Social housing as infrastructure: an investment pathway

From the AHURI Inquiry
Social housing as infrastructure

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Acronyms and abbreviations used in this report

ABS	Australian Bureau of Statistics
ACG	Allen Consulting Group
AHAT	Australian Housing Needs Assessment Tool
AHURI	Australian Housing and Urban Research Institute Limited
AHWG	Affordable Housing Working Group
AIHW	Australian Institute of Health and Welfare
ARA	Housing Finance and Development Centre of Finland [Asumisen rahoitus- ja kehittämiskeskus]
BIS	Bank of International Settlements
CEDA	Committee for Economic Development of Australia
CEFC	Clean Energy Finance Corporation
CHO	Community housing organisation
CHP	Community housing provider
COAG	Council of Australian Governments
Col	Column
CRA	Commonwealth Rent Assistance
EC	European Commission
EU	European Union
GCL	Global corporate landlord
GFC	Global Financial Crisis
GST	Goods and Services Tax
HM Treasury	Her Majesty's Treasury UK
HUD	US Federal Department of Housing and Urban Development
IMF	International Monetary Fund
MAV	Municipal Association of Victoria
MCFA	Multi Criteria Financing Appraisal
NAHA	National Affordable Housing Agreement
NAO	National Audit Office (UK)
NDIS	National Disability Insurance Scheme
NFP	Not-for-profit

NHFIC	National Housing Finance Investment Corporation
NHHA	National Housing and Homelessness Agreement
NPV	Net present value
NRAS	National Rental Affordability Scheme
OECD	Organisation for Economic Cooperation and Development
PFI	Private finance initiative
REIT	Real Estate Investment Trust
RGI	Rent geared to income
SAHF	Social and Affordable Housing Fund
SCRGSP	Steering Committee Review of Government Service Provision
THFC	The Housing Finance Corporation
WB	World Bank

Glossary

A list of definitions for terms commonly used by AHURI is available on the AHURI website
www.ahuri.edu.au/research/glossary.

Executive summary

Key points

Ensuring necessary and appropriate levels of social housing investment begins with a well-evidenced understanding of the scale, type and location of need and secondly, an accurate understanding of the cost of procuring appropriate dwellings in the right locations. The design of an investment pathway, and the use of public or private equity and debt, also significantly influences the cost to government and the wider community.

Our research builds a customised method for establishing both current unmet need (the backlog) for social housing and future projected need, based on a proportionate share of expected future household growth. It also provides evidence for the diverse geography of land and construction costs based on industry and project level data.

Five alternative pathways involving a range of debt, efficient financing and capital grant strategies have been modelled to assess their relative costs to government. The research shows the 'capital grant' model, supplemented by efficient financing, provides the most cost effective pathway for Australia—in preference to the 'no capital grant, commercial financing operating subsidy' model.

Over the next 20 years, it has been estimated that 727,300 additional social dwellings will be required, with current price procurement costs varying from $146,000 to $614,000, depending on local land values, building types and construction costs in different regions. This report provides extensive data on needs and costs for 88 statistical areas (SA4 level).

Where rents are set at levels affordable to low-income households, revenues can only support modest levels of debt financing and thus co-investment is also required.

International experience on infrastructure investment pathways cautions that, while 'off balance sheet' Public Private Partnerships and Private Finance Initiatives (PPP/PFI) have been widely utilised in comparable countries (as well as in Australia), these have often proven sub-optimal in terms of cost efficiency and effectiveness (UK National Audit Office, 2018).

This report provides inspiration from more productive, supply-orientated social housing systems that flourish in countries such as Scotland, Finland, France and Austria and most prominently amongst our Asian neighbours, China, Korea and Singapore.

The aim of this research is to inform the development of a more effective investment pathway that follows from the re-conceptualisation of social housing as needs-based infrastructure.

Key findings

Key finding 1: Social housing requires an 'infrastructure investment pathway'

Social housing shares similarities with many other forms of social infrastructure serving societal (as well as economic) needs (PC 2009:3). Schools, courts, prisons and hospitals are also long term asset-based services enhancing social and economic wellbeing which are allocated on a needs basis, rather than for commercial return. Investment in social infrastructure enables essential services to be delivered, schools enable education, hospitals enable health care and social housing enables secure affordable shelter, ideally to a decent standard, in the right location and when needed.

While users of infrastructure are increasingly called on to pay for associated services through various charges, full payment can undermine the social and economic benefits they are intended to deliver. For this reason, services such as health and education are not delivered on a full fee paying basis or driven to generate surpluses or recover costs. These services are intentionally subsidised to maximise the social and economic benefits they are designed to deliver.

An 'infrastructure investment pathway' is the route capital takes to construct and operate assets and services to deliver social and economic benefits to society. Both funding and financing play an integral role in this pathway. 'Funding' describes the resources allocated by governments and the community to cover capital investment and operating costs. 'Financing' describes the instruments or arrangements which allows these costs, especially high up front capital costs, to be spread over time as government surpluses and service charges allow. Seen in this light— financing ultimately requires funding and is not a replacement for it. Social housing investment is no different—it requires the funding of an investment pathway which supplies and maintains capital assets and services over time.

Key finding 2: Greater capacity in needs-based planning, securing and allocating adequate funds and designing and implementing programs is required

Australia's limited social housing is tightly targeted and its market share is declining. A range of investment pathways have been pursued in recent years, including contracting out services, off balance sheet debt via Community Housing Organisations (CHOs), re-investment via densification, asset sales and internal cross-subsidisation. These strategies have extracted value from the public estate and have not generated sufficient social housing units to address Australia's growing need. Moving forward, a more sustainable pathway is required in order to grow and improve social housing stock. Australia can learn from national and international experience of more productive value building approaches.

International organisations increasingly call for more effective public investment and efficient financing of infrastructure, stressing greater capacity in needs-based planning, securing and allocating adequate funds and designing and implementing programs (IMF 2015). Mission focused public investment not only addresses market failure but also creates value (rather than extracts it) can stimulate innovation and promote inclusive growth (Mazzucato 2018).

First and foremost, in order to maximise social and economic outcomes, social housing requires a capital investment strategy informed by current and future needs. This research provides a simple methodology estimating needs over time. Secondly, productive social housing systems know what it takes to procure housing. Again this research provides up-to-date data on land and construction costs across Australia. Productive social housing systems use a range of instruments to ensure supply outcomes, necessarily including the investment of public equity and not-for-profit delivery. Demand side subsidies alone cannot increase supply and are particularly ineffective where provision is for profit, rents are deregulated and vacancies are low. Thirdly, productive social housing systems use efficient financing, as this reduces pressure on

service charges and related assistance and ultimately reduces the cost burden on all taxpayers. Greater transparency in comparing the cost of capital is vital to help policy makers and program designers determine the ideal mix of funding and financing that should be used to address Australia's social housing deficit. This research provides a customised framework to assess alternative financing options.

Key finding 3: The scale of need is significant but varies spatially; procurement costs also vary across different land and housing markets

To calculate the government capital investment required to meet the need for social housing, it is necessary to estimate (i) the scale of unmet need, (ii) the total cost of providing the homes required to meet that need (bearing in mind its spatial distribution), and (iii) the proportion of that cost in excess of what housing providers should be able to finance through debt.

In addressing point (i), above, we build on previously published methodologies to estimate the need for social housing over the next 20 years, to accommodate both current unmet need (the backlog) and future projected need, based on a proportionate share of expected future household growth. Taken into account here are three components:

- Existing social renters

- Those constituting 'manifest (additional) need' (i.e. homeless populations) and

- Those constituting 'evident (additional) need' (i.e. those with housing needs unmet by the market, but outside the above groups), both current and projected.

The third group is defined as households on a low income (bottom quintile for the relevant household type) and in rental stress (in private rental and paying more than 30% of income on rent).

As summarised in Table 1, addressing the deficit and future need will call for the construction of some 730,000 new social dwellings over the next 20 years. This equates to an annual average growth of 5.5 per cent over the existing stock. Figure 1 below shows how this additional growth accounts for both current unmet need (the backlog) and future projected need, based on a proportionate share of future household growth.

Table 1: Summary current and projected housing need estimates (2016–2036)

Section of Australia	Social housing share		Manifest need		Evident need		Total need 2016–2036
	Current (met)	Projected to 2036	Current	Projected to 2036	Current	Projected to 2036	
	('000)	('000)	('000)	('000)	('000)	('000)	('000)
Greater Sydney	85.4	31.6	11.6	4.3	67.9	25.2	140.6
Rest of NSW	48.3	7.3	3.5	0.5	52.8	8.0	72.1
Greater Melbourne	46.5	20.6	8.2	3.6	65.9	29.2	127.5
Rest of VIC	21.1	4.1	1.7	0.3	27.0	5.3	38.5
Greater Brisbane	32.3	15.4	3.7	1.8	39.4	18.8	79.2
Rest of QLD	35.3	14.1	5.0	2.0	53.4	21.3	95.7
Greater Perth	24.5	17.0	2.1	1.5	28.2	19.6	68.3
Rest of WA	14.9	6.2	1.5	0.6	7.0	2.9	18.2
Greater Adelaide	33.8	8.5	1.9	0.5	23.7	5.9	40.4
Rest of SA	9.7	0.9	0.6	0.1	7.2	0.7	9.5
Greater Hobart	5.7	1.0	0.3	0.1	4.4	0.8	6.6
Rest of TAS	6.4	0.6	0.3	0.0	6.1	0.6	7.6
ACT	9.9	4.1	0.6	0.3	2.5	1.0	8.5
Greater Darwin	3.1	1.0	0.7	0.2	0.9	0.3	3.2
Rest of NT	7.7	3.7	4.8	2.3	0.3	0.2	11.3
Australia	384.6	136.2	46.6	18.1	386.8	139.7	727.3

Source: authors.

Figure 1: Social housing need being met by 2036 (left) and as a proportion of all households (right)
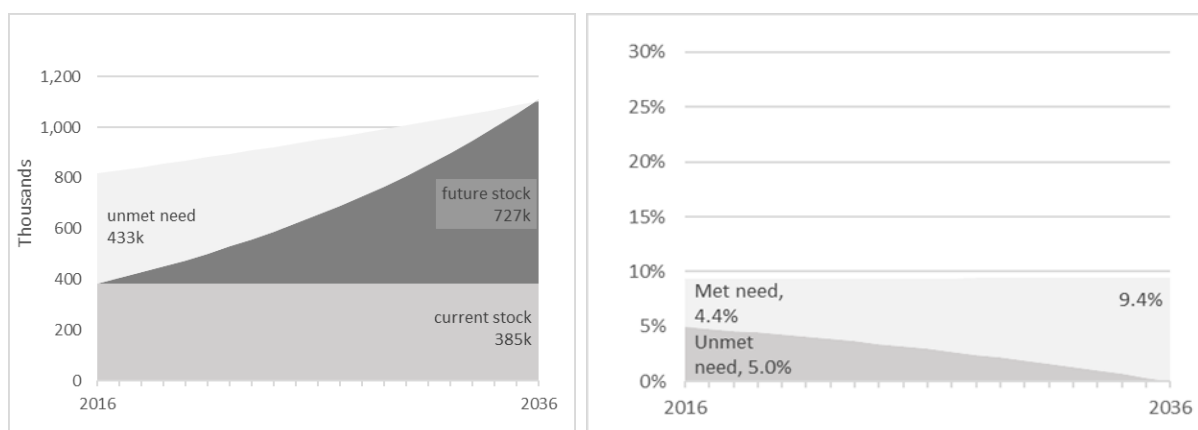
Source: authors.

Table 2 below shows the range of total procurement costs for the regions within each part of the states and territories, which includes the estimated land and construction costs, along with some estimated professional fees (legal and design services), and local impact fees/infrastructure contributions.

Table 2: Estimated construction cost, and dwelling type distribution (2017 prices)

Section of Australia	Share of needed growth	Range of estimated cost/unit	Distribution of unit type			
			detached	attached	low-rise	high-rise
Greater Sydney	19.3%	$210k–$614k	0%	21%	60%	19%
Rest of NSW	9.9%	$173k–$393k	79%	21%	0%	0%
Greater Melbourne	17.5%	$220k–$442k	0%	70%	13%	17%
Rest of VIC	5.3%	$170k–$203k	100%	0%	0%	0%
Greater Brisbane	10.9%	$208k–$357k	15%	61%	23%	0%
Rest of QLD	13.2%	$179k–$285k	72%	28%	0%	0%
Greater Perth	9.4%	$184k–$316k	0%	92%	8%	0%
Rest of WA	2.5%	$162k–$265k	100%	0%	0%	0%
Greater Adelaide	5.6%	$184k–$261k	0%	83%	17%	0%
Rest of SA	1.3%	$146k–$157k	100%	0%	0%	0%
Greater Hobart	0.9%	$271k	100%	0%	0%	0%
Rest of TAS	1.0%	$172k–$189k	100%	0%	0%	0%
ACT	1.2%	$418k	0%	100%	0%	0%
Greater Darwin	0.4%	$256k	0%	100%	0%	0%
Rest of NT	1.5%	$186k	100%	0%	0%	0%
Overall	100.0%	$146k–$614k	32%	44%	18%	7%

Source: authors.

Affordable rents can only cover part of the cost of procuring, managing and maintaining this body of housing. In other words, after accounting for operational costs, rent revenue will be sufficient to provide only a proportion of the funds required to meet construction and land costs. Subsidy is required to fill the remaining gap.

Key finding 4: Modelling of investment scenarios demonstrates that capital grants, combined with efficient financing, is the most cost effective pathway for government

The varying cost to government of addressing the funding gap is examined in more detail via the comparison of different funding and financing strategies.

Building on the Affordable Housing Assessment Tool (AHAT) developed for the *AHURI Inquiry into increasing supply of affordable housing* (Randolf, Troy et al. 2018), project level costings of community housing provider (CHP)-led development from across Australia have been used to test the impacts of different funding and financing scenarios.

This modelling builds on the AHAT by integrating spatially differentiated need, land and construction costs, based on assessment of local need profiles at the sub-regional level (using Australian Bureau of Statistics (ABS) 'SA4' geography) developed in this research. It also details operating cost assumptions, such as not-for-profit provision and relevant tax settings. Each investment pathway aims to be cost-neutral after 20 years. Five pathways have been modelled to enable a comparison of their costs to government as outlined in Table 3 below:

Table 3: Investment scenarios for comparison

	Scenario	Definition
1	Operating subsidy	Base case, funding gap is supported by an annual operational subsidy payment that supports paying for finance (where all the required debt is taken out by the provider in the expectation of future subsidy support).
2	Operating subsidy + National Housing Finance Investment Corporation (NHFIC) bond aggregator	Builds on Scenario 1 but applies an interest rate deduction on private finance of 1.5% which is consistent with estimated impacts of a bond aggregator on the cost of private finance
3	Up-front capital grant	As an alternative to private debt, a capital fund invests in developments which reduces the level of required subsidy because it eliminates financing costs
4	Up-front capital grant + NHFIC bond aggregator	Introduces an interest rate deduction on the capital grant model similar to that of Scenario 2. This reduces the interest rate of finance from assumed market rate of 5% p.a. to 3.5% p.a.
5	Up-front capital grant + NHFIC bond aggregator, but with NO CRA	Commonwealth Rent Assistance (CRA) appropriately conceptualised as tenant income and not as a cost in delivering new housing developments. Models the impact of excluding CRA payments from a capital grant model.

