infrastructure challenges and the best solutions for meeting them as part of a 30-year investment strategy. The strategy will inform future land use plans – which in turn will inform revisions of the infrastructure strategy and its priorities. For example, in addition to shaping population growth, key drivers behind Plan Melbourne’s polycentric city approach are increasing productivity and attracting investment. Infrastructure Victoria’s 30 Year Strategy addresses these needs with urban intensification, transport infrastructure and pricing proposals and social housing provision to better enable workforce participation and drive Victoria’s changing, globally integrated economy.

While the Victorian strategy represents good practice in addressing identified ‘needs’ it does not respond explicitly to many place outcomes identified in land use strategies.
State agency capital investment plans are built up from series of candidate projects addressing the process and performance criteria set out in that jurisdictions project appraisal guidelines. Typically, this involves a series of gateways demonstrating an infrastructure project has:

- **Strategic fit** – aligned with the principal state infrastructure and regional strategic planning directions
- **Economic merit** – demonstrated primarily through a cost benefit analysis
- **Completed assurance processes** – including a compliant business case, risk management processes and ultimately environmental approval

Infrastructure projects require consideration of alternatives and detailed environmental impact assessment to receive project approval. For larger scale (or value) projects formal business cases are prepared and assessed according to each jurisdiction’s thresholds and evaluation criteria. State planning agencies play a major role in assessing the impacts, while central and line agencies set out the project development and procurement pathway.

There appears to be substantial variation in the way alternative infrastructure project options are conceived and tested and how non-infrastructure alternatives (eg reform, better use / demand management / improve existing) are assessed for their strategic fit and economic merit. This is a structural concern for a system that generates infrastructure projects from within narrow purpose agencies and has the potential to perpetuate path dependencies.

State Planning agencies have a key role in addressing this through regional strategic planning – considering infrastructure needs to serve future populations and distributions of settlement. The identification of future infrastructure catchments, corridors, programs in the context of development potential, and the sequencing of development, are critical for an integrated infrastructure planning.

A weakness of the current process is the ongoing silos of both ministerial portfolios and departments – horse trading of infrastructure priorities across silos seldom achieves optimal strategic results. The involvement of jurisdiction based independent infrastructure advisory bodies (eg Building Queensland, Infrastructure NSW, Infrastructure Tasmania, Infrastructure Victoria, Infrastructure SA) attempts to align projects with the jurisdiction’s corporate, infrastructure and land use planning agendas.

**Regional strategic planning – a spatial context for State infrastructure funding**

Regional and District strategies prepared by State Governments (or groupings of councils) attempt to set the spatial context for growth. They set out the opportunities for where, when and how settlement will take shape among cities and towns, centres, renewal corridors and greenfield development areas. They identify future enabling infrastructure needs based on available capacity and the desired long-term patterns of operation of networks to optimise capital and ongoing servicing costs and benefits. They guide further master-planning and rezoning processes in ways that give effect to an agreed vision for a region. However, there is the potential for a ‘disconnect’ in circumstances where State infrastructure budgets do not explicitly fund the achievement of place outcomes. This is an area ripe for innovation.

Good practice integrates economic and social infrastructure planning with the location and timing of potential development to reduce duplication and avoid more costly service delivery for out of sequence growth.

Early corridor protection, transparent calculation of infrastructure costs and charges and reduced compliance costs at the development application stage are hallmarks of successfully integrated infrastructure planning. Enabling infrastructure needs to be reflected as priorities in agency capital programs. This occurs both via state infrastructure agency engagement in regional planning processes (eg SEQ Regional Plan and State Infrastructure Strategy) and also the injection of spatial planning scenarios for growth into state infrastructure agency network planning processes (eg Long Term Transport Master Plan NSW).

This integrated planning process operates in a similar manner for state owned corporations such as water utilities that are not directly controlled by the State budget process and who are able to charge their users for both headworks and consumption.
Major social infrastructure planning and delivery is typically less well integrated than enabling economic infrastructure. The location of public and private hospitals and education institutions is often an opportunistic response to the market.

State Governments, with a varying degree of success, also intervene at a precinct scale to act as a catalyst to achieve desired settlement and infrastructure outcomes. They work to ensure essential and timely infrastructure is delivered, and to reduce the risk of private investment to deliver housing stock in an orderly and economic sequence via:

- creation of development precincts and associated rezoning
- identification of the infrastructure needs of precincts
- state infrastructure development charges regimes and associated planning schemes (enabling value capture opportunities)
- delivery of state infrastructure such as arterial roads, intersections, education and regional health
- establishment of development corporation oversight
- purchase and dedication of infrastructure corridors, regional open space or biodiversity offsets
- potentially as partners in Public Private Partnerships for infrastructure delivery
- coordination of precinct development sequencing
- actual delivery of early development sites

**Local Government**

Local Government is a partner in regional planning – and the major player in the integrated planning, collector of developer’s local infrastructure contributions, delivery of local infrastructure, rezoning and assessment of development proposals. Councils invest in economic and social infrastructure via an integrated planning framework typically centred on a Community Plan. Long term, medium term and annually budgeted investment priorities cascade from the intended outcomes of an adopted Community Plan. Councils fund the majority of investment from their property rate base which may be capped by the State Government. Infrastructure contributions from new development and negotiated planning agreements are hypothecated to works included in the relevant plan or agreement.

The integrated planning and delivery of the following growth infrastructure and services is typically the domain of local government (either directly or via contract):

- local roads and intersections
- stormwater drainage
- resource collection and reuse
- local open space and recreation areas and trails, pools, sporting fields
- libraries, meeting places, community centres, hubs, galleries, performance space
- some child care, preschool, seniors and other community facilities

In the face of increasingly unaffordable housing, the provision of social housing and affordable housing limited to those on low-moderate incomes is increasingly seen as social infrastructure needed to sustain a viable community. Local and State Governments are having an increasing role in forming the policy settings and collecting contributions. They both support the community housing sector in the delivery and management of affordable housing. The Commonwealth Government has offered rental subsidies formerly via the National Rental Assistance Scheme (NRAS).

There is substantial opportunity for private sector planning and delivery of local infrastructure as part of the precinct planning process negotiated in lieu of development charges.
Social Infrastructure, Liveability and Urban Intensification

Rapidly changing suburban communities expect that land use decisions enabling high density living will be accompanied by measurable improvement of the amenity and liveability of the district and renewal area (SSROC 2016). Adequate infrastructure capacity should be in place to support urban intensification. ‘Capacity’ includes community infrastructure such as open space, playing fields and the availability of affordable housing.

Local and State Government should collaborate through the regional / district / corridor / precinct planning process in the early identification, asset planning, funding prioritisation, funding and delivery of adequate infrastructure capacity. It is also expected that precinct scale planning would respond to the more immediate needs of new and existing residents in local areas undergoing intensification. The quality of public spaces, walkability, access to transit and a functioning retail, entertainment and community services centre are very important at the precinct scale.

The process for identifying and delivering urban renewal precincts should be transparent and enable proactive council and community involvement. It would involve the application of agreed Council-State best practice methodology for assessing capacity and for identifying precincts for urban intensification at key nodes.

3.6 Megatrends context

PIA has produced Journey towards Australia @ 50M examining megatrends that will impact Australia’s future.

The nine megatrends explored here are:

1. Increased urbanisation
2. Health and ageing
3. Resource dependency
4. Biodiversity
5. Climate change and disaster resilience
6. Global connectedness
7. Infrastructure
8. Smart settlements and new technology
9. Collaborative consumption and social change

The overarching megatrend is population growth and a changing age structure. Australia’s population passed the 24 million mark in 2015 and is projected to reach 40 million by 2050, by which time both Sydney and Melbourne would be approaching 8 million.

Population growth presents challenges for cities where congestion, density conflicts, social inequities and infrastructure provision are crucial. In regional Australia, adjustment to shifting population centres with new industries and connectivity with the global economy will be high priorities. Other megatrends include: declining workforce participation, a doubling of the proportion of the population over 65, climate change, digital disruption and the rise of collaborative consumption – with significant new challenges to both identify future infrastructure needs as well as fund them.

Funding sources for infrastructure would become more constrained if a contraction of the workforce offsets value created elsewhere. It would become increasingly important to use existing infrastructure as efficiently as possible. We will need to get the most out of what we already have – while expanding the opportunities for alternative funding sources where these are economic and fair.
4 INFRASTRUCTURE PLANNING PRINCIPLES

4.1 Integrated strategic planning

The nexus concept is the fundamental principle when assessing and delivering infrastructure. In simple terms that means ensuring that if a decision is made to change or develop a place or area, then necessary, timely, and funded social and economic infrastructure must be delivered. The corollary is that if the infrastructure cannot be delivered, then the change or development should not proceed.

There is a fundamental and interdependent relationship between infrastructure planning and land use systems. Any new land development will increase the pressure on an area's existing network and may require the development of new transport infrastructure where there are capacity constraints. Conversely, the provision of new infrastructure will offer amenity attracting residents and businesses to new development prospects. In turn, this will increase the demand for and use of new infrastructure, ensuring the ongoing links between the two systems.

PIA advocates planning systems principles including: “to integrate infrastructure provision with land use and development, linked to funding arrangements”. The planning outcome sought is the cost-effective delivery of infrastructure that enables desired place outcomes for sustainable living conditions to be achieved. The infrastructure outcome is “confidence in the return on both public and private sector investment in infrastructure, construction and property development, including improvement in Australia’s GDP and infrastructure delivered in an orderly and timely manner”.

PIA advocates the use of consistent data, information, objectives and outcomes (including measures to track progress towards outcomes) as a starting point in this dual process. Strategic land use planning identifies the change that is to be accommodated (i.e. renewal or greenfield) and also the infrastructure that is required to service that change. Infrastructure planning should reflect this process and fill in any necessary gaps, based on robust investigation.