Source: authors.

As illustrated by the table below, debt-financed models significantly increase a housing provider's requirement for an operating subsidy. The costs to governments are substantially reduced when public equity in the form of a capital grant is included in the investment mix and debt raised in the most efficient manner, as summarised in Table 4 below.

Table 4: Comparison of five investment pathways

Program Summary	Scenario 1: Yr1 total	Scenario 2: Yr1 Total	Scenario 3: Yr1 Total	Scenario 4: Yr1 Total	Scenario 5: Yr1 Total
Total development costs (excl. GST and taxes)	$7.0 billion	$6.4 billion	$5.8 billion	$5.7 billion	$5.4 billion
Total operating costs	$2.8 billion	$2.8 billion	$2.8 billion	$2.8 billion	$2.8 billion
Rental income	$3.2 billion	$3.2 billion	$3.2 billion	$3.2 billion	$3.2 billion
Operating Subsidy/*Capital Grant*	$5.4 billion	$4.8 billion	*$4.2 billion*	*$4.1 billion*	*$5.0 billion*
CRA Payments	$1.2 billion	$1.2 billion	$1.2 billion	$1.2 billion	
Government subsidy	$6.6 billion	$6.0 billion	$5.4 billion	$5.3 billion	$5.0 billion
Savings on Yr1 scenario	—	9%	18%	20%	24%

Source: authors.

Our evaluation has provided a quantitative assessment of the cost to government of alternative funding and financing pathways based on comprehensive evidence of need and actual procurement costs. Financial modelling has employed the latest available data on geographically differentiated needs, as well as relevant land and construction costs for locally appropriate housing forms. It provides a substantial advancement on current methods and practice as well as vital evidence to inform Australia's future funding and financing pathways.

Comparative modelling of funding and financing scenarios reveals that the capital grant model is substantially more cost-effective for governments than privately financed operating subsidy models. Operating subsidy models underpinned by debt finance introduce a layer of cost that is ultimately paid for by government, either through increased operating subsidy or increased tenant incomes, such as Commonwealth Rent Assistance (CRA) or other social security payments.

The more direct pathway of capital grants and efficient NHFIC financing has greater capacity than operating subsidies to ensure the supply and quality of housing outcomes delivered. Conditional investment can be made from a range of sources—general government revenue, public investment, contributions from public land banks and planning contributions—to ensure secure, affordable social housing outcomes commensurate with Australian needs.

The way forward for Australian government, regulated providers and the NHFIC

The Productivity Commission (2014: 2) stresses the urgent need to reform the way governments invest in Australian infrastructure, calling for better decision making, funding and financing choices. This imperative also applies to social housing, where current investment strategies are still failing to address contemporary and future needs.

Like other countries with supply orientated social housing systems, Australia can take a more productive and cost effective approach. Public debate remains firmly fixed on housing affordability and access concerns, and there is strong momentum from the affordable housing industry to establish a more effective pathway forward.

Building on the strengths of government, regulated providers and investors in the newly established Affordable Housing Bond Aggregator, more direct and ambitious funding strategies can ensure social housing needs are addressed. This research provides useful tools and evidence to guide policy makers towards this goal.

The establishment of the NHFIC in 2018 has provided Australia with a new *affordable* housing investment pathway, but further steps are required than more efficient finance to deliver social housing outcomes (AHWG 2017). Complementary and conditional funding is also required in order to ensure an ongoing pipeline of developments in which social housing plays an integral part.

Extensive consultation has taken place concerning the investment mandate of the bond aggregator within NHFIC, with legislation passed in July 2018. Challenging inter-governmental discussions concerning accountability for funding have concluded with the new NHHA, building stronger commitment to strategic housing plans via bilateral funding agreements. An official National Regulatory System for Community Housing Review is completing its work, following the recommendation to the Heads of Treasury by the Affordable Housing Working Group (AHWG 2017). There is also widespread recognition that the social housing funding gap needs to be filled to ensure an ongoing pipeline of investment.

This research explores how this funding gap should be addressed.

As shown by the financial modelling, combining capital grants with the most efficient form of NHFIC finance is the most cost effective pathway for government to pursue. It not only produces tangible accommodation assets but also reduces ongoing requirements for an operating subsidy. Such a pathway draws on international social housing experience and complements emerging policy developments in Australia and will ensure that the newly established bond aggregator (AHBA/NHFIC) can provide a pipeline of investments addressing the well-evidenced need for social housing infrastructure.

The study

This original and ground breaking research addresses the question: *What is the most effective investment pathway to deliver required housing outcomes?* It is informed by international practice, a customised and comprehensive assessment of social housing need, and financial modelling, factoring in this need as well as differing land and construction costs. The research complements and builds on two other research projects, which together inform the *Inquiry into Social Housing as Infrastructure* (Lawson, Flanagan et al. forthcoming) on the policy rationale (Flanagan, Martin et al. 2018) and infrastructure appraisal processes (Dodson and Denham, forthcoming) affecting social housing investment.

This research commenced in 2017 with literature reviews, interviews, demographic and financial modelling undertaken between May 2017 and July 2018. The findings were derived from the following methods:

- Stage 1 involved a review of national and international literature on pathways in infrastructure investment and methods for estimating needs, costs and the level of investment required. Interviews with 20 key international and national stakeholders and two half day industry workshops were conducted with the Clean Energy Finance Corporation and NSW Federation of Housing Associations CFO group, which validated our review and elaborated on our understanding of contemporary investment practice.

- Stage 2 involved the development of a simple demographic model to assess the level and distribution of social housing need across Australia. This takes into account not only existing social housing provision, but also the current backlog of unaddressed need, and the needs likely to arise over the next 20 years. Building on this assessment, the research analysed the cost of procuring housing in 88 different housing and land markets using appropriate housing forms.

- Stage 3 developed a customised Multi-Criteria Framework to evaluate the effectiveness, equity and efficiency of alternative funding and financing pathways. Specialised modelling, using UNSW's Affordable Housing Assessment Tool, assessed the cost to government of five different funding and financing scenarios. Together this demonstrated the most effective investment pathway to meet Australian needs: capital investment and cost effective financing.

1 En route to an effective investment pathway

- This research develops an investment pathway that follows from the re-conceptualisation of social housing as needs-based infrastructure to improve social and economic wellbeing.

- It reviews past and emerging Australian and international infrastructure investment practice affecting different forms of social infrastructure, including social housing.

- To estimate the investment required to meet social housing needs over a 20-year period, the research develops a simple method drawing on relevant demographic and construction costs and land acquisition data.

- It also evaluates alternative investment pathways and their cost to government, to inform more effective strategies in funding and financing social housing.

1.1 The design of an investment pathway

Urban development, and the social and economic opportunities it provides, is underpinned by investment in infrastructure. This entails investment not only in transport infrastructure, but many other important assets such as parks, schools, hospitals and social housing, to meet the needs of a growing population and promote inclusive and sustainable economic development. How infrastructure is delivered depends on our willingness and capacity to fund this infrastructure—including the shelter and support of our most vulnerable citizens.

The provision of infrastructure involves many different actors: governments, the private sector and citizens, as planners, funders, financiers, constructors, managers and consumers. Each form of infrastructure has its own ecosystem of stakeholders, engaged in decisions affecting service distribution, allocation and access. An investment pathway is the route capital takes through this infrastructure ecosystem to construct and operate essential services. Investment can be sourced by governments, public development banks and a variety of private financial institutions from a variety of capital pools and channelled via infrastructure providers with different motivations and payment regimes. Investments in social infrastructure generate tangible assets such as schools, hospitals and social housing that deliver important intangible services such as education, healthcare and shelter.

Designing the right infrastructure investment pathway to respond to Australia's need for social housing is the focus of this research.

Ideally, an infrastructure investment pathway will draw on long term low-cost capital, ensure the ongoing effective maintenance of infrastructure assets, and accommodate services that enhance social and economic wellbeing, and enable innovation and best practice.

Certain forms of infrastructure command governments' attention; they are well maintained and adequately provided, while other forms of infrastructure deteriorate and decline, despite well-established need.

Social housing is an accommodation asset which is not adequately provided and maintained. Under current funding, allocation and rent setting arrangements in Australia, social housing raises insufficient revenue to cover both construction and operating costs, and the level of provision is increasingly inadequate to meet need. New providers have emerged, but their

capacity to deliver outcomes is highly dependent on public investment and constrained by deficiencies in the current investment pathway.

In recent years, following the Global Financial Crisis (GFC), the role of government and mission focused public development banks has been challenged. New funders and providers have emerged. Infrastructure policy and investment pathways have become more diffuse and unsettled and the search for long term investment infrastructure continues. Attitudes towards the role of public and private investment continue to influence any future route to be taken.

This research informs the development of a more effective investment pathway that follows from the re-conceptualisation of social housing as needs-based infrastructure.

This report focuses on the concept of an investment pathway, learning from international and national experience in social infrastructure provision. It reviews past and emerging Australian and international infrastructure investment practice and develops and applies new policy tools to estimate both the need for social housing and procurement costs. It also evaluates alternative funding and financing investment methods, and demonstrates their cost to government through modelling of different scenarios.

1.2 Public or private?

In the post-war era developed countries have typically enjoyed periods of long term, mission orientated public investment promoting economic and social development and ensuring essential network infrastructure, such as transport, telecommunications, water and waste management and energy production and distribution. These essential services enable effective use of important social infrastructure such as schools, hospitals, police stations and courts of justice. Governments with an expansionary and developmental vision, employing strong revenue reserves backed by generations of taxpayers, leverage their own resources to raise efficient investment in infrastructure to ensure society's wellbeing, harmony and economic advancement. In less developed countries, the capacity to raise and allocate revenue for infrastructure provision is often lacking, diminishing basic access to health care, education and justice.

Yet the picture above of capable, well-resourced governments, adequately providing and maintaining infrastructure, is not a reality for many countries. Short-term budget imperatives have meant that long term capital expenditure and maintenance have frequently been sacrificed for current consumption (Helm 2009), as is the case across Australia's public housing. Today, this practice has become endemic and generated an accumulating backlog in renovation and new supply. This burden and backlog has motivated stock transfers and open market asset sales. The question remains whether such strategies can address the underlying lack of capital investment and if not, what is the alternative?

Australia, a nation which has a strong tradition in public investment, continues to prioritise infrastructure for more a productive economy. For example, the Victorian government states

> *'Whether financed through surpluses, debt or a combination, well-targeted investment in infrastructure not only improves living standards, it expands the productive capacity of the economy. It also creates jobs now and improves our capacity to create jobs into the future' (Budget Paper 4, 2017-2018: 8)*

Following an extensive period of active state-led development during settlement and post-WWII, Australian governments have allowed the private sector to play a more prominent role in infrastructure provision since the 1980s. Australia has gone further than many West European and Scandinavian countries in this pursuit (Aulich and O'Flynn 2007: 160; CEDA 2002). Faith in competition and the efficiency of markets has underscored the privatisation of once traditional

government services. Governments, often motivated by the desire to reduce public debt, have also promoted the concept of a shareholder democracy. This inevitably prioritises a smaller role for government, and enables tax cuts popular with the electorate. The resulting strategies have significantly influenced infrastructure policy, provision and investment in many countries. In the absence of effective regulation or competition, this approach has reduced the capacity for governments to steer and direct required investments in infrastructure, which has led to the emergence of numerous government and industry advisory bodies to make infrastructure provision a greater priority and more effective.

Through various infrastructure strategies, governments aim to attract additional private investment they are either unwilling or unable to incur on their own balance sheets. Yet, while private financing initiatives, public private partnerships and asset recycling initiatives replace public financing with private financing, they have not provided additional funding for infrastructure. Rather they replace once public roles in financing, construction and facility management with private financing, contracting and leasing arrangements. These changing roles have shifted public expenditure from direct investment in capital assets to recurrent payments for the cost of private finance and lease contracts. The 2017–18 Victorian Budget states this clearly:

> *'Private finance is not an additional funding source. The majority of PPP projects are government-funded through availability payments, financed by the private sector and recognised as a finance lease in the Government's accounts' (Budget Paper 4, 2017-2018: 8)*

Australian privatisation (and privatised procurement) of public infrastructure and government business enterprises was extensive in the 1990s. Having reached a plateau, privatisation returned with the Abbot/Hockey government in the guise of the Asset Recycling Initiative, a five year Australian Government initiative incentive scheme. The agreement (COAG 2014) requires the sale of state assets. The offer states the incentive of 15 per cent of the book value and encourages private sector involvement in both the funding and financing of new infrastructure. Proceeds can contribute to new state delivered infrastructure, but not necessarily replace the assets sold. For example a light rail project with a strong business case, may be preferred by government to public housing. Notably, Australian Government incentives are reduced when new investment calls on greater levels of public assistance—as would be the case where public housing was replaced with community housing and draw on CRA (COAG 2014: clause 19b).

While several state governments have signed the ARI agreement and made use of the incentive[1], the Australian Government has also used the proceeds of divestment to reduce debt, as in the 1990s. Similarly, public investment in infrastructure assets has declined, while private investment has increased. Such a model inherently favours projects that can command a future income stream set at a 'commercial rate' such as commercial light rail projects, toll roads and ports, rather than those that provide services free or substantially discounted at the point of use (e.g. public schools, hospitals, public housing). While generating ongoing rental income, social housing is a problematic case because the level at which rents can be realistically set falls far short of the cost of provision unless increased rates of CRA are provided. As indicated above, ARI specifically reduces incentives for this.

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[1] For the ACT, asset recycling involved the sale of over 1,000 public housing units in the path of a proposed light rail, involving the eventual displacement of 1,900 tenants to either existing purchased dwellings or newly constructed units (ACT Budget 2017-18: chapter 5). NSW has enthusiastically embraced ARI (NSW Infrastructure Statement 2017-2018: 1-4). Victoria hopes the sale and lease back of Melbourne's port will deliver payments towards long overdue investment in public transport to its airport.

The PPP PFI pathway has grown private and not-for-profit sector involvement in the construction and facility management industry, and also the provision of financial and legal services dedicated to new contracts and tendering processes (Stafford and Stapleton 2017). Developments in public administration, such as the split between public purchasers and private providers of services, have been motivated by efficiency arguments and rely heavily on external professionals in the tendering of formerly government provided services, influencing their cost, allocation and quality. This has influenced the mode of provision for many traditional government services such as water, electricity, ports, telecommunications, health and justice services—as well as for public housing.

There are clearly advantages and disadvantages of this approach for different stakeholders and these are discussed further in this report. Changes to infrastructure investment policy have stimulated innovation among providers as well as growth in (foreign) financial investment services in this field. Internationally evaluations of efficiency and quality are mixed (Hodge and Greve 2007; 2009) and proponents of the benefits of PPP arrangements have become more cautious (Fischer 2011). The need for effective regulation and compliance systems has also been stressed (World Bank 2016; CEDA 2002). The pace and scale of PFI schemes in other countries such as Turkey, India and Brazil has slowed (World Bank 2017).

In countries with the most experience in PPPs and PFIs, such as the UK, the threat to the long term health of public budgets has been repeatedly raised (NAO 2013; 2015; 2018). The PFI scheme was finally abolished by the UK government in October 2018 (HM Treasury, 2018). A shift back to more direct investment is emerging, with the UK government lifting caps on municipal investment in social housing after 40 years (Ministry of Housing, Communities and Local Government, 2018), enabling cities like London to play a much more active role in housing supply from 2018 (Mayor of London, 2018a).