Every state jurisdiction adopts measures to integrate strategic planning, infrastructure needs assessment, funding and delivery among planning and infrastructure delivery partners. A critical element of successful integration is adopting shared outcomes sought for a place through a process based on:

- using common planning data sets and population forecasts and
- undertaking demand assessment which is responsive to long term megatrends
- collaboration of planners and infrastructure agencies involving community and key stakeholders, in:
  - regional, district and corridor strategic plan preparation – influenced by infrastructure asset strategies
  - infrastructure strategy preparation and prioritization – influenced by strategic plan directions and adopted policy settings
- integrated precinct scale master planning, infrastructure staging and infrastructure charging regimes

The conviction to achieve shared outcomes for places – alongside governance systems promoting collaboration among state agency partners – are essential elements for successful integrated strategic planning.

Local councils across Australia are structured to deliver integrated outcomes for a place. Their adoption of an integrated planning and reporting framework for long term decision making formalises their responsibilities typically via a community strategic plan. This framework integrates community, organisational and business planning processes that occur in local government across corporate, financial, infrastructure, land-use, community service and human resource functions and operations.
4.2 Models for infrastructure planning: predict and provide / scenario analysis

Goodwill and strong collaboration among land use and infrastructure planning partners is not always enough to overcome a tradition of path dependant decisions in the planning and delivery of major infrastructure networks. A bias to address existing patterns of demand and operational requirements incrementally can improve network performance against a narrow and short-term interpretation of project costs and benefits. Over time a ‘predict and provide’ approach can lead to sub-optimal outcomes for places and communities, reducing their resilience to accommodate future population growth and change at low cost. This is a factor promoting the servicing of existing city core demands (eg expansion of radial motorway and rail systems) rather than considering alternative network design or non-infrastructure alternatives.

Planners have an important role in considering the long-term sustainability of alternative future settlement patterns and contrasting these with the trajectory of planning and delivery of critical infrastructure (ie water and sewer supply and major transport infrastructure). Scenario analysis can highlight any foregone benefits of a path dependent approach and help quantify the advantages of adopting different outcomes for the structure or timing of future settlement and their supporting infrastructure networks.

Planners shape the regional planning context for future infrastructure – and contribute to identifying the right project options for further economic appraisal and environmental impact assessment.

Strategic planning processes can assist infrastructure planning to be less path dependant and create a context in which solutions can be explored to rule in / out ideas. Regional strategic plans can tease out the nexus between sustainable employment opportunities, housing affordability, community development, networking access, and infrastructure in order to maximise spillover benefits and achieve economic development outcomes for regional centres.

There are also entrepreneur led models for infrastructure planning, funding and delivery premised on strong private sector innovation and risk management capabilities to deliver an unanticipated but high value outcome. Examples such as SEQ Priority Development Areas and Melbourne’s Spencer Street Station Redevelopment rely on the proponent internalising value uplift and controlling development rights. The implications and potential opportunities are outlined in the infrastructure delivery section.

4.3 Project appraisal, Business Cases, EIA and BCA

Planning skills are important in valuing and monetising aspects of project costs and benefits including wider economic benefits. However, planning plays a more important role by first defining the strategic outcomes sought by stakeholders and broader community. Alternatives are then able to be shaped accordingly and appropriate projects can be derived for comparison. This avoids projects being advanced out of context and reduces pressure on environmental impact assessment (EIA) and business case development (including benefit cost analysis processes) to resolve broad policy questions.

The Productivity Commission (2014) notes that ‘sound project selection requires considerable work to be put into identifying needs and deficiencies in infrastructure services that are likely to emerge as a result of population growth, changing patterns of demand and the condition of existing infrastructure. This is the realm of strategic planning. Typically, some project options will relate to improving the utilisation of existing assets and some to major upgrades or the development of wholly new infrastructure.

Benefit-cost analysis (BCA) can be used to assess whether a proposed public infrastructure project (or alternative options) are likely to provide positive net benefits to the community. BCA allows information to be analysed in a logical and consistent way and encourages decision makers to take into consideration all costs and benefits of a project, rather than making decisions based on selected impacts only. To provide a reliable guide to what is in the overall interest of the community, cost–benefit analysis needs to be broad, taking into account all relevant economic, social and environmental outcomes.’

Cost–benefit analysis asks whether the sum of the amounts the individuals who comprise the community at issue would be willing to pay for the project to proceed exceeds the costs of that project.

Ergas H (2009)
Cost / benefit analysis omits consideration of aspects or items which are not traditionally seen as easy to measure. The start point is to decide what all the issues and items are and then devise appropriate measures for them.

Planners have an important role identifying and quantifying the costs and benefits arising from the changed performance of places and communities. This may include interpretation of the potential future urban structure and yield of development associated with additional infrastructure capacity. It also requires awareness and measurement of the wider economic impacts of infrastructure projects which relate to the interaction of the economy and place. Lowe (2013) noted that ‘investment in transportation infrastructure, had some less obvious benefits including agglomeration spillovers. Effective transportation networks deepen markets. They bring consumers closer to more businesses, and they bring workers in contact with more opportunities. These deeper markets and connections promote competition. They promote greater specialisation by both firms and workers. And they promote innovation and a more dynamic economy’. These wider economic benefits have a quantifiable value which varies among project options.