Caution about reliance on private financing arrangements, in part, has been driven by the cost of capital. Recurrent government obligations to investors under UK PFI contracts are projected to reach £199 billion by 2040 ($A 347 billion) (NAO 2018). Since the GFC, the cost of public borrowing has declined to such an extent that reliance on PFIs has been less easy to justify, as PFIs are now much more costly than more direct forms of public investment. Some governments have continued to pursue PFIs, requiring a much more austere approach to public programs, especially in the UK. The PFI contracts remaining in place for UK schools and hospitals have since proven complex, costly and inflexible (NAO 2015; 2018).

Where PFIs and operating contracts have been used for infrastructure delivery in Australia, a similar pattern is emerging, although it has been less scrutinised. Some claim the higher recurrent costs associated with PFIs are consuming an increasing share of public expenditure (Hayward 2017):

> *'the scale of the PPP commitment built up over the last decade is now a story in itself, although not one easily discovered. Fully one third of Victorian government debt is now accounted for by borrowings entered into with private parties to build, own and operate public assets. Even more remarkably, almost half of the government's interest bill is accounted for by private lease payments'*

Beyond the cost of finance, other rationales for caution have been raised. These include the risks posed to consumers of essential services, such energy, child care, justice services and clean water, when shareholder priorities conflict with charging policies and service standards. Global infrastructure oligopolies are emerging and governments' reliance on these are being questioned, such as Serco and Gs4. The collapse of the large child care provider ABC Learning in Australia (SSCEE 2008) and the recent liquidation of multi-national facility builder and manager Carillion (UK Parliament 2018) have highlighted the failure of accounting firms and contracting governments to recognise the ongoing risks. Ultimately governments remain

responsible for the services provided and have bought back failing privatised services, such as the UK rail network. There are also studies which highlight the negative impact efficiency through sub-contracting has had on service standards, skill development, workplace relations and wage levels (Holley 2014; Smith Institute 2015).

To varying degrees, treasury and finance officials, policy makers and private investors are reflecting on this experience and the implications it holds for procurement practices in the future.

Internationally, social housing has mediated this transformation in infrastructure investment pathways. Many social housing systems have developed their own means to attract private investment as governments shifted support from direct supply via public landlords to recurrent assistance to the private rental sector. This has not led to a decline in overall 'housing expenditure'—capital investment has shifted to recurrent payments. Support for households, in the form of housing allowances and vouchers, in the (less regulated) private rental sector has grown substantially. Furthermore, new forms of not-for-profit and for-profit management have either emerged or taken primacy over public provision in most social rental systems across Europe and North America (Gruis, Tsenkova et al. 2009; Chen, Stephens et al. 2013). In Australia, and typical comparator countries such as the UK, Canada and the US, multi-provider social and affordable housing systems, involving both public and private landlords, are now the norm.

Some countries (including the US, France, Finland, Switzerland, Austria and recently Canada) have established mission orientated financial intermediaries, provide guarantees on approved investments and offer well targeted tax incentives to reduce the cost of private investment for social housing. This is a pathway Australia could also follow.

All social housing systems involve some form of subsidy, either on the supply side in the production of dwellings or the demand side via rent allowances. Public subsidies and regulation remain vital to ensure social housing is available, affordable and accessible to low-income and vulnerable households, especially in high pressure housing and employment markets.

While infrastructure provision increasingly involves non-government players, the imperative remains for governments to ensure that the chosen investment pathway not only supports defined service outcomes, but also that associated public expenditure is employed in an effective, efficient and equitable manner. As these considerations also apply to social housing, a more effective regulatory and compliance system is called for than is currently present in Australia (AHWG 2017; Nancarrow 2017).

1.3   Research rationale

The objective of this research is to inform an effective investment pathway for social housing infrastructure.

This study assumes that long term capital intensive infrastructure can be funded and financed in different ways with varying effectiveness and efficiency. A successful investment pathway would deliver an appropriate supply of suitably-maintained infrastructure assets that meets Australia's social and economic needs and policy aspirations.

Public policy affecting the investment in and provision of social housing and other forms of infrastructure is constantly evolving, influencing the role of government in markets and with its citizens, as they respond to new ideas, and adapts to perceived challenges and crises. It is also influenced by structural changes affecting industry resources such as cheaper credit, building technologies, professional capacities and effective regulation.

Transparency, contestability and accountability have all been important themes in Australian public administration since the 1990s, and have implications for approaches to social housing

as an infrastructure investment. Re-focusing on social housing as a form of infrastructure, and reflecting on infrastructure investment practice, can catalyse new policy thinking and overcome current investment barriers inhibiting growth.

Beyond direct stakeholders in the provision of infrastructure, various public advisory bodies play a critical role informing the design of an optimum approach to infrastructure investment. These include national and state based infrastructure agencies, planning and social services departments, state based auditor generals as well as the National Consumer and Competition Commission and Productivity Commission. As protectors of the public interest, rather than advocates of particular financing models, these agencies can play a very constructive role, providing independent advice, comparing alternative options and promoting transparency.

Over the past three decades public accounting bodies have turned their attention to the funding of public infrastructure and human services, and to public and community housing (various auditor generals' reports, including VAGO 2012; 2017 and NSWAG 2013; IPART 2017; PC 2016; 2014; Industry Commission 1993). A common conclusion is that Australia's social housing investment pathway has been unable to meet supply expectations or deliver on quality. A persistent barrier to the growth of social housing has been its unsustainable funding and constrained revenue.

1.4   Building on existing research

The study will synthesize and build on not only the above national policy and industry context but also relevant national and international research evidence. This includes previous AHURI analyses on housing needs and costs in different market contexts (Randolph, Troy et al. 2018); project and program financing and industry cost benchmarks; the social policy and productivity rationale for housing (Maclennan, Crommelin et al. 2018), and the capacities and strengths of the evolving social housing sector (Milligan, Pawson et al. 2017).

Beyond estimating needs, land policy, capital investment strategies and rent assistance are the three pillars upon which social housing can grow. AHURI has conducted research on each of these. Much focus has been on efforts to increase the flow of institutional investment towards social housing (Lawson, Gilmour, et al. 2010; Lawson, Milligan et al. 2012; Lawson 2013; Lawson, Berry et al. 2014; Rowley, James et al. 2016). To date there has been limited coverage of public investment strategies, with the exception of Hall and Berry (2004; 2007).

There are now a growing number of investment pathways in Australia's social housing system, from public housing to affordable rental using a range of funds and finance. Each delivers housing based on a different rent regime and offers a different service. Rent regimes include rents geared to income, rents set below market (with rent assistance) and those set at below market levels for a limited time period. Some asset strategies are focused on development and management, some on management alone, others on eventual sales and capital uplift. For some the proceeds of capital uplift and sales are ring fenced for new supply, for others it is returned to general government revenue or used to retire debt. There are new models which will see returns from equity investment delivered to private shareholders. Some of these pathways have been described in a recent AHURI report (Randolph, Troy et al. 2018).

The cost components of land, building construction and finance all contribute to overall project costs. Efficiencies in these can reduce the funding required by government and cost to consumers. Information on the long and short term costs to governments, taxpayers and consumers of new infrastructure often lacks transparency (OECD 2015; NAO 2015; Hodge and Greve 2009). To date little work has been done on this in Australia (Henn 2015).

It is argued that greater transparency in comparing the cost of capital is imperative to help decision makers determine the ideal mix of finding and financing used (NAO 2015; 2018). There

has been some effort to compare the cost of systems of finance for social housing (Carlson 2014; Lawson, Gilmour et al. 2010) and also on a project basis (Wiesel, Davison et al. 2012). In recent years, the cost of private compared with public investment (such as the UK's PFIs) has been part of several infrastructure finance evaluations (NAO 2015; 2018; Edwards, Shaoul et al. 2004; Blanc-Brude, Goldsmith et al. 2006; Pollock, Price et al. 2007; Hodge and Greve 2009) raising important issues for social housing policy makers as well.

With a focus on addressing actual need, based on realistic costs and with an emphasis on project feasibility, more effective funding and efficient financing arrangements can be designed that are appropriate to Australian conditions. In Europe, Asia, the Americas, and New Zealand we see promising developments, as well as cautionary lessons, from experience in direct public investment, publicly-led development, PPPs, specialist financial intermediation and real estate investment trusts. Evaluating national and international policy progress and financing experience is necessary for the design of an investment pathway to provide Australia's social housing infrastructure. These policies and experiences are further explored in this report.

1.5 Research methodology and key questions

Building on this research and policy experience, this report addresses the following research questions over three stages:

1 What is the scale of [social housing] investment required, based on established need and benchmark procurement costs in the housing markets of different states and territories over the next 5–20 years?

2 What can be usefully learnt from Australian and international experience in housing as well as non-housing infrastructure—e.g. on capital investment programs, funding instruments, intermediaries and related incentives?

3 What is the most effective combination of financing instruments and institutions to deliver required housing outcomes based on defined policy criteria and cost modelling?

The research methodology involved a number of stages and relevant methods, which are outlined below. The first stage reviews existing approaches to assessing the need for social and is largely a quantitative and empirical exercise using existing and accessible data sets. The second stage abstracts and contrasts key funding and financing processes involved in social housing and social infrastructure provision, and, drawing on interviews and online literature, provides critical insights to inform the development of an Australian investment pathway. The final stage involves both quantitative modelling and qualitative assessments, uses a framework for assessing alternative funding and financing arrangements and quantitatively investigates their differing costs to government. These stages are described in more detail below.

1.5.1 Stage 1: Level of investment required

Housing needs assessment is a fundamental prerequisite for any social housing investment strategy.

As noted above, a range of needs assessment methods have been developed historically in Australia and overseas. These techniques are analysed in terms of their usefulness in informing the appropriate scale of a national social housing development program. The research develops a simple approach that borrows from existing models and uses readily available data. Other key components/features of our approach are as follows:

- it encompasses a 20-year projection period: 2016–36

- it incorporates both 'current need' (i.e. as at the start of the projection period) and 'newly arising need' (i.e. need that will arise during the projection period)

- it recognises a distinction between 'met need' (existing social housing) and 'unmet need'; distinguishing between 'manifest need' (homeless persons) and 'evident need' (low-income tenants in rental stress)

- it generates housing need estimates at state/territory level, differentiating between metro and non-metro areas.

Next, to estimate the funding required to address quantified need, the research develops a method for estimating unit costs of social housing provision—incorporating both construction costs and land acquisition costs. This takes into account the diversity of circumstances across Australia, with the following assumptions:

- dwelling type mix assumptions are calibrated according to an analysis of the existing mix of built forms in each SA4 unit

- dwelling size mix assumptions factor in the generally small size of households requiring social housing, as represented on social housing waiting lists

- construction cost benchmarks are derived from the standard Rawlinson's Tables publication

- land cost benchmarks are derived from a calculation that relates SA4-level construction costs to local market prices, generating unit land costs as a residual figure, compiled from much more disaggregated estimates (see Appendix 5).

1.5.2   Stage 2: Learning from existing infrastructure investment practices

This stage of the research begins by outlining and comparing the specific characteristics of social housing funding and financing with evolving approaches to investment in infrastructure more generally in Australia and overseas. Research was undertaken via an online literature review and a series of 12 interviews with infrastructure promoters, planners, funders and financiers both in Australia and Europe. (Appendix 1 lists the organisations involved).

Further insights and reflections on emerging Australian practice were gained via two industry workshops.[2] Workshop participants also considered the development of an appropriate evaluation framework for assessing alternative investment pathways. These half day workshops involved four members of the Clean Energy Finance Corporation (CEFC) housing investment appraisal team and 11 senior executives and chief financial officers from the NSW Federation of Housing Associations (NSWFHA).

Following these discussions, more detailed online research was undertaken regarding international experience of a variety of social infrastructure forms: school, hospitals and an extensive range of social housing investment pathways.

1.5.3   Stage 3: Defining and comparing the cost of an investment pathway

The evaluation criteria applied in Stage 3 builds on established principles for government service provision, known as the ROGS framework, concerning equity, efficiency and effectiveness (Australian Government 2017). It elaborates on these principles with relevant international criteria for assessing alternative funding and financing mechanisms specific to housing and non-housing infrastructure (Henn, Sloan et al. 2012; Lawson, Gilmour et al. 2010; Carlson 2014). It also draws on feedback from the two industry workshops mentioned above. Finally, a customised evaluation framework suitable for Australian conditions is put forward,

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[2] More extensive Australian interviews were also undertaken for related research projects in the Inquiry (Flanagan, Martin et al. 2018 and Dobson and Denham 2018).

which includes a range of relevant indicators concerning public finances, industry capacity and tenant services.

Also, in response to Research Question 3, the evaluation investigates in more detail the cost to government of a preferred investment pathway for social housing provision. This modelling makes use of the AHAT housing needs and cost assessment tool developed by UNSW (Randolph, Troy et al. 2018) and models the cost to government of five different funding and financing scenarios.

Finally, the study returns to the issue of the size of the funding gap required to be addressed by abstracting and synthesize recommendations from a wide range of AHURI investigations and evaluative studies concerning the cost of provision, operating revenue and efficiency of provision.

A balanced suite of actions, some already in train, others that need strengthening and several that are new, are recommended as an evidence based and holistic pathway for investment in Australian social housing infrastructure.

2 Useful concepts in funding and financing infrastructure

- Social housing is a revenue-producing built asset that provides essential accommodation services.

- It is important to design an investment pathway for social housing infrastructure that is fit for purpose and ensures infrastructure is well planned, adequately provided and maintained to maximise its wider social and economic benefits.

- Funding and financing, while contingently related, are not the same things. Funding ensures infrastructure assets or services can be paid for, including any long or short term financing costs. Financing is a means of funding infrastructure over time by borrowing money from the public or private sectors.

- Governments traditionally fund social and economic infrastructure from general government revenue by providing direct equity through up-front capital and/or ongoing operating subsidies.

- There are a variety of public and private financial institutions that arrange equity and debt financing of social infrastructure. Each has very different motivations and offers equity and debt under different costs and conditions.

- Social infrastructure, intended to achieve wider social economic benefits for society, has attracted less interest from private investors due to limited or uncertain cash flows.

2.1 Social housing funding and financing

Social housing aims to provide affordable accommodation to eligible low-income households who pay some form of below market rent, cost rent or rent geared to income. This typically involves the use of subsidies affecting the costs of supply and the revenue from demand.

A range of policies and instruments are used that affect both the up-front cost of provision as well as the rent revenue received. Rents may be based on market levels, the historic cost of production or financing costs or geared to household incomes. Certain conditions and regulations may also influence the efficiency and effectiveness of various costs such as the cost of equity, land costs, construction and operating costs. Typically providers are regulated not-for-profit (NFP) associations or public housing authorities created for the sole purpose of social housing provision. Increasingly, for-profit providers are establishing vehicles to take advantage of available subsidies or tax breaks. Their operations may be unlimited or limited in some way, especially when benefiting from public support.

Subsidies that are directed towards households are often described as consumption or demand-side subsidies; those directed towards development of housing are often described as production-oriented or supply-side subsidies, as represented below in Figure 2.