Planners also contribute to supporting infrastructure appraisal methods including evaluating the performance of project options against multiple criteria weighted according to the values of different stakeholders (Multi-criteria analysis). Planners also bring expertise in triple bottom line appraisals (ie social / environmental / economic) and appreciate the spatial context of economic analysis including movement of people and goods, value uplift, access to education, services and employment.

Planners play a pivotal role as integrators of the vast array of economic, social and environmental assessment information used to determine the suitability of a project through the lens of a jurisdictions planning and assessment system. Planners are well placed to interpret the critical performance issues upon which to determine a project and to identify cost effective and appropriate conditions to mitigate or ameliorate impacts.

4.4 Infrastructure planning principles

Effective infrastructure planning should result in a costed and prioritised infrastructure list to achieve clear outcomes for a place (ie region, district or growth precinct). This can then allow for an informed discussion to take place about what infrastructure is important and why, and how much different levels of Government and developers should pay.

All Australian states have (or are developing) an infrastructure and plan and priority list is based on a framework involving a vision from which planning principles and policy objectives cascade. The following principles for preparing an infrastructure plan are are valuable for PIA consideration:

- **Consult and collaborate** – with government and private and community sector organisations that have a role in planning, funding and delivering infrastructure
- **Drive improved outcomes** – to achieve improved social, economic and environmental outcomes (for a place) that respond to the vision and directions of land use strategies and adopted policy objectives
- **Integrate land use and infrastructure planning** – land use planning informs infrastructure requirements and infrastructure provision enables the achievement of land use objectives
- **Draw on compelling evidence** – common information sets, alternative scenarios and modelling shared with the community with the intent to preserve options and identify solutions that meet a range of needs
- **Consider non-build solutions first** – while major projects are important, consider steps to manage the demand (and avoid induced demand) and using existing assets more efficiently
- **Apply a robust options evaluation process** – apply transparent criteria, assesses triple bottom line considerations and consistency with the strategic plan to ensure that projects derived for subsequent evaluation meet the outcomes sought
- **Project evaluation process to identify priorities for funding** – business cases should be prepared for large scale projects (or bundled projects) and BCA should consider wider economic benefits to take account of spillover effects
- **Promote responsible funding and financing** – based on the jurisdictions fiscal position, achieving value for money and determining where and how the community pays
- **Do not release specific land use plans prior to any value capture funding regime** – structure plans or rezonings should be published after infrastructure needs, costs and funding impost is determined
- **Be open to change** – by adapting existing assets, building flexibility into planning processes and responding to emerging megatrends and technologies, the strategy should be regularly updated
The merit of an infrastructure proposal in delivering a place outcome consistent with planning strategy is paramount – the merit judgment should not be perverted by the availability of certain funding and delivery options.

The above principles can operate at a precinct scale to guide the formulation of a growth infrastructure plan. New (2017)11 sets out the following elements:

- State Government / Regional Commission with councils – articulate what is essential infrastructure for renewal / greenfield areas, and reviewed every 5 years
- Costs, priorities and timing details are all included
- Benchmarks set for certain infrastructure costs set by IPART (e.g. contingencies)
- Release structure plans after assessment of growth precinct infrastructure needs, costs and indicative contribution rates are determined
- The plan is a ‘live’ document, with major site specific rezonings automatically triggering a review (or the extra infrastructure needs can instead be dealt with via a planning agreement)

5 INFRASTRUCTURE FUNDING PRINCIPLES

5.1 Who pays in what mix: user / beneficiary / public

We aspire to an infrastructure funding and delivery system based on the principles of strategic planning, fair cost, nexus and the fair sharing cost of between users. Forming a comprehensive precinct infrastructure plan setting out what infrastructure is needed is key step. This enables consideration of what infrastructure is a priority and why and who should pay. It offers the context for how much developers should contribute within a mix of funding sources and mechanisms (see New [2017] Diagram below).

Who pays and in what mix is important in how the planning outcomes embedded in an infrastructure plan are achieved. A transparent process involving community, government and property stakeholders is needed to arrive at a basis for apportioning the funding investment.

The concept of initial cost and intergenerational equity also needs to be addressed. For example, an initially ‘cheap’ solution may result in disproportionate extra costs over time. The dynamics of marginal costs also need to be considered. For example, what costs should be allocated to new developments when the baseline infrastructure has already been provided? It is important to consider the provision of infrastructure as an investment over time rather than as a cost burden.
The planned development and the supporting infrastructure are integral parts of the whole – but the land use plan / infrastructure plan should come first. This will identify who is benefiting from the infrastructure, the level of the infrastructure (local, regional / trunk) which in turn will assist with identifying who should contribute and at what point. The land use component will also identify the likely staging of development which will in turn assist with prioritising when particular infrastructure items will be needed.

The costs of infrastructure are met in different amounts by the public, the indirect beneficiaries of new infrastructure and other users. Establishing what infrastructure costs fall into the domains of each funder group should be the first step in negotiating a fair mix:

- **State Government**: for enabling ‘State’ infrastructure for a public good (via consolidated revenue)
- **Local Government**: for enabling ‘local’ infrastructure delivering a public good (via rates)
- **Land owners / developers whose proposed development gives rise to – or benefits from**:
  - uplift in land value – and increased future development prospects as a result of the provision of new infrastructure capacity
  - related State and local infrastructure needs (via state development contributions and local infrastructure contributions)
  - an impact that requires mitigation (via conditions of consent, offsets and development contributions)
- **Other users via user charging** (via e.g. tolls, parking fees, access fees)

An item by item assessment of what infrastructure costs fall in each funder’s domain would be more realistic than applying generalisations that all trunk vs non-trunk or all social vs economic infrastructure exclusively falls to any funder.

### 5.2 Infrastructure funding mechanisms and value capture

**Taxation funding infrastructure as ‘public goods’**

The provision of infrastructure items that are ‘public goods’ that benefit all members of society are candidates for funding from the consolidated revenue of government by national, State or local taxes (or rates). Examples include public hospitals, public schools, prisons, universities, Council chambers. The need for such infrastructure is typically linked to population growth and change. New development and existing development benefit in a comparable way from the provision of these goods.

Infrastructure items that make an upstream contribution to enabling development and reducing risk are funded both via consolidated revenue and user charges (if mechanisms are practical eg water headworks charges, fuel levies). The Productivity Commission (2014) provides a rationale for tax payer funding of the ‘public good’ element of infrastructure and forms of user charging for the ‘private good’ element.

The extent to which specific taxes (e.g. GST, CGT, stamp or transfer duties) should be hypothecated to a particular infrastructure type is a policy judgement beyond the scope of this paper, but need to be considered and may affect the cost and effectiveness of providing essential and timely infrastructure.

**Development contributions and value capture**

Infrastructure Australia (IA 2016) argue that we need to rethink the funding balance between those who directly benefit from infrastructure and broader taxpayers. Users and other beneficiaries will need to provide a greater share of the funding investment, releasing taxpayer dollars to meet the wider needs of a growing and ageing population. In this search for infrastructure dollars, charges on development especially where additional value is created is key part of a broader ‘beneficiary pays’ framework.

Value capture is a mechanism for collecting a portion of the benefits from public infrastructure investments that flow to the value of land from the act of government which facilitates or permits change or development (IA 2016). Value captured can then be used to pay for a portion of the corresponding infrastructure investment. Without value capture, the localised benefits of new infrastructure flow almost exclusively to private entities – households, businesses and property owners and developers.
The term ‘value capture’ is often used broadly to cover all forms of development contribution. In this paper, it refers to where a development contributions mechanism specifically targets land value uplift occasioned by rezoning or consent (typically linked to infrastructure capacity enhancement). It is a multifaceted concept and requires the skills of the planning and development profession to identify anticipated value uplift as a result of public investment.

PIA supports a component of funds for infrastructure being derived from contributions related to value created by infrastructure enabled development. Value capture mechanisms provide an opportunity to increase funds for infrastructure and improve the fairness and efficiency of the funding mix. However, value capture opportunities should not be used to change project priorities or compromise planning outcomes. PIA advocate jurisdictions adopting consistent value capture policy in project planning, development and infrastructure delivery across government. The policy could set out a transparent framework and principles for when and what value capture mechanisms could be considered.

IA (2016) note that there are a range of development contributions mechanisms, each with their own benefits, risks and implications for project funding and the economy more broadly. Fensham (2017) offers a model for understanding where these should be considered based on who they target for funding and why (see table below). This paper describes value capture as a subset of developer contributions mechanisms – because not all actually capture value.

<table>
<thead>
<tr>
<th>Sources and rationale for development contributions (Fensham 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>User Pays Contributions</strong></td>
</tr>
<tr>
<td><strong>Apportionment Principle</strong></td>
</tr>
<tr>
<td>Proponents pay according to anticipated share of future usage of (off-site) infrastructure</td>
</tr>
<tr>
<td><strong>Example Contributions Mechanisms</strong></td>
</tr>
<tr>
<td>Contributions Plans for infrastructure items (e.g. Open Space)</td>
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Conceptually, each source is distinct and could be added to others for a cumulative developer contribution. However, in practice, the major mechanisms (e.g. special infrastructure contributions and Planning Agreements) blur user pays and value capture funding. Some commentators including IA (Dwyer 2017) argue that the shortcomings of place specific development contributions regimes are significant and warrant consideration of a broad-based land tax or regional levy. This is especially the case where public investment in infrastructure leads to increased economic activity and improved services – in addition to the benefits accruing to local property owners.