Figure 2: Generalised social housing costs, revenues and subsidy instruments

	Costs of 'Supply'	Revenue from 'Demand'	
For profit or not for profit (NFP)	**Profit**	Market rents	Rents may be determined by market conditions, cost of provision or a defined share of household income
NFPs are often tax exempt	**Taxes**	Cost rents	
Private sector, government, landlords and tenants may demand differing return on equity	**Return on equity capital**	Geared to incomes **Rent assistance - operating subsidy**	Influenced by policies on allocation, depth and duration of rent payment subsidy to tenant or operating subsidy to landlord
Financing costs reduced when efficiency improved via NFP intermediary, backed by government guarantee	**Debt finance costs**		
Regulation, including standards and cost benchmarks, enforce appropriate performance and may reduce financing risks and costs	**Construction and operating costs**	**Rent paid by tenant**	Influenced by basis for setting and indexing rents and household allocation policy
Dedicated land banking, planning and valuation instruments ensure sites are available for use via conditional title transfer, lease arrangements and land trusts.	**Land costs Freehold or leasehold**		

Implicit subsidy   **Direct subsidy**

Costs of 'Supply'   **Revenue from 'Demand'**

Source: authors.

Figure 2 above presents a snapshot of what is in reality a much more dynamic provision process. As with other forms of infrastructure, the delivery of social housing necessarily involves various phases: planning, construction, maintenance and renovation or replacement. For governments, each phase demands a different approach from public policy to achieve best value-for-money housing outcomes.

Table 5 below illustrates typical phases in social housing development, which are similar to other forms of infrastructure involving accommodation assets and specific services.

Table 5: Common phases in the development of social housing

Process	Land Acquisition	Design & Approval	Construction	Occupancy	Management	Maintenance	Sale or renovation
Actions	Land acquisition	Site design Plan preparation Consultation Statutory planning process	Costing Tendering Site preparation Construction Certification	Marketing and allocation of available dwellings Fault fixing	Tenancy and asset management Support services, community linkages, place making	Accumulate reserves, sinking to fund Maintain and replace dwellings	Active asset management and update needs analysis
Expenditure and Income	Management costs, Market feasibility/ sensitivity analysis Loan repayments	Management costs Planning approval Financial and Real estate services fees Loan repayments	Management costs Construction costs Loan repayments Certification fees	Management costs Provision for repairs Loan repayments Tenant rents Operating subsidy Service fees	Management costs Provision for minor and major repairs Tenant rents Service fees Operating subsidies	Management costs and fees Provision for minor and major repairs Tenant rents Service fees Operating subsidies	Management costs and fees Real estate and sales costs Provision for minor repairs Tenant rents and services Operating subsidies Proceeds from sales
Financing (if required)	Development (construction) finance		Construction finance	Operational finance Refinancing development finance with lower cost long term bond finance			Sinking fund, surplus equity, receipts from sales and development finance

Instruments to reduce costs and risks	Cost benchmarks, conditional public equity, mission-based development financing (e.g. CEFC) strategic land policy including leasing options, clarity of planning requirements, constructive and facilitative approval processes, sales tax exemptions	Benchmark costs, decent housing standards, transparent competitive tendering process	Specialist financial intermediary (e.g. NHFIC), guarantees, interest rate subsidies	Ensure returns from rental exploitation and sales are reinvested in mission, ring fence public equity ongoing mission
			Rents collection and reduced voids and vacancies	
			Not-for-profit management	
			Code of conduct for registered members	
			Independent risk based regulation to ensure any subsidies used effectively for intended purposes.	
			Timely monitoring and prevention of risks	
			Tax incentives for adherence to social housing business model	

Source: Adapted by the authors from the World Bank (2016), Bank of International Settlements (BIS 2014: 5) and Breuggeman and Fisher 2014: 463.

2.2 Social housing as infrastructure in investment terms

Public policy definitions of social housing often focus on the provision of accommodation for those tenants not provided for by the private housing market. In contrast, infrastructure investors focus on cash flows, which in social housing's case are charges for essential housing services.

On the whole, non-housing infrastructure and social housing infrastructure have similar investment fundamentals: they are capital intensive, heterogeneous and subject to political risks. While social housing might offer some inherent advantages for an infrastructure investment mindset, such as geographic or construction diversity (rather than one built asset) and will soon involve standardised NHFIC bonds, industry tends to focus on social housing's much lower rents and operating subsidy. From an investor's viewpoint this constrains not only their potential return but also undermines their capacity to maintain assets. Further, social housing is subject to diverse forms of regulation, and in recent years, uncertain political support. A comparison of the investment characteristics of non-housing infrastructure with social housing is made below in Table 6.

Table 6: Investment characteristics of non-housing and social housing infrastructure

Investment characteristics	Non Housing infrastructure	Social Housing Infrastructure
Capital intensity	• High up-front costs • High risks in pre-development and construction phases • Long asset life • Stable positive cash flows in operation phase • Where no positive cash flow government subsidies required to create investment value	• High up-front costs • High risks in pre-development and construction phases • Long asset life • Stable modest cash flows from rents and any operating subsidy • Government subsidies required to cover funding gap
Economy of scale	• Natural monopoly • Increasing returns with scale • Social and economic benefits difficult to measure • Charging not always desirable or possible	• Increasingly multi-provider system of public and community NFP housing organisations • Dispersed accommodation assets • Efficiencies can be achieved by shared development capacity, buying groups and pooling borrowing demands, bigger not always better • Social and economic benefits measured in terms of non-market based eligibility, access and rent regime • Charging via rents constrained to ensure affordability for target households

Investment characteristics	Non Housing infrastructure	Social Housing Infrastructure
Heterogeneity	• Projects often unique • Require tailored and complex legal arrangements • Risk sharing to align incentives • Less liquid	• Projects often unique • Subject to risk sharing to align incentives • Less liquid; but could be improved via policy flexibility including financial intermediary aggregating financing demands and issuing standardised vanilla bonds • Value of government guarantee
Opaqueness	• Opaque and diverse structures, PPPs • Lack of standardised information • Uncertainty and political risk	• Regulatory system exists, but incomplete and under review • Standardised reporting, could be improved • Political risk of changes to operating subsidy threatens long term business model

Source: the authors, drawing on Organisation for Economic Cooperation and Development (OECD 2015: 8)

2.3   The changing role of public investment in infrastructure

Throughout most of the 20th century, public investment underpinned the delivery of infrastructure in supporting social and economic development of advanced economies. High rates of public investment relative to GDP delivered broad access to quality education, health, transport and energy services, supporting higher levels of economic and social development (IMF 2015). Their governments' capacity to raise and allocate public investment through taxation and borrowing efficiently and effectively is what distinguishes them from emerging and developing countries.

Infrastructure, such as social housing, has traditionally attracted public investment in the form of grants and long term low cost public loans. Such direct public investment is allocated from general government revenue and raised via treasuries or specialist public sector banks. Public investment is not an expense; rather it is investment in the public estate. It creates value and can be recycled via active asset management to contribute revolving equity and loan programs.

In times of crisis, public investment has also been used as to stabilise and re-establish markets. As part of a policy strategy it can define growth and shape its direction. In times of market fluctuation it can play the role of economic shock absorber, counteracting market cycles by stimulating construction and stabilising employment during periods of constrained private investment. According to IIEA (2017):

> *'The benefits of increased public investment, when efficient, effective and productivity enhancing, are clear. Public investment can serve to increase a country's long-term potential growth and can provide a short-term boost to aggregate demand.'*[3]

On the negative side, public investment can also be misused to generate 'white elephant' projects. Short term stimulus programs, while welcome, can also be problematic for long term planning and industry development when they fail to promote ongoing investment once the stimulus is over. For example, Australia's Nation Building Economic Stimulus Project in Social Housing 2009-2011, while welcome and long overdue, did not lead to sustained innovation in public investment or attract ongoing forms of alternative private investment.

Public investment was used by many countries immediately after the Global Financial Crisis (GFC), to bolster economic activity, stabilise employment and maintain employment levels and social harmony. The post GFC decade of low cost of government borrowing made public investment even more compelling. Yet shovel ready projects were often derailed in countries constrained by policies of austerity. Following bank bailouts and stimulus programs in Europe, the US and Australia, many governments were forced to reduce public investment and reverted to the policy of the 1980s, when a preference for private investment and smaller government was pervasive in advanced economies, especially Australia, the US and the UK. Consequently, there has been a sustained period of declining public investment in infrastructure, not only by governments but also their multilateral development banks which is only now turning around. Previous research on international trends in infrastructure has found:

- Declining general government spending on infrastructure as a percentage of GDP falling from around 4 per cent in 1965-75 to 2.5 per cent in 1995-2005, with Australia following this trend (RBA 2018),

- Very low percentage of GDP spent in US and sharp declines in UK,

- Higher proportion of government spending on economic than social infrastructure, as in Australia, and

- Increasing role of private sector in infrastructure investment overall, also in Australia (Productivity Commission 2009: 30-38; RBA 2018).

The decline in collective public investment has been reinforced by public accounting rules and norms constraining long term direct public expenditure. Benchmark rules of the European Stability and Growth Pact (SGP)[4] limit annual expenditure to potential GDP growth unless the excess is matched by increased taxation. While member states can increase revenue and spread the burden of investment over generations, tax cuts have a more immediate electoral appeal for politicians (IIEA 2017).

Debt continues to be raised, but ideally for treasuries, off the government's own balance sheet and onto the balance sheets of non-government providers.

There are concerns that these strategies have reduced the capacity of governments to plan for and invest in long term productive infrastructure—even though they remain responsible for levels and standards of provision. The weak recovery in the decade following the GFC has also

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[3] See concise arguments from IIEA regarding the impact of the EU's SGP rules capital investment at http://www.iiea.com/blogosphere/are-the-fiscal-rules-impeding-irelands-ability-to-meet-its-capital-investment-needs.

[4] An overview of the Stability and Growth Pact Rules can be found here: http://www.europarl.europa.eu/RegData/etudes/note/join/2014/528745/IPOL-ECON_NT(2014)528745_EN.pdf.

generated calls by the International Monetary Fund (IMF) and European Commission (EC) to ramp up public investment more widely. For example, the EC's report to Ireland highlighted

> *'the low levels of public investment to GDP in the country and warned that Ireland needed to address its infrastructure needs in order to "promote durable and balanced growth in the future. … The assessment that the reduction in public spending following the crisis had a negative impact on the quality and adequacy of infrastructure in Ireland led to the identification of "key weaknesses" in housing, water, public transport and climate change mitigation capacity… urged the Irish Government to broaden the tax base and to prioritise capital expenditure in R&D and public infrastructure.' (EC 2016)*

Economists and public accounting agencies are also questioning past strategies. According to the London School of Economics (LSE) Growth Commission *'a series of public sector accounting distortions that have made it difficult to weigh up benefits and costs in a coherent way. In particular, targets for fiscal policy often draw on measures of public debt while failing to account for the value (and depreciation) of public assets'* (LSE Growth Commission 2017: 22.) The cost of private financing arrangements, reliant on public contracts, is also being called into question by national auditors (NAO 2018).

Following more sober assessments of the cost and risks to governments of PFI and growing backlogs in housing infrastructure, there are emerging signs that the strategies of the past three decades are now being re-assessed.[5]

Notable is the stance by leading economist Marina Mazzucato, advisor to various governments and the EU, and author of The Entrepreneurial State (2013) and *The Value of Everything: making and taking in the global economy* (2018). She asserts that markets are not static entities that are 'intervened' in (for good or bad) but are outcomes of public and private interactions *'the state should be active and work in cooperation with private businesses to spur growth that's sustainable and inclusive. The policy process is about co-creating and co-shaping of markets, creating new opportunities for business investment—and negotiating a better deal for the public too.'* (Mazzucato, 2016).

Recently, the UK government abolished its PFI programs (HM Treasury 2018a) and quietly lifted the cap on local authority borrowing (against the social housing revenue account) in late 2017, re-affirming the role of local authorities in housing provision at the Conservative Party congress in 2018.

London's Councils had argued that to address their considerable shortfall in affordable housing, the borrowing cap imposed on them since the 1980s should be lifted, to allow Councils to raise funds and invest in social housing directly (London Councils 2013). The cap was lifted in 2017, leading to the launch of major affordable and social housing supply program for London (Mayor of London 2018).

While no formal cap on borrowing exists in Australia, strong lingering political and cultural preferences against public debt have constrained public investment in assets, while recurrent expenses climb (Hayward 2017). But this stance may change with a less ideologically driven and more informed debate.

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[5] See discussion on good and bad debt by Martin and Masola
http://www.westernadvocate.com.au/story/4636032/budget-reporting-change-sparks-debt-spree-concerns/?cs=7.

2.3.1 Public finance institutions

Many governments raise their own finance via public banks to channel investment towards desired innovations and national or regional development. The cost to governments of raising capital is often substantially less than private entities. Long dated bonds allow governments to spread up-front costs of infrastructure over long periods of time and avoid lumpy cash flow problems for their budgets. Australia's Office of Financial Management plays this role and recently issued 30 year bonds for the first time, with the aim of reducing the impact of interest rate changes on government debt when refinancing shorter term bonds. These bonds are likely to be bought by overseas investors required to hold quality investments and long duration bonds.

Governments also use public infrastructure banks to lower the cost of capital and channel private investment towards tangible assets that benefit society and the economy at large.

> *'Development banks—national and international—have deep experience and the credibility to act as trusted conveners. They can help increase the supply of viable projects. Their presence in a project can radically reduce risk. Crucially, their involvement lowers the cost of capital. They can take initial risk and provide long-term capital at early stages. They can then pass on stable assets to other long-term investors such as pension funds. They have potent multipliers in that they draw in banks and institutional investors and demonstrate the power of the example.' (Bhattcharya 2016)*

In France, Germany, the Netherlands, Scandinavia and Italy there are well established public financial institutions which invest in infrastructure to support social and economic development, including affordable and green social housing. These institutions include the European Investment Bank, Council of Europe Development Bank and the Caisse des Dépôts et Consignations (CDC) in France, Cassa Depositi e Prestiti (CDP) in Italy and KfW Bankengruppe (KfW) in Germany. Finland's Munifin invests in local infrastructure including public and not-for-profit social housing (see Chapter 3).

Canada established a National Infrastructure Bank in 2016, designed to attract private sector capital to large national and regional projects with revenue-generating potential. It has pledged CA$81 billion over the next 10 years to fund public infrastructure including public transit and renewable power projects. More recently, the Trudeau government established a National Housing Co-Investment Fund of CA$15.9 billion to provide grants and low interest loans to support 60,000 new units and 240,000 repaired units called for by needs analysis over the next decade.

This contrasts with stalled progress in the US, which has spent many decades considering the establishment of an infrastructure bank. A Bill to do so languished in Congress throughout the Obama administration. The much vaunted federal boost in infrastructure provision under the Trump administration has yet to materialise, with states expected to do more with the same funding base.

While Australia still lacks a national infrastructure development bank, it recently established a regional development bank for Northern Australia. The effects of constrained public investment have led to some small innovative responses.[6] In Victoria, where a local property tax rate freeze has been in place since 2015 alongside a freeze in Australian Government grants, the Municipal

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[6] Although the Australia Greens have recently proposed one: Australian Infrastructure Bank: Getting public infrastructure moving https://greens.org.au/infrastructure-bank.