The timing of the value capture is critical in achieving both equity and the availability of funds. Delayed value capture requires government agency borrowing. Traditionally this was well understood, but for two decades it became politically toxic. There has recently been a stronger indication that borrowing to invest in essential economic and social infrastructure can be an appropriate and cost-effective way to ensure sustainable development.
Comparison of the application of infrastructure charging mechanisms

Infrastructure Australia (2016) notes that each form of infrastructure contribution comes with distinct benefits and challenges making them more relevant to certain types of infrastructure and situations including whether immediate funding streams or incremental / long term revenue streams are sought.

A range of different characteristics should be considered when deciding how, when and where to apply different infrastructure charging and value capture mechanisms. IA (2017) describes the performance of the main mechanisms (below) used for economic infrastructure in a summary table covering how much revenue they could generate, their fairness and their impact on the effective operation of the market:

- **Betterment levies**: Captures a portion of the estimated value uplift on land (residential, commercial or both) around an infrastructure investment
- **Developer charges**: Payments by a property developer to contribute to the shared infrastructure and services in the area surrounding their development
- **Leveraging government land**: A government sells or leases land or air rights around an infrastructure investment to fund its construction and capture the corresponding value uplift
- **Taxes on property transactions**: Taxes levied at the point of property transaction as a portion of the sale price, charged to the seller or the buyer (eg stamp duty)
- **Taxes on land value**: Either existing recurrent charges on land or property owners to pay for service delivery – or a broad-based land tax (possible) removing many exemptions and streamlining charging processes and phasing out other charges such as stamp duties

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Funding capacity</th>
<th>Fairness</th>
<th>Economic efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betterment levies</td>
<td>Effective/Partially effective</td>
<td>Effective/Partially effective</td>
<td>Partially effective</td>
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<tr>
<td>Developer charges</td>
<td>Partially effective</td>
<td>Partially effective</td>
<td>Partially effective</td>
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<tr>
<td>Leveraging government land</td>
<td>Partially effective</td>
<td>Effective</td>
<td>Effective</td>
</tr>
<tr>
<td>Taxes on property transactions</td>
<td>Partially effective</td>
<td>Partially effective/Ineffective</td>
<td>Ineffective</td>
</tr>
<tr>
<td>Taxes on land value (existing)</td>
<td>Partially effective</td>
<td>Partially effective</td>
<td>Partially effective</td>
</tr>
<tr>
<td>Broad-based land tax (possible)</td>
<td>Effective/Partially effective</td>
<td>Effective</td>
<td>Effective</td>
</tr>
</tbody>
</table>

Effective, Partially effective, Ineffective
A comparable appraisal of the performance of alternative infrastructure funding mechanisms split by beneficiary category was undertaken by Ernst and Young (2016) (below) for the Queensland Department of Infrastructure, Local Government and Planning.

<table>
<thead>
<tr>
<th>Beneficiary category</th>
<th>Funding mechanism</th>
<th>(1) Public interest, equity and stakeholder acceptance</th>
<th>(2) Deliverability, efficiency, cash flow robustness and risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Landowners, occupiers and developers</strong></td>
<td>Local residential rates levy</td>
<td>✗✗✗</td>
<td>✗✗✗</td>
</tr>
<tr>
<td></td>
<td>State land levy</td>
<td>✗✗✗</td>
<td>✗✗✗</td>
</tr>
<tr>
<td></td>
<td>Developer charges and contributions</td>
<td>✗✗✗</td>
<td>✗✗✗</td>
</tr>
<tr>
<td></td>
<td>Property rights and commercial development</td>
<td>✗✗✗</td>
<td>✗✗✗</td>
</tr>
<tr>
<td><strong>Users and operators</strong></td>
<td>User charges</td>
<td>✗✗</td>
<td>✗✗</td>
</tr>
<tr>
<td></td>
<td>Registration and fuel charges levy</td>
<td>✗✗</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td>Operator dividends</td>
<td>✗✗✗</td>
<td>✗✗</td>
</tr>
<tr>
<td><strong>Businesses and employees</strong></td>
<td>Local business rates levy</td>
<td>✗✗✗</td>
<td>✗✗✗</td>
</tr>
<tr>
<td></td>
<td>Payroll tax levy</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td><strong>Governments</strong></td>
<td>Local government tax uplift</td>
<td>✗✗</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td>State tax uplift</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td></td>
<td>Federal tax uplift</td>
<td>✗</td>
<td>✗</td>
</tr>
</tbody>
</table>

Most value capture funding measures are only partially effective and would need to be tailored to their circumstances to optimise their usefulness. This includes adopting sound methods for quantifying benefits and attributing them to specific groups, considering the impacts on these groups (such as the overall tax and funding burden and people's ability to pay) and ensuring that implementation costs do not outweigh the benefits. Good governance of funding regimes and establishing a direct link between the revenue collected via value capture and the infrastructure provided is important and can help build community support.

At a local scale, available infrastructure funding mechanisms via the rate base and development contributions are typically capped often creating a perverse incentive to apply any potential contributions mechanism (eg planning agreements) to fund local infrastructure needs even where not optimal.

Among state jurisdictions there are entrenched funding regimes linked to land value but which are not hypothecated to infrastructure provision (ie. stamp or transfer duty and land tax). Their impact on housing stock availability and infrastructure delivery is significant. Reform of stamp or transfer duty could increase incentives to turn over housing supply and improve labour mobility. Re-evaluation of land tax as a value capture mechanism for regional infrastructure would have also merit. In each case reform of the budget process and the governance behind the collection and allocation of funds to places and specific infrastructure would be necessary.
**Public Private Partnerships**

Entrepreneur led land development and infrastructure proposals are financed and delivered by the private sector. However, the funding streams diverted to (or accessed by) the partnerships are typically derived from profit on land development, facility management leases or concessions and potentially infrastructure user charges (eg tolls / fares). Value capture is internalised to the project.

### 5.3 Funding principles

Infrastructure funding measures should be designed to deliver infrastructure in ways which achieve a planning outcome. When looking at different ways to fund infrastructure, government needs to strike a balance between: raising revenue, using infrastructure efficiently and encouraging a productive economy and inclusive communities. The outcome of funding mechanisms should not be to create disproportionate or unfair financial burdens relative to value gained. In assessing ways to fund infrastructure the following principles are useful considerations:

- distribute the funding burden equitably and fairly
- implement easy and cost-effective funding mechanisms
- ensure that the funding approach considers people’s overall tax burden
- promote the highest and best use of infrastructure
- optimise infrastructure effectiveness and efficiency (including maintenance) and services
- change behaviour and manage demand
- align the cost of infrastructure with users and those who privately benefit from it

PIA considers that any development contributions / infrastructure delivery scheme must strike a balance between: consistent, certain and reasonable infrastructure contributions for developers; and certainty that the new communities will be provided with an acceptable standard of baseline infrastructure.

The infrastructure needed to support growth can be effectively achieved by:

- a properly researched infrastructure plan – integrated with the strategic land use plan
- a balanced funding mix
- a nexus-based development contributions plan
- appraisal of effects of contributions regime on development and land use outcomes
- collaboration between delivery agencies
- governance measures for the collection, hypothecation and disbursement of infrastructure funds

There should be comprehensive infrastructure funding and delivery plans for identified growth or renewal areas. The plan should be underpinned by a funding mix, with the respective roles / shares to be provided by contributions, value sharing / betterment, special rates, grants, other taxes and charges. A comprehensive approach would see State and local infrastructure contributions and infrastructure schedules in the one plan for a development area.

Contributions obligations need to be made known as a package at the very time a development area structure plans are released for comment. Local, state infrastructure and also any affordable housing contribution imposts need to be known up front to be effective. At least indicative levels of State and local contributions and any value sharing arrangements must be made public at the same time that structure plans are publicly released. The charges should be predictable for land purchasers so that the full fair share of any value uplift created by subsequent rezonings is returned to the new community through infrastructure upgrades.
6 INFRASTRUCTURE PROJECT DELIVERY

6.1 Planning outcome achievement
Planning has an enabling role in infrastructure project delivery by designing approval processes and development standards and monitoring project approval conditions. Planning does not have a role in the way funds are deployed by the public or private sector to finance a project.

However, a planning outcome should not be compromised by the project delivery and financing approach. Likewise, the opportunity to fund, finance and deliver a project should not remove the need for a project to demonstrate merit and deliver a planning outcome consistent with an adopted strategy.

6.2 Entrepreneur led delivery models
There are opportunities for entrepreneur led innovation in the conception, funding, finance and delivery of infrastructure projects. These models should deliver and not distract from achieving planning outcomes reflected in a strategic plan – nor erode community trust in the planning system.

Entrepreneur led models including forms of public private partnership – need to be able to demonstrate superior economic and triple bottom line performance to a public sector comparator project.

Strategic planning should be ambitious in addressing future growth opportunities and identify opportunities where government or private sector innovation can deliver outstanding results. The emergence of entrepreneur led proposals should not be the result of a failure to plan.

7 KEY OBSERVATIONS AND FINDINGS

7.1 Integrated land use and infrastructure planning and prioritisation
• Planning and delivery of social and economic infrastructure should have comparable status in meeting the needs of growing and changing communities
• Integrated strategic planning has a key role in identifying and sequencing development in time with critical enabling infrastructure
• While there are unmet infrastructure needs a blind approach to funding a perceived ‘backlog’ may be less productive than making the best economic choice in response to identified needs and desired place outcomes – the choices may involve demand management, diversion of growth as well as new infrastructure
• Strategic planning and infrastructure planning must be integrated – each informing the other, working off the same data sets to achieve the same planning outcomes for the region or precinct
• Integrated infrastructure planning should be responsive and resilient to long term megatrends – including climate change, globalization, technology, rise of Asian markets and population and growth and aging – these insights may benefit from scenario evaluation rather than ‘predict and provide’ approaches
• Integrated strategic land use and infrastructure planning outcomes should inform the adoption of priority infrastructure schedules (ie long term priority lists as candidates for funding) at a national, state, region / local and growth precinct / corridor scale
• Planning and governance principles (below) should guide the infrastructure prioritization process and not result in infrastructure projects being conceived and assessed in a vacuum:
  - Planning for place outcomes identified in an adopted strategy
  - Long term, integrated infrastructure plans linked to the planning strategy
  - Options derived to achieve plan outcomes for places – and project alternatives derived subsequently
  - Published full project business cases for project evaluation – including wider TBL assessment and consideration of spillover effects
  - Community engagement in plan and option development – and post completion reviews of outcomes
• Funding and delivery mechanisms should be conceived alongside infrastructure prioritization and scheduling – but not pervert the achievement of desired strategic planning outcomes for places – in particular land use structure or rezoning plans should not be released prior to any value capture funding regime