Association has established its own financing intermediary to attract longer term lower cost private finance for basic infrastructure (MAV 2017).

Australia also has the specialist Clean Energy Development Corporation and from July 2018 the National Housing Finance Investment Corporation (NHFIC). NHFIC will aggregate the borrowing demands of community housing organisations (CHOs) and issue guaranteed bonds, coupled with a $1 billion loan facility for housing related infrastructure. Both these institutions, CEFC and NHFIC can potentially provide efficient development finance and long term operating finance for social housing. Yet this effort is confined to financing instruments—governments and consumers still have to fund the costs associated with procurement, including financing costs.

2.3.2 Private finance investment strategies

While there is growing world-wide acceptance of the need for more and improved infrastructure, there remains political reluctance for governments to pay for it. The decline in direct public funding for infrastructure and constraints on raising public borrowings has led to increased reliance on commercial financing and private equity extracting much higher rates of return.

Global investors are searching for quality assets to provide stable investor returns, and infrastructure has attracted their attention. According to JP Morgan (2015),

> *'In today's extremely volatile markets, investors are increasingly considering allocations to infrastructure. These assets generally have monopolistic positions and provide essential services in the areas in which they operate. As a result, demand for these services is relatively insensitive to economic weakness and price increases. Additionally, regulators usually allow private owners of infrastructure to earn fair real returns in order to incentivize them to provide adequate service to the public— regardless of the economic or inflationary environment.'*

In such cases the private investment sector partners with government to build, own and or operate the infrastructure. Private equity and debt, instead of public equity and loans, are used in Public Private Partnerships (PPPs). Risk sharing legal structures known as Special Purpose Vehicles (SPVs) must be tailored to govern specific financing and cash flow arrangements.

Infrastructure can provide a stable and secure long term source of revenue for investors, if backed by long standing concession contracts governing allocation and setting and indexing user fees (often linked to CPI). This revenue is more secure if derived from essential services provided on a monopoly basis that meet ongoing or growing demand (for example, a tollway road to the city's only airport). Concession based PPPs are less common where definable cash flows are absent or politically fraught and have not been widely used in social housing due to the extremely narrow or negative profit margins offered by user rents.

In PPPs, asset revaluations and debt refinancing also play a key role in maximising fund distributions to shareholders. Shareholder returns may also be derived from more active and commercially orientated asset management strategies, extracting capital uplift through asset sales and maximising rent revenues. With this motivation, investors seek under-priced former public assets which can be resold or their low social rent levels commercialised to deliver required dividends. Another profitable strategy for private equity firms is to load up purchased public enterprises with debt, yet this may lead to financial stress, cost cutting and outsourcing (Appelbaum and Batt 2014). Few of these financial strategies have been found to create real value or address societal needs (Mazzucato 2018).

The range of investors and their motivations are broader than in the past, as summarised in Table 7 below.

Table 7: Motivations of Infrastructure Investors

Investors	Motivation
Governments Public development banks Multi-lateral development banks	To improve social welfare, boost economic growth, improve productivity and lower unemployment.
	Different strategies from QE to austerity measures and outcomes.
	Public investment has declined in many countries such as the UK but increased in others such as France and China.
Institutional investors, including pension/superannuation funds	To provide potential returns over infrastructure life cycle e.g. 8–25%, derived from either capital uplift (resales), usage fees (tolls on roads) or government guaranteed income (fees for service).
	Infrastructure offers private investors diversification of income sources.
	Subject to regulation of financial institutions (Basel III) influencing their credit allocation across asset classes and for pension funds different phases of accumulation and dispersal.
	Risk and return, influenced by political risks and favourable market conditions supporting returns (tight/monopolistic).
	Supported by various governments subsidies (subordinated public investment, tax incentives, guarantees, long term operating and maintenance contracts linked to CPI).
Concession holders	To provide secure inflation-linked income to investors with cash flow predictability and inflation mitigation.
Fund managers	Management fees and performance bonuses

Source: Authors review of various investor reports

At a global level, financial institutions, including pension funds, are subject to regulation of capital, leverage and liquidity settings. These regulatory regimes, such as prudential regulations or voluntary regulatory agreements of the Basel Accord, influence their investment strategies and the allocation of capital across different asset classes. This has implications for the volume of long term investment in projects such as infrastructure and whether assets are managed actively or passively.

Another important factor influencing investment is the manner in which pension schemes are arranged and the phase or cycle they are in (accumulation or payout). It is claimed that Australia's rapidly growing defined contribution schemes, with members able to choose their own fund (My Super) and pressure to reduce fees, actually discourages long term commitments required for investment in infrastructure assets (ASFA 2011: 2). The funds must maintain liquidity given potential investor re-allocation. If an investment is at all illiquid, it must atone with higher returns.

At the end of the day, infrastructure funds managers try to match the yields required for different portfolio strategies, even before they take liquidity into account. For infrastructure investments, mid-range returns of 8–12 per cent and up to 25 per cent returns are derived from either usage fees (tolls or charges for services), government guaranteed income (fee for service), or capital uplift (property sales). Such rates of return have attracted a growing private sector interest in infrastructure investment, which is often supported by government procurement policies and processes, tax incentives and revenue guarantees. Infrastructure fund managers also receive

various fees, such as management fees of 1 to 2 per cent and bonuses or performance fees of 10 to 20 per cent, which can influence their asset management strategies.

For investors, stable secure cash flows of user charges and government lease payments, as well as potential uplift from the on sale of capital assets, can deliver risk adjusted annual returns of between 4 and 20 per cent (JP Morgan 2015; Preqin 2017). For this reason, the sale, construction and management of Australia's child care centres, schools, hospitals and prisons has attracted increasingly global investment funds originating from Canada, the US and the UK and competition is increasingly dominated by a handful of very large investment funds (Preqin 2017).

Differing costs of private finance and the UK PPP/PFI experiment

Australia's infrastructure priorities and strategies for raising investment were expressed in the 2017 Budget. These include an intention to develop 'more innovative financing methods, rather than signing cheques to the States and Territories' (Australian Government 2017a). Yet the use of public or private sources of funding and different financial instruments greatly affects the cost of infrastructure to the government, the end user and taxpayer (Helm 2009). The Productivity Commission (2009: 213) argues that the total cost of financing to government is made up of the following elements:

- return paid to investors,

- the cost of contingent liabilities to government arising from project risk,

- the transaction costs of the financing arrangement,

- any costs of delay that might be associated with a particular financing vehicle,

- costs of administering revenue, which need to be included in cost benefit analysis,

- when using consolidated revenue, the opportunity costs of these funds not being able to be used for other programs, and

- when funded from tax exempt bonds, the cost of the forgone tax revenue.

The administrative costs to the public sector of private financing innovations, such as PPPs, PFIs and Social Impact Bonds is large, complex and should not be underestimated. Entering into customised private partnering arrangements can be more costly than direct expenditure of public funds. Thirty years of experimentation has produced some worrying results.

Under UK PFIs, contractors would pay for the construction costs of an infrastructure asset, such as a prison, hospital, rail service or road and then rent the finished project back to the public sector. Private investors receive a return from 'efficiencies' in the cost of construction and long term lease contracts. If regulations permitted, efficiencies could be made in quality standards, or by maximising service fees and reducing labour costs. The public sector would gain in having assets provided quickly.

Until 2008, the lower up-front payments and off budget borrowing by SPVs meant that PFIs initially had a moderate impact on public budgets. A decade on, this has dramatically changed as the relative cost of long term finance has risen relative to government bonds.

In 2015 the NAO cautioned that 'the cost of servicing private finance debt is approximately double that of government debt, but information about private finance costs for individual projects is limited (NAO 2015: 8) and further, 'the average cost of all government borrowing is 3% to 4%, compared with an estimated financing cost of 7% to 8% for all private finance projects.' While PFI deals could be refinanced in the low interest context, this approach was rarely taken. One reason was the high cost of redeeming and refinancing fixed rate bonds.

In 2018 the NAO warned that government payments on PFI deals were projected to consume $347 billion (£199 billion) in public expenditure by 2040 (NAO 2018). Their analysis revealed 40 per cent higher costs of PFI over direct public investment projects. For example, it found that for hospitals, there was no evidence of operational efficiency from PFI arrangements and some services cost than non-PFI projects. For schools, PFI offered little or no improvement in the cost to government relative to the cost of direct public investment. HM Treasury's finding in 2011 was more condemnatory: 70 per cent higher costs than public sector comparator and higher costs in hospital maintenance (NAO 2015; 2018). The NAO assessment of the relative merits of public versus private investment are summarised in Appendix 2.

PFIs have also involved PPPs which can drive organisational efficiencies, which may lead to service innovation and reduced consumer costs. However, the drive for efficiency through (sub) contracting out can also reduce construction and service standards. Cost pressures can lead to cutting corners, such as lower construction standards, reduced service quality, safety and labour standards (with disastrous consequences, as in the Grenfell social housing fire). Widespread pressure on contracted service costs may even be responsible for supressing wage growth in the services sector and exacerbating inequality.[7]

There are also market risks. A concentrated market of large infrastructure construction and facility management companies, dependent on government contracts, has emerged involving now familiar companies such as SERCO, Gs4 and Carillion. With 'underperforming contracts' and budget austerity measures, some of these large companies are now at risk of failure.

Since 2011, Carillion built and managed a range of social infrastructure facilities and services for the UK government and has received up to £5.7 billion for over 420 contracts. It has also built range of social infrastructure projects in Canada and the Middle East, employing over 45,000 people (NAO 2018a). In January 2018, Carillion went into liquidation, exposing serious flaws in government outsourcing practices and risking the continuation of essential services.

Complexity poses additional costs and demands greater transparency

Decisions about the right package of funding and financing instruments are complex. The choice is often constrained by ideology or short term electoral considerations. Potential choices are difficult to compare and then adapt to suit different locations. Given the opaque and complex choices involved in PFIs, the National Audit Office recommended much closer scrutiny, as outlined in Box 1. The low interest environment and experience of complex and risky PPPs has led to a more sober reassessment of private investment and a growing appreciation of the importance of direct public investment in infrastructure, including social housing.

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[7] While the UK economy grew between 2008 and 2015, wage growth declined by 5 per cent (OECD 2016 in Costa and Machin 2017). This has been partly attributed to growth of zero hour contracts and self-employment positions (for example cleaners of buildings) under public service contracting regimes. A similar finding has also been made for the US (Blanchflower, Costa et al. 2017; Kratz and Kreuger 2016).

Box 1: Improving the transparency of capital investment and expenditure strategies

Following critical assessment of the UK's Private Finance Initiative, the National Audit Office (2015) recommended that governments improve the transparency of capital investment and expenditure strategies by:

- Improving decision-makers' access to the terms of private finance deals.

- Facilitating direct comparisons between the performances of similar projects with different financing choices.

- Reviewing the budget-setting process to create greater flexibility to exploit the government's collective advantage in financing.

- Taking steps to achieve further savings from operational private finance contracts and consider the benefits of greater flexibility in future contracts.

- Reviewing the long-term consequences of recent interventions, including the impact on departmental balance sheets and consumer bills (NAO 2015: 10).

The following chapter takes a closer look at Australian and international experience in social infrastructure investment pathways.

3   Emerging investment pathways - lessons from Australian and international experience

- Inadequate and intermittent capital investment has led to stock decline and deterioration. A range of investment pathways have been pursued but few are likely to generate sufficient units to meet Australia's growing need for social housing. A different approach is required to raise and allocate sufficient funds to grow and improve stock. Australia can learn from national and international experience to improve investment strategies.

- International organisations increasingly call for more effective public investment and efficient financing of infrastructure, stressing greater capacity in needs based planning, securing and allocating adequate funds and designing and implementing programs (IMF 2015).

- Firstly, in order to maximise social and economic outcomes, social housing requires a capital investment strategy. An estimate of current and future need provides the foundation for an infrastructure investment program.

- Secondly, productive social housing systems use a combination of instruments. They utilise land policy instruments to reduce the cost of land, coupled with strategic public investment and efficient long term financing. Productive systems create rather than extract value, address needs and promote innovation (Mazzucato 2018). They incorporate a balanced range of demand and supply subsidies.

- Thirdly, productive social housing systems use efficient financing for infrastructure provision as this reduces costs to government, reduces pressure on service charges and related assistance and ultimately reduces costs to taxpayers.

- Greater value should be given to the role of public investment and more transparency is required when evaluating financing alternatives to inform the most effective future investment pathway.

3.1   Introduction

Australian policies guiding investment in infrastructure have been influenced by global trends in public investment, accounting and management among many Western governments promoting greater competition, the split between purchasers and providers of services, a preference for 'off balance sheet' financing and strong encouragement of PPP arrangements.

These ideas and preferences have permeated many social housing systems which today embrace third sector provision, private financing alongside public subsidies and industry partnerships. While these approaches have led to a flourishing affordable housing industry, there are both opportunities and constraints for *social* rental housing.

This chapter addresses the question:

What can be usefully learnt from Australian and international experience in housing as well as non-housing infrastructure—e.g. on capital investment programs, funding instruments, intermediaries and related incentives?

The first section examines Australia's current and emerging pathways in social housing investment through a review of research and practice. The second section examines international experience in both housing and non-housing forms of infrastructure. The chapter concludes with a summary of insights for the development of an appropriate pathway for Australian social housing.

3.2   Australia's diverse pathways

Like other forms of public infrastructure, social housing has experienced an extended period where governments have moved away from direct capital grants and long term public loans or interest subsidies towards housing allowances as recurrent operating subsidies. At the same time, social landlords are expected to do more with less cost-effective private debt: accommodating more low-income and high needs tenants, while improving the quality of dwellings and surrounding neighbourhoods.

In Australia, the funding gap between the cost of providing aging housing stock and the income received from aging and low-income tenants has been met by strategies including delayed maintenance, reduced renovation and very little new construction. Consequently, supply and maintenance backlogs have grown over the last twenty years (NSW Auditor-General 2013; Hall and Berry 2007; Kenley, Chiazor et al. 2010; Groenhart and Burke 2014). In the context of worsening affordability for low-income households outside the social housing system, this has meant growing waiting lists and intensified reliance on the private rental sector.

As a consequence, Australia's public housing stock is declining, while the number of community housing operated dwellings is increasing. Nominal growth has been due to favourable land deals, tax credits and direct public investment and very little social housing has been produced without these sources (Randolph, Troy et al. 2018).

A number of investment pathways are emerging within the Australian affordable and social housing system. Each delivers different housing products and support to different households. The following sub-sections outline each pathway, and their associated issues and outcomes.

3.2.1   Traditional public housing

Traditional public housing remains by far the largest contributor to social housing provision in Australia, with 320,041 units managed and owned by state and territory governments in 2016, down from 372,000 in 1996. Since the 1980s, production of new supply has dwindled from 14,000 units per year (Troy 2012) to less than 3,000, despite considerable growth in need and population. The contribution of new stock is further eroded by sales and demolitions. Consequently the share of social housing has declined from 5.1 per cent in 2002 to less than 4.2 per cent across the country, varying considerably across jurisdictions (Department of Prime Minister and Cabinet 2014 cited in Martin, Pawson et al. 2016; Flanagan, Martin et al. 2018; ABS 2016).