7.2 **Infrastructure funding**
• PIA aspires to an infrastructure funding and delivery system based on the principles of strategic planning, fair cost, nexus and the fair sharing cost of between users
• The widest range of funding mechanisms should be considered so no one user bears an unfair burden
• Who pays and in what mix is important in how the planning outcomes embedded in an infrastructure plan are achieved – a transparent process involving community, government and property stakeholders is needed to arrive at a basis for apportioning funding
• Establishing what infrastructure falls into the domains of particular funding groups is a fair starting point:
  - **State / Territory Government**: for enabling infrastructure for a public good (via consolidated revenue)
  - **Local Government**: for enabling ‘local’ infrastructure delivering a public good (via rates)
  - **Land owners / developers whose proposed development gives rise to – or benefits from:**
    > uplift in land value – and increased future development prospects as a result of the provision of new infrastructure capacity
    > related State / Territory and local infrastructure needs (via state development contributions and local infrastructure contributions)
    > an impact that requires mitigation (via conditions of consent, offsets and development contributions)
  - Other users via user charging (via ego tolls, parking fees, access fees) – where the infrastructure primarily delivers private benefit
• Beneficiaries of value created by infrastructure are likely to need to provide a greater share of the funding investment, releasing taxpayer dollars to meet the wider needs of a growing and ageing population
• Value capture is a mechanism for collecting a portion of the benefits from public infrastructure investments that flow to the value of land from the act of government which facilitates or permits change or development especially via the provision of infrastructure
• Value capture is a valid way of paying for a portion of the corresponding infrastructure investment – without value capture, the localised benefits of new infrastructure flow almost exclusively to private entities – households, businesses and property owners and developers – however, value capture opportunities should not be used to change project priorities or compromise planning outcomes
• PIA advocate jurisdictions adopting consistent value capture policy in project planning, development and infrastructure delivery across government – the range and application of potential value capture mechanisms should be determined on whether they can deliver planned outcomes (and promote desired development), have the capacity to generate sufficient funds, are fair and efficient
• PIA considers that any development contributions / infrastructure delivery scheme must strike a balance between: consistent, certain and reasonable infrastructure contributions for developers; and certainty that the new communities will be provided with an acceptable standard of baseline infrastructure
• There should be comprehensive infrastructure funding and delivery plans for identified growth or renewal areas – these plans should be underpinned by a funding mix, with the respective roles / shares to be provided by contributions, value sharing / betterment, special rates, grants, other taxes and charges

• A comprehensive approach would see State and local infrastructure contributions and infrastructure schedules in the one plan for a development or renewal area – and be based on:
  – a properly researched infrastructure plan – integrated with the strategic land use plan
  – a balanced funding mix
  – a nexus-based development contributions plan
  – appraisal of effects of contributions regime on development and land use outcomes
  – collaboration between delivery agencies
  – governance measures for the collection, hypothecation and disbursement of infrastructure funds

• Contributions obligations need to be made known as a package at the very time development area structure plans are released for comment – the charges should be predictable for land purchasers so that the full fair share of any value uplift created by subsequent rezonings is returned to the new community through infrastructure capacity upgrades

7.3 Infrastructure project delivery

• Planning has an enabling role in infrastructure project delivery by designing approval processes and development standards and monitoring project approval conditions – planning does not have a role in the way funds are deployed by the public or private sector to finance a project

• However, a planning outcome should not be compromised by the project delivery and financing approach – likewise, the opportunity to fund, finance and deliver a project should not remove the need for a project to demonstrate merit and deliver a planning outcome consistent with an adopted strategy

• There are opportunities for entrepreneur led innovation in the conception, funding, finance and delivery of infrastructure projects – these models must deliver and not distract from achieving planning outcomes reflected in a strategic plan – nor erode community trust in the planning system

• Entrepreneur led models including forms of public private partnership – need to be able to demonstrate superior economic and triple bottom line performance to a public sector comparator project

• Strategic planning should be ambitious in addressing future growth opportunities and identify opportunities where government or private sector innovation can deliver outstanding results
ENDNOTES

3 Infrastructure Australia (2016) Capturing Value – Advice on making value capture work in Australia.
5 Planning Institute of Australia (2016) Journey towards Australia @50M, Through the Lens, Megatrends Shaping Australia’s Future.
8 Infrastructure Australia (2017) Assessment Framework
23 New G 2017 A fairer way of delivering local infrastructure in the new Sydney, New Planner Issue 110 (March).