For more than 70 years, funding for public housing has been provided under successive intergovernmental agreements, such as the Commonwealth State Housing Agreements (CSHA), National Affordable Housing Agreement (NAHA), and the current National Housing and Homelessness Agreement (NHHA). Since 1996, the allocation of funds between capital investment and recurrent expenditure has been less well defined and, despite recent efforts at reform, remains untied to specific supply outcomes.

A growing proportion of existing public stock is more than 30 years old and not well maintained (Kenley, Chiazor, et al. 2010; NSW Auditor-General 2013). State Housing Authorities (SHAs) have not or cannot borrow against the equity in the social housing assets they manage. They rely on the political will of state governments and co-operation of their treasuries to invest. So far, state governments have been unable or unwilling to invest, leading to under-provision and poorly maintained stock (Hall and Berry 2004; 2007; Jacobs, Peisker et al. 2010). A similar stance in the UK prevented local authorities from borrowing funds for social housing between 1988 and 2018. Amidst historically low housing production levels and persistent affordability problems in major cities, the borrowing cap was finally lifted, allowing for new public investment in social housing supply in 2018.[8]

Australian policies rationing and targeting tenant allocations since the 1970s have undermined the financial sustainability of SHAs and reduced their capacity to invest in maintenance and new construction (IPART 2017; Jacobs, Peisker, et al. 2010). Tenants are also aging and hence have more complex needs. Governments and their housing providers have focused resources on meeting support needs rather than broader policies promoting liveability, environmental sustainability and economic advancement. As most public tenants rely on low incomes or fixed pensions, rent revenue has diminished. Resources for capital investment in the public housing system are scarce.

Today the majority of available funds are consumed by recurrent operating costs, addressing the growing maintenance backlog and asset disposal, rather than substantial renovation or replacement of stock.

Some states have developed successful housing strategies, combining land banking with innovative public financing. Other states lack a clear vision or growth strategy, amidst declining and insecure funding. Several states and territories have relied on contracting out management and some maintenance to CHOs, and extracted 'surplus' land value via the redevelopment of well-located public housing assets for mixed use public and private developments and redirecting public investment towards recurrent service payments.

3.2.2   CHO managed public stock outsourcing

In 2010, a national commitment was made for 35 per cent of social housing to come under CHO management. While unfulfilled nationally, it is now approaching this share in Tasmania and NSW. Numerous CHOs now manage public housing, albeit under highly prescriptive arrangements, as exemplified by Victoria's Lease and Property Management Agreements.

CHOs must apply allocation and rent setting policies prescribed by these contracts. They are responsible for operations and minor maintenance costs and have access to CRA. Their charitable status allows for preferential tax treatment of costs incurred and the deduction of some operating expenses. Any debt they raise does not appear on the public ledger.

Yet the leverage that can be sustained by CHOs depends largely on their revenue settings framed by eligible household incomes, the level of CRA and lease terms with the state government. All these variables are beyond their control.

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[8] In the UK a borrowing cap prevented local authorities from investing in their social housing since 1988 leading to the decline and transfer of their stock to the third sector. This was recently lifted to enable local authorities to play a more useful role in addressing the UKs severe backlog in housing supply. Furthermore, any receipts from any sales of social housing must be ring fenced for new social housing. London councils immediately announced a competitive grant program to invest in 15,000 dwellings.
https://www.constructionnews.co.uk/markets/sectors/housing/councils-on-1bn-housing-programme-revealed/10036490.article.

So far this pathway has not been able to support substantial investment for capital improvements and has added few new units of social housing stock. Furthermore, prescriptive arrangements, while they maximize government control over the use of public assets for a defined target group, greatly limit the autonomy and potential contribution of a more innovative CHO sector.

3.2.3   Leveraged stock transfer—long term contracts but rarely title transfer

As above, SHAs have relied on contracting CHOs to manage assets, in order to be able to draw on CRA and favourable land contributions and importantly raise private finance for maintenance and new construction (Pawson, Martin et al. 2016; Lawson, Berry et al. 2014; VAGO 2012; 2017). For SHAs transfers are primarily motivated by expenditure constraints: to reduce government maintenance liabilities and overall levels of debt, and not by supply targets or consumer demands.

Contracting regimes cover the costs of operating housing services but leave little room for expansion of supply or extension of community services. Most growth has occurred where these been substantial capital injections. Under the Australian Government's Social Housing Initiative SHI properties built by state governments were subsequently allocated to CHPs. Half of these transfers were under management outsourcing arrangements and the other 50 per cent title transfers.

In the main, transfers have involved only management contracts and few have involved the transfer of land title. Such transfers have not resulted in any substantial growth (Pawson, Martin et al. 2016; Pawson, Milligan et al. 2017: 7, 22). Some management transfers even require a share of sales to cover operating costs (Pawson, Martin et al. 2016).

In the absence of sufficient public capital investment, some CHOs seek to cross-subsidise social housing by developing higher rent units and sales but this strategy exposes CHOs to cyclical market risk and again has produced very few social rental units (Randolph, Troy et al. 2018).

Long term leases may potentially provide a basis for leveraging greater debt—if it can be sustained. There has been a trend towards longer leases rather than title transfers. Under Tasmania's 'Better Housing Futures' strategy, tenancy management has been outsourced for 10 years, with most assets continuing to be owned by the State and 2 per cent sold per annum, leading to a reduction in stock over time (Pawson, Martin et al. 2016: 25). South Australia's 'Better Places, Stronger Communities' has relied on 20-year management contracts. The NSW community housing asset vesting program (2012-2015) aimed to generate approximately 20 per cent additional dwellings over 10 years through competitive vesting to CHPs of around 6,000 dwellings, yet progress towards this aim is not readily available. QLD's Logan Renewal Initiative became politically controversial and was stalled with a change of government, with significant costs to all parties involved.

For the CHO industry, the pathway of leveraged transfers has proven to be complex, costly and unproductive in terms of supply. Tendering has involved high transaction costs, protracted selection processes, high legal and financial services costs and there are claims that tenders have not always been sufficiently transparent or competitive. There has also been limited tenant involvement in transfer decision and subsequent implementation.

With high maintenance expenditure obligations and limited leverage capacity, this pathway has not delivered growth and in some states (e.g. Tasmania) a decline in stock levels is forecast.

Furthermore, obligations to house the poorest tenants from SHA waiting lists, creates tensions with CHP viability and leverage capacity, and remains a source of industry conflict in Victoria. Mistrust also arises when there is a proposed shift from high needs to a broader range of tenants, which has undermined political commitment to transfers in QLD. On the work floor, the

conditions of existing public sector workers under transfers have also been unclear and less favourable, as the skills required and wages and conditions offered differ in the CHO sector.

Of course transfers also shift and increase costs for the Australian Government via demand for CRA. CHO tenants have access to CRA and in some states where transfers occurred, local Centrelink services were unprepared for former public tenants demand for CRA.

3.2.4   Tax credits for affordable rental provision

A new pathway was established in 2010 with the National Rental Affordability Scheme (NRAS) which generated a considerable 38,000 affordable housing units between 2010 and 2017 (Rowley, Leishman et al. 2017). NRAS units catered to key workers and low to medium income families and applied below market rents.

The $6 billion initiative increased supply, reduced rent costs and attracted private investment. It offered annual financial incentives to private investors and community organisations to build and rent homes to low and moderate income households at a rate at least 20 per cent below market rates.

In 2014 this incentive was $7,996 per dwelling per year as a refundable tax offset or payment; and a state or territory contribution of $2,665, with the total amount being $10,661 per dwelling per year.

NRAS facilitators and intermediaries outsourced development to private developers and rental management to either registered CHPs (as required under NRAS regulations in some jurisdictions) or real estate agents.

The scheme made a significant contribution to supply in a short space of time. It had teething problems and was an administrative burden for both governments and applicants, and it suffered from shifting time frames and political interference. Further the 'one size fits all' credit did not address differing needs and procurement costs equitably or effectively and led to allocation inefficiencies. Affordability obligations were linked to the duration of tax credit—thus after 10 years, the housing could be sold to market. Further investors could withdraw their commitment at any time and simply forego tax credit. Finally, investor's reliance on sales mitigated the long term benefits of the scheme

Overall, NRAS generated many dwellings quickly, but was costly, administratively complex, and could have ensured better targeted longer term outcomes. The scheme was discontinued in 2014 and the first NRAS dwellings will reach their ten-year limit in the next two years, reverting to the free market for sale or rent (Australian Government 2016; Rowley, James et al. 2016).

3.2.5   Growth funds to generate returns for capital and operating costs

NSW and Victoria have established growth funds to generate returns for investment in affordable and social housing and related services.

Established in 2016, the Social and Affordable Housing Fund (SAHF) provides funds for 25 year service contracts with private consortia (and involving registered CHPs) to deliver a range of social outcomes linked to new social (70%) and affordable (30%) housing supply.

Under the SAHF, the NSW Government invests a capital sum in revenue-generating assets, with resulting returns underpinning annual operating subsidy payments to approved consortia. Projects were selected in 2016 and the first deal was closed with the Frasers consortium to redevelop, densify and diversify public housing on the Ivanhoe estate.

The Victorian Growth Fund, established in 2017, will invest seed capital over a period of four years, reaching $1 billion in 2019/20. Returns will be used to construct new and lease existing housing and provide rental support. Over five years, the Fund aims to support around 2,200 households.

While innovative, both schemes contribution to supply, relative to the level of need in each state, is very modest. The NSW scheme is also reliant on voluntary land contributions and only able to respond to bids. The bidding process proved administratively costly for the community housing sector, which in turn has little role in driving contracted outcomes. The scheme continues to reply on voluntary land contributions and has not attracted large scale investment to contribute towards ongoing supply pipeline.

3.2.6 Asset recycling—densification and partial sale or lease

The current rush for the redevelopment of public housing estates has several forerunners such as the Building Better Cities Program, the Kensington Estate redevelopment and the Bonnyrigg partnership. The current acceleration of public housing estate renewal has been incentivised via conditional Australian Government bonuses and policy enthusiasm for greater social mix on estates and public private partnerships.

The NSW Communities Plus involves the sale (via tender) of specific public housing sites (seven initially) for redevelopment as mixed social, affordable and market rate housing by private and NFP consortia. The quantum of additional social and affordable housing (beyond replacement of existing public housing) was not defined but was subject to bidding process (Pawson, Martin et al. 2016). The Victorian Public Housing Renewal Program, involving nine estates and 1,100 properties, aims to deliver 10 per cent more social housing, although not necessarily onsite. The ACT Public Housing Renewal Program has involved sales which have replaced public housing with other forms of infrastructure, such as light rail, with replacement units scattered across a range of areas.

One of the triggers for this rush is the Australian Government's Asset Recycling Initiative (ARI), where the sale of the public housing sites prior to June 2019 attracts a 15 per cent bonus payment to state governments.

In many renewal projects the financial gains from sales must be used to renew stock or contract housing and services to private consortia involving CHOs. New social housing is financed by capital receipts from land sales and rental income from social housing dwellings managed under long term contracts with CHOs.

Obviously the valuation of land once used for public housing and now for mixed high density housing, is critical to the bidding process. However, such a strategy of land value uplift is a one-off opportunity. Continuous densification and sales will not provide a sustainable pathway to growing social housing supply. It also diminishes well located assets that will be difficult to replace.

3.2.7 Value capture and the role of public land bankers

Ensuring sufficient and affordable land for social infrastructure has been a traditional role of government and their land banking agencies, and is a determining factor in the feasibility of social housing projects (Randolph, Troy et al. 2018). Contemporary land policy and planning practice has moved away from these traditional goals and now varies considerably across all jurisdictions. Today, public land banks rarely require social housing (or, indeed, any form of affordable housing) to be included in new urban developments (Randolph, Troy et al. 2018; Gurran, Gilbert et al. 2018).

These are some notable exceptions. Some jurisdictions have provided discounted land assets, permitted higher density construction on land and required rezoned land to include affordable housing, yet this is most often for affordable home ownership (Gurran, Gilbert et al. 2018) rather than rental housing (Randolph, Troy et al. 2018) and rarely social rental housing.

3.2.8 REITs and MITs

Managed Investment Trusts (MITs) have recently entered the affordable housing space in Australia. They are a form of Real Estate Investment Trust (REIT) that extracts surpluses from the management, rent and capital uplift (from sale) of long term housing assets. They hold assets for exploitation rather than produce them.

At the time of writing the government was consulting on legislation to allow, amongst other matters, MITs to contract CHOs to manage part of their housing portfolio for affordable housing for a defined minimum period, entitling trust holders to an additional capital gains tax discount of 10 per cent on sale.

There is some property industry interest but also resistance, given the low rental yields of affordable housing and the limited government incentives. The CHO sector considers it appropriate for the government to direct tax incentives towards affordable supply, but ideally for longer periods. The Community Housing Industry Association called for expedited clarification by state and territories of required rent levels and eligibility requirements for affordable dwellings under MIT schemes (CHIA 2018).

The provision of capital gains tax discounts (60%) and the proposed withholding tax discounts (30%) may make investment in affordable housing more attractive to investors. The legal requirement to distribute 90 per cent of MIT taxable income after management fees, for each accounting period, may undermine provisions to maintain, renovate, substantially improve housing or provide quality services.

Overall, MITs are incentivised to invest in affordable housing for moderate income households, not low-income households to be managed by CHOs (albeit temporarily). Once again, they are a vehicle that extracts value from managing assets rather than create new assets or construct social housing. Thus they are not a pathway to supply *more permanent social housing*.

3.2.9 The welcome return of more efficient financing

The dependence of CHOs on short term commercial loans has proven costly and poses significant re-financing risks (Lawson, Berry et al. 2014). The Affordable Housing Working Group (2017) and Commonwealth Treasury has recognised this and made considerable efforts to improve the efficiency of private finance via the establishment of the National Housing Finance Investment Corporation and the backing of bonds issued with government guarantees.

However, for NHFIC to have role beyond refinancing existing costly loans, a parallel program of public co-investment (funding) will be required. This equity investment could underpin a development pipeline financed by ongoing NHFIC bonds and potentially in concert with the CEFC (AHWG 2016; NSWFHA 2016).

Figure 3 captures in a nutshell Australia's current diverse social and affordable housing pathways.

Figure 3: Established and emerging pathways in Australian social housing provision

Social and affordable housing

Public housing
- Direct public investment via SHAs, rent revenue and rebate → SHA owned and managed rents geared to income (RGI)
- As above management contracted out allows access to CRA → CHO manage RGI
- Transfered equity, leveraged debt and CRA → CHO manages RGI, some sales and develop Below Market Rent (BMR)
- Assets 'recycled' to generate funds for future operating subsidies → Sales, CHO manages BMR and RGI

CHO with charitable status
- Growth fund operating subsidies levers debt, NFP enables tax exemptions and CRA → Contracted CHOs manage RGI and BMR and specified services
- NRAS cash plus State component, debt finance, tax exemption and CRA → CHO develop, own and manage BMR
- Surplus from other activities, debt finance, tax exemption and CRA → CHOs own and manage BMR

Private for profit
- NRAS tax offset and State component, debt, negative gearing, capital gain on sale → CHO manage BMR for fee For duration of NRAS incentive
- Managed Investment Trust (MIT), tax priviledges for BMR CHO managed housing, CRA → BMR MIT contracts CHO for fee for duration of MIT asset strategy

Source: authors.

3.3 What does the industry tell us?

This research sought the views of social housing practitioners via a workshop with chief financial officers and investment appraisers at the forefront of efforts to grow social housing in Australia. In October 2017, 11 chief financial officers from NSW's largest housing associations came together with members of the research team to discuss their experience of growth through the pathways outlined in the Figure 3. Two workshops, hosted by NSFHA and CEFC, generated many concrete and innovative suggestions, which are summarised in Box 2 below:

Box 2: Industry reflections on Australian social housing growth strategies

> ### *Funding program*
>
> Australia needs a comprehensive funding / affordable supply program, as exists in other similarly developed countries, to ensure effective supply outcomes. Policy makers should examine and adapt more successful approaches elsewhere to improve social housing outcomes for Australia.
>
> It is important to view the housing system as a whole, capture the rise in some sections of the housing market and re-allocate gains to ensure adequate lower-income rental housing opportunities are ensured. For example, the stamp duty boom should be captured to fund a capital investment program for lower-income housing and not just be absorbed into general state government revenue. Likewise, gains from any reform of Australian Government housing taxation provisions, such as Capital Gains Tax and Negative Gearing, could easily fund a new capital investment program for social housing.
>
> ### *A clear conception of need and the cost of not addressing it*
>
> The government needs to focus on the large scale of demand and need for social housing. It is not enough to plan to keep pace with the current level which is clearly inadequate. Policy makers need to recognise that supply must address the backlog of need and also plan for the replacement of run-down social housing assets currently in service.
>
> It is imperative to highlight the cost-benefit of investing in social housing to justify why it is necessary—for example, by quantifying benefits of secure and affordable housing and the cost of lost time in commuting long distances, and lack of economic participation due to insecure, unaffordable and poorly located housing. At the end of the day social housing is infrastructure that needs funding. It is increasingly possible to quantify cost savings across different government departments.
>
> The Australian Social Value Bank is an initiative of the Housing Alliance of three regional NSW CHPs (North Coast, Homes, North and Housing Plus) in measuring and quantifying the positive implications of housing stability (Alliance Social Enterprises 2017). One outcome measurement useful to prove cost-benefit in Australia is rates of household formation when young people are able to leave the family home. There are multiple outcomes that cross many governmental department responsibilities, and are therefore difficult to isolate (e.g. government savings in health, education, justice, other welfare systems).
>
> ### *Social housing will not grow if treated as merely a contracted service*
>
> Reliance on management transfers to CHPs, who are obliged to maintain dwellings and provide wrap-around services, is not sufficient to improve and grow supply.

Some policy strategies view social housing as merely a service which can be contracted for a defined concession period. This narrow, short term focus relies heavily on market providers and poses long running costs for the government. A more balanced approach entails capital investment strategies to grow supply effectively.

Where investment is based on payment for service outcomes, measuring social impact will be integral for expanding housing investment. The industry needs clear agreement on robust definitions of positive impact measures to drive good performance.

Reliance on cross subsidisation is unsustainable and risky

Government attempts to use cross-subsidy by selling market-rate dwellings to subsidise affordable housing, is a short term and finite strategy. It will not work in all markets and especially in a downward market. Selling public land and assets is a once off opportunity.

Selling the assets is not the solution to raise the substantial investment required. There are few advocates of selling public housing assets for a sinking fund. The IPA proposal (2016) was heavily criticised by the sector, also for incorrect vacancy rates and heroic investment assumptions.

The high valuation ascribed to government-owned housing *land* assets is a barrier to efficient supply of social/affordable housing. State governments ascribe full comparable market values to social housing assets, and expect full return of this value in any redevelopment scenario, which contradicts the fact these dwellings deliver a community service and have a permanently constrained cash-flow due to operation as social housing.

Better valuation methods are required based on the constrained rents of social housing and will provide a lower land value reflective of the use of the assets. New Zealand and Tasmania use this method. Further reference should be made to the Housing Finance Corporation (THFC) in the UK, which has also developed an innovative and relevant social-housing specific valuation methodology.

In the absence of public investment programs, CHOs have to reply on many different layered sources of subsidy for feasibility and continuity. It was considered that there is excessive government concern over subsidy 'double-dipping' and this fails to recognise the necessity for multiple subsidy sources.

Better links to other investment strategies

It would be useful to expand and link the constructive role of CEFC with public investment programs in the early development finance phase of projects to maximise sustainable outcomes for projects. CEFC is considered an ideal partner for long term NHFIC re-financing.

There are also relevant implications for social housing as the National Disability Insurance Specialist Disability Housing Allowance (SDA) provides a precedent for the recognition of the need to replace housing assets to be funded. The SDA individual payment not only tops up to the private rental market housing allowance (CRA), it also includes an allowance for replacement of the housing provided.

3.4 A reflection from recent research

This section draws on the findings of AHURI research on Australian social housing policy.

3.4.1 Lack of designated capital funding

Direct investment in social housing attracts a minor share of overall Australian housing assistance. The lions share is consumed by homeowners and investors, via Capital Gains Tax exemption and negative gearing provisions. Considerably lower but more direct forms of assistance go to households when purchasing their first home and low-income renters reliant on fixed statutory incomes (Duncan, Hodgson et al. 2018; Wood, Cidgem et al. 2017). Direct investment in the supply of affordable housing for low-income households receives the smallest share of Australian housing assistance. This was further illustrated by a Melbourne based study on the housing tenure and geographical distribution of housing assistance (Groenhart and Burke 2014). It established that only 2 per cent of all housing assistance was targeted towards public housing for low-income households in need, as detailed below in Table 8.

Table 8: Total expenditure on housing assistance—Melbourne 2011–2012

Total government expenditure on housing assistance in Melbourne	Total $ 2011-12	$ Per dwelling	% Total
Public housing	$107,080,000	$72	2.0%
FHOG total	$277,229,000	$187	5.3%
Rent assistance	$501,063,000	$338	9.6%
Negative gearing	$861,248,000	$582	16.5%
Capital gains exemption	$3,481,031,000	$2,350	66.6%
Total	$5,227,652,000	$3,530	100.0%

Source: Groenhart 2014: 1

3.4.2 Excessive reliance on 'innovative financial models'

It is increasingly recognised that private financing of social housing alone cannot make up for the continuing decline in public funding (ISA 2017; AHWG 2017).

Nevertheless, Australian Government and state infrastructure policy eagerly promotes the use of PPPs and private financing arrangements. Through contracting out, privatisation and 'asset recycling', infrastructure investment has shifted from direct investment in capital assets towards recurrent public expenditure on operating leases, private financing contracts and fees/availability payments for services.[9] These shifts have been particularly strong in NSW. In this regard, the Australian experience shares similarities with the UK's PFI experiment (NAO 2018).

There has also been continuing policy enthusiasm for Social Impact Investment, but as a source of capital investment its role is limited. Social impact bonds (SIBs) are complex, difficult to duplicate and administratively costly for all parties involved. Only a small number of SIBs have

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[9] Analysis of Victoria's whole-of-government accounts in 2016 reveals that a considerable portion of government debt is dedicated to private financing and lease payments on infrastructure and these are expected to increase substantially over time (Hayward 2017).

been trialled in Australia, whose focus is on service outcomes and not new supply (Muir, Moran et al. 2017).

There has been considerable research undertaken by AHURI (Lawson, Milligan et al. 2012; Lawson 2013; Lawson, Berry et al. 2014) and the Affordable Housing Working Group (2016, 2017) on the practicalities of establishing a financial intermediary to channel more efficient forms of investment towards social housing, leading to the establishment of the National Housing Investment Corporation in 2018. This will begin by issuing 10 year bonds backed by a government guarantee to finance lower cost loans to registered CHOs for affordable rental housing.

Yet this important reform is only one side of the equation, as financing must be funded to ensure a pipeline of 'bankable' infrastructure projects.

3.4.3 Land policies frustrate social housing developments

While non-government housing providers rely on government subsidies to develop and manage social housing, often under highly prescriptive government contracts, providers offering a range of housing products often have more capital and rent revenue from which to raise additional private investment to improve their assets and potentially expand them. More flexible asset management contracts allow for sales and this can contribute towards operational costs and potentially equity for new affordable and social housing products.

However, detailed project level analysis by AHURI confirms that to date contracted management transfers, 'off budget financing', densification and sales have not been able to deliver social housing units at sufficient scale. Typically, these projects tend to deliver a range of housing products, such as affordable rent and first home ownership opportunities, rather than social housing (Randolf, Troy et al. 2018). Furthermore, the sale and redevelopment of public housing estates, which extracts land value gains, has tended to reduce levels of public housing provision onsite rather than increase it in well located areas (unless at substantially higher densities) (Victorian Parliament 2018; Atkinson 2008).

There are a variety of alternative approaches to land policy and value recapture and recycling (SGS 2016: iv) that can be used to raise and channel investment for affordable and social housing more sustainably. These include:

- Reform of state land taxes to generate more state revenue more fairly. This could include reform of and eventual replacement of stamp duty with a broad-based low level land tax.

- State level infrastructure charges: to subdivisions and infill areas, where there is a close link to value uplift.

- Special rates: contributes funding to discrete infrastructure projects by applying to all properties within nominated catchment areas, based on the likely value related uplift associated with the infrastructure.

- Betterment levies: transaction fees for additional development rights for floor space

- Targeted use of government land: capture long term uplift through the development and project cycle, and a more interventionist role for government in purchasing, planning and potentially holding strategically located land benefitting from transport investment, as land corporations have done in the past.

There are many international precedents Australian policy makers can use, such as public land banking and reservation for social infrastructure, inclusionary zoning, density bonuses and tax increment financing (Gurran, Gilbert et al. 2018; Gurran, Milligan et al. 2008) which have generated investment for affordable housing and infrastructure provision for decades in the UK and the US. Several instruments, such as inclusionary zoning, have stimulated considerable

government, infrastructure and property industry debate in Australia (Infrastructure Australia 2016; Grattan Institute 2017) but not led to widespread adoption. Some local governments in NSW have taken the lead in proposing state wide models (IWC 2016). However, apart from one-off redevelopments of public estates, value capture has yet to be institutionalised in planning schemes or SHAs strategies to deliver a pathway of private investment in social housing.

3.4.4   Current regulation does not drive effective outcomes

Australia currently lacks a fully-realised national regulatory system for a more diverse not-for-profit sector, with participation by some but not all states. For-profit rental providers are willing to support build-to-rent housing and contract CHOs to manage affordable units. Some are now establishing their own CHOs.

Regulatory reporting has failed to keep pace with newer financing and delivery arrangements. The not-for-profit housing industry recognises this and has called for more robust Australian Government engagement in driving National Regulatory reform.

3.5   International experience of capital investment programs, funding instruments, intermediaries and related incentives

We now move from a focus on Australian experience to look at international practice. To inform this report it is useful to consider the range of instruments which have boosted production of social housing in other countries in more detail. Figure 4 below abstracts the range of instruments, often used together, which promote more effective social housing investment outcomes.

The first set of instruments used to ensure supply outcomes concern land use planning, land banking and land valuation. Land is a crucial element of housing provision and the cost of land can decisively influence the affordability of housing produced, alongside access to low cost development finance and the level and security of household incomes. Needham and De Kam (2000) emphasise that high cost land often implies that higher density lower quality dwellings will be produced. Alternatively, governments wishing to ensure that well located, affordable and quality dwellings are built use a range of mechanisms to either reduce the land price by intervening in the land market, or provide subsidies to reduce development costs.

Leasing is a means of reducing up-front land costs, thereby the costs associated with promoting social housing provision. It has long been practiced for this purpose in France, Sweden and the Netherlands and in the ACT. Governments use land leases as a means to manage the use of land more closely. Where secure long term leasehold is the norm, it becomes acceptable to financial institutions from which credit is obtained. In France, the Netherlands, the UK and Canberra, leasehold has been legally supported as a 'real right', for long leases (18 to 99 years) enabling built structures to be mortgage financed.

The second set of instruments concerns direct capital investment from a variety of sources: governments, landlords and tenants. Capital investment programs are used by governments to ensure satisfactory levels and quality of provision. This investment in assets may be in the form of grants or 'silent equity' as in the UK (which acts as a hedge against inflating land and housing costs) and may be retained and revolved over time to ensure responsiveness to need as in the Netherlands. Direct public investment remains the most influential mechanism to increase social housing supply levels in most countries, for example the US Public Housing Program, Austria's broadly accessible regional housing programs, and the UK's Housing Assistance Grants. Some countries such as Switzerland and Austria also rely on tenants to contribute equity for new projects. In many countries grants are linked the cost of the provision and the complexity or depth of needs being addressed, as in Finland.

The third kind of instruments aims to improve access to and reduce the cost of financing social housing (as distinct from funding it). AHURI has led international research on the use of specialist intermediaries and guarantees to improve borrowing conditions for CHOs, which contributed to the establishment of the National Housing Finance Investment Corporation in 2018. A guarantee on housing bonds (Lawson, Berry et al. 2014; Lawson 2013) was also promised by the government (Sukkar 2017).[10]

In Europe and globally, multi-lateral development banks such as the World Bank, COEB and EIB consider investment in social housing integral to their mandate of social inclusion, economic resilience and sustainable development. They provide loans and grants for (green) social housing to work towards these goals. Their role increased during the 2010s with awareness of the problems of affordability and access, socially segregated urban areas and the threat exclusion poses to overall social harmony.

Fourthly, there are implicit but nevertheless influential measures that can be used through the tax system. Tax incentives do not involve direct outlays of revenue, but may certainly reduce revenue taken. Well-designed incentives steer investment towards desired housing providers and tenant outcomes. Most not-for-profit housing associations are mission focused organisations that are tax exempt and must re-invest surpluses in providing more affordable housing. Yet tax incentives can also fuel speculation and overinvestment in the housing market, worsening affordability and supply outcomes.

Fifthly, revenue can be used to support investment, in the form of rent allowances to tenants, guarantees on rent payments by government as well as operating subsidies.

Across the European Union (EU), the proportion of housing assistance spent on housing allowances between 2009 and 2015, rose from 54 per cent to 75 per cent, with the highest share in the UK 85 per cent (Eurostat 2009; 2015; NHF 2017). In contrast, total expenditure on housing development in the EU has declined by 44 per cent, from €48.2 billion in 2009 to €27.5 billion in 2015. Many social housing systems, most notably in the UK, have utilised private investment, bolstered by rising rents and deep housing allowances, to address declining up-front public capital investment in social housing (Williams and Whitehead 2015).

Finally, another consequence of declining equity investment in social housing has been greater emphasis on asset recycling strategies, as in Australia. Ring fenced asset management strategies may also be used to provide surpluses and cross subsidise social housing, often known as Robin Hood strategies.

These instruments are summarised in Figure 4 below.

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[10] In a speech at the National Housing Conference, Assistant Treasurer Sukker announced 'to provide security and confidence, the government will provide a guarantee on the bonds issued by the NHFIC' at 10''28' https://www.youtube.com/watch?v=vmgVfdkkTHU.

Figure 4: Instruments used in social housing investment pathways
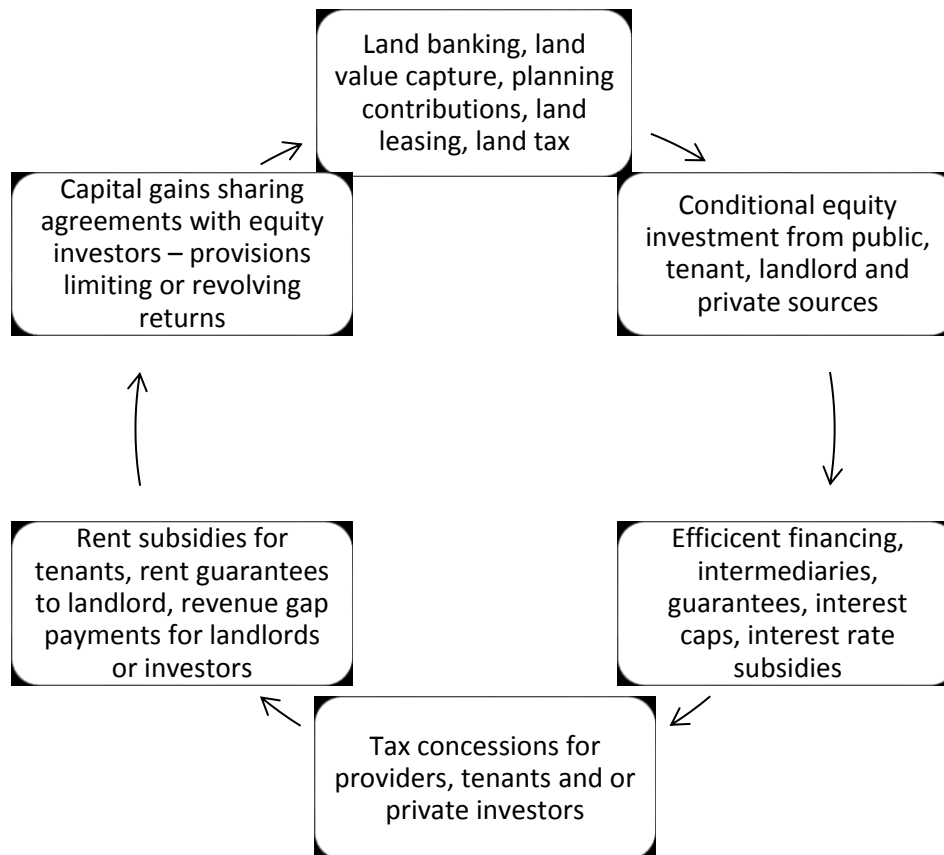
Source: authors.

3.5.1 Different international investment strategies

Best housing policy, according to US HUD housing advisor William Apgar,

> 'must involve a blend of supply and demand subsidies...developing flexible policies that deliver appropriate choice…[be] sensitive to local market conditions and dedicated to serving the best interests of all the poor' (Apgar 1990: 28).

Yet as discussed, housing policy involves much more than supply and demand-side subsidies alone. Investment pathways are an outcome of multiple instruments affecting land, investment and consumption, which are applied in an open market context and developed over a long period of time (Lawson, 2006).

Yates and Whitehead (1998) emphasise the existence of a wide variety of housing systems and strategies, often very different from the US, which operate under different market conditions and draw on quite different normative social foundations. From their European and Australian perspectives, they emphasise that distinctive structural factors in housing markets—such as limited land supply, sluggish investment in housing and shortages of labour—limited the elasticity of supply to meet expressed demand. This suggested to them the need for different policies to be continuously adapted over time.

More recently (2016) according to Yates there is:

> 'an increasing awareness of the weaknesses of 'a one size fits all' approach to housing policy, partly as a result pf an increasing awareness of the different strengths and weakness of each approach in different circumstances and partly because of the broadening objectives of housing policy, [which] has resulted in a less ideological

approach and moves towards using both demand and supply subsidies' (Yates 2016: 399-400)

Focusing on Australia's comparator countries, Maclennan (2005) argued for a more comprehensive and modern set of housing policies, which appreciate more fully the nature of housing markets and their outcomes, and their relationship with the wider economy. His review of developments in the UK, Australia, Canada and New Zealand supports the view that the shift towards demand strategies (from subsidised dwellings to means tested individual housing allowances) from the 1980s was prompted by neo-liberalist ideas emanating from central government agencies. Their influence led to policy prescriptions and administrative changes that diminished housing supply as a policy priority, consequently stalling funding and professional development in housing programs and shifting emphasis towards social security payments and distributional welfare (Maclennan 2005: 10).

Over the past decade, many governments have required providers of social housing to address a wider range of issues, such as urgent housing needs, flexible housing for low-income workers, and support for new migrants, as well as promote employment opportunities, energy efficiency and more liveable urban environments.

These demands mean social housing policy can be a means of achieving broader social, environmental and economic goals of governments and their citizens (Milligan and Lawson 2008).

Appendix 3 provides a series of tables which summarise the combination of social housing investment pathways utilised in Europe, Asia and the Americas.

Europe offers a smorgasbord of approaches to social housing and infrastructure investment, which is managed by public housing agencies and government owned companies as well as not-for-profit or limited profit housing associations and co-operatives, as outlined in Table 23. National and multi-lateral public finance institutions have also played a key role in supporting a range of infrastructure including social housing, as well as promoting more sustainable forms of construction and urban development and attracting additional private investment. To varying degrees governments have made efforts to reduce the cost of this private investment, via good regulation, co-investment and government guarantees.

An emerging trend in European social housing is the growing role of global corporate landlords (GCLs) and real estate investment trusts (REITs) which invest in privatised or less regulated portfolios of social housing. REITs have been used to purchase, manage and sell former public housing. Backed by US based hedge funds such as Blackstone and Fortress, GCLs entered the German social housing sector via public bank privatisations in the early 2000s (Lawson, Legacy et al. 2016; Allen 2015; Droste and Knorr-Siedow 2014). Through their ownership of municipal housing companies, they have had a profound impact on social housing rents and access, in part due to their very different public purpose. It has proven difficult for municipal governments to enforce their social obligations affecting rent setting and eligibility. GCLs, often unfavourably referred to as vulture capitalists, are now positioning themselves to enter the French and UK housing market via distressed public and social rented housing, especially since regulations protecting invested public equity in social housing managed by registered social landlords has weakened (Hodkinson, Beswick et al. 2016) and in the context of government encouraged sales. According to the authors,

'The combination of light-touch regulation and low transparency can make private equity firms far less accountable to both investors and people on the ground, such as tenants.' (2016:7)

A concise overview of many of our neighbouring countries' approaches to social housing investment is provided in Table 24 in Appendix 3. Notable is the use of housing finance

intermediaries and provident funds in several Asian countries and the about face shift away from home ownership and towards investment in public rental housing following the GFC in China. Closer to home and also worth watching is New Zealand, which reversed its new operating subsidy and shared value capture approach to social housing in 2017 with more traditional direct public investment.

From South to North America, investment pathways affecting infrastructure and social housing vary considerably across the continent, as demonstrated in Table 25. Brazil, Mexico and Argentina have been strong advocates of PPP approaches to infrastructure investment (Osei-Kyei and Chan 2017). The US has retained dual systems of direct and indirect public investment via federal programs supporting public housing and tax credit support for affordable not-for-profit housing. Canada has recently returned to a publicly-funded national housing policy, previously devolved to the regions in the 1990s, establishing a National Housing Co-Investment fund to provide grants and public loans for social housing and a national rental housing allowance.

3.5.2   The most productive social housing systems

China, Singapore, France, Austria and Finland have some of the most effective instruments for steering investment towards desired housing outcomes, enabled by national and regional urban policy, local land policies enabling conditional leases, capturing land value and using land banking instruments effectively, conditional grant programs and efficient financial intermediaries.

UK local authorities and not-for-profit housing associations completed 35,000 homes in 2017—19 per cent of total national housing completions—utilising planning contributions, grants, demand subsidies and efficient private financing. The Austrian social housing sector supplied between 14,000 and 16,000 dwellings per year since the GFC, which is around 30 per cent of all new housing constructed across the country. In 2014 housing associations and co-operatives in Austria built 15,770 new dwellings, being 31 per cent of 50,738 new dwellings built that year. Again, facilitative local planning and land banking, grants and favourable loans were used.

In Finland 22 per cent of residential completions between 2011 and 2013 were subsidised not-for-profit housing, broadly addressing the need for affordable and special needs housing not met by the commercial market. Since 2013 production of new subsidised dwellings has increased from just over 6,000 per annum to almost 9,000 in 2017. The population of Finland is 5.5 million, just one fifth of Australia's (ARA 2017). Finland provides an illustration of a small country making a big difference to housing outcomes and is further described in Box 3 and Figure 5 below.

Similar contributions to overall housing production by social housing providers can be found in France (Schaeffer 2015) which increased considerably following the GFC to provide economic stability. (More on this model can be found in Lawson, Milligan et al. 2010.)

Box 3: A focus on Finland

Like France, Finland has enshrined the right of every individual to a dwelling in its Constitution and the government actively supports broadly accessible social rental housing. Finland is the only European country which has consistently recorded a reduction in homelessness since 1987.

Finland has achieved stable and now increasing rates of social housing production at 8,000 dwellings in 2016 and 9,000 in 2017, especially for housing the elderly and formerly homeless. There are now 41,000 social dwellings, which represents 14 per cent of total stock, and 60 per cent of this is managed by municipalities, with the rest via non-profit-organisations. Both are regulated under non-profit housing legislation.

Land for social housing is leased, reducing the up-front costs of procurement. A tailored range of production subsidies are sourced from the off-budget Housing Fund of Finland, operated by the Housing Finance and Development Centre of Finland (ARA). This sets housing supply targets, allocation requirements and reinforces these via conditional interest subsidies on loans, tied grants, and guarantees on approved loans. Not-for-profit legislation is also in place to regulate providers covering both municipal housing companies and associations.

Sliding grants of 10 to 50 per cent of production costs are provided to accommodate specific groups with different needs: people who are homeless, those with physical or mental disability requiring support, the elderly, students and the young.

Direct government loans for this purpose were abolished in 2007, and efficient private finance is now required. Government guarantees are only provided on loans which are the most efficient and approved by the ARA. The public finance intermediary Munifin provides the majority of loans, at lowest cost and longest term.

This system of social housing has developed alongside growth in demand-side assistance to all renters. Retention of both supply and demand-side instruments is considered the most efficient pathway (ARA 2017; Averio 2015).

Figure 5: Social housing funding and financing in Finland

Central Agency ARA
10-50% conditional grants
Credit analysis guarantees and targetted interest rate subsidies for approved loans

Lowsest cost long term financing
90% MUNIFIN
Public financial intermediary
Amortising loan

Social criteria defined
Cross sector legislation
Limited Profit Housing LPH

Land is rented not purchased, cost capped where subsidies sought. Tenant provider pays discounted land tax.

Continuum of affordable housing provided by public and private LPHAs

Rents vary by area portfolio costs
Covers amortisation and services in area
Rent assistance if and when required

Source: authors.

3.5.3 Other relevant themes from international experience in social housing investment

A number of themes from the international review can be summarised as follows.

Purpose of social housing affects priority for investment

The contribution of social housing to economic and social wellbeing varies according to its core purpose—serving as an emergency safety net or as a tool for achieving broader economic, societal and sustainability goals. While mature social housing systems in the UK and the US now serve the most narrow and urgent needs, concentrating on disadvantage in stigmatised social housing, China, Singapore, France and Austria have maintained broader allocation policies and maintained broad popular acceptance. These countries use subsidised affordable rental housing to support more economically productive, harmonious and energy efficient urban development (Chen, Stephens et al. 2013; Groves, Murie et al. 2007; Doling 1999).

Those governments which take a broader view of the role of social housing have tended to maintain a greater role in capital investment and thus (with public support) have been able to increase supply, maintain new dwellings more effectively when housing need and economic stability requires, as in France, Finland, Austria, China and Singapore.

Unlike the UK and the US, over the past decade there has been a large and simultaneous expansion of housing programs in rising economies, driving the expansion of both public rental housing and affordable home ownership in China, South Korea, Brazil and Mexico (Buckley, Kallergis et al. 2016). There are signs of return to social housing provision by central governments in Canada, Scotland and New Zealand.

Direct capital investment and efficient financing

Direct public investment remains the most influential mechanism to ensure and increase social housing supplies in most countries, and remains so in the US. Investment of specific purpose grants provides conditional equity which can steer the level and quality of supply outcomes, can be recycled over time, and provides a hedge against inflation. Yet many systems increasingly rely on private financing arrangements and tax incentives, often leading to mission drift towards more expensive housing products.

In the US, since the Reagan government in the 1990s, federally funded public housing programs have been substantially reduced in favour of a system of demand side assistance using housing vouchers and later complemented by tax credits for private investors in affordable below market rental housing. As in Australia, tax credits have now been used to grow such housing, but to date these schemes have not delivered social housing permanently to very low-income households. In Australia the NRAS scheme was directed towards moderately low-income households with rents set at below market rates for a defined relatively short period up to 10 years (much less than the 15-30 years in the US).

Importantly, generous tax credits for investors in the US provide only part of the financing required for affordable housing supply—estimated to be around 42 per cent of project costs in 2002 (Lawson et al. 2010: 24-25). To be effective, this tax incentive must be combined with other measures. Typically these include conventional debt finance, soft loans or grants by state and local governments, philanthropic contributions and other federally funded grants (Milligan and Lawson 2008). In the US, as in the UK, planning policies may also offer planning concessions for affordable housing—tax credits are not enough on their own.

While US tax credits enjoy wide support, they have been criticised on a number of key aspects. The first is their inadequacy for assisting very low-income households because of the costs of private financing and the scarcity of housing vouchers (these are capped and not an entitlement). Second is uneven take-up, which is a result of different levels of state interest and investment under devolved policy arrangements. Third are questions about cost effectiveness

(foregone tax revenue was US$9 billion in 2017). Finally, outlays for tax credits have been insufficient to prevent a net loss of affordable housing (Schwartz 2006; Gilmour and Milligan 2008). Nevertheless, while the policy may have come at a greater cost than direct government provision, political and policy risk has been reduced.

Efficient, mission driven finance remains vital to the supply of social housing. The most successful intermediary, in terms of capacity to generate longest term lowest cost finance, can be found in France using pooled savings and socially progressive investment. Finland provides another supply driven example of a broad-based social housing system using grants, interest rate subsidies, guarantees and cost effective financing via a public intermediary, Munifin, which successfully tailors levels of subsidies to address a range of needs and integrate these into mixed housing areas. There are also many Housing Finance Agencies in the US which raise bonds at the city or state level for affordable housing. Canada has recently established a National Housing Co-Investment Fund, as has the Australian government under NHFIC.

Regulation remains vital

Well defined and enforceable regulatory arrangements are crucial in such multi-provider systems, as is emerging in Australia. Public trust in government agencies, private and not-for-profit providers is under challenge, with numerous inquiries into services upon which citizens rely such as aged care and banking. Clear lines of responsibility for delivery of services and their regulation are vital.

For the not-for-profit sector, according to Blessing (2016: 152):

> *"not for profit status is acquired on the basis of a formally instituted social mission, be it charitable or more broadly prescribed. Further, a legal constraint placed on the distribution of profits to owners is in place to promote adherence to this mission. There may also be constraints on commercial ventures unrelated to the social mission. In return, not-for-profits receive state support such as tax concessions, subsidies, cheap credit, or low-cost land. Hand-in-hand with this support comes public accountability, instituted via both formal regulatory requirements and informal social expectations."*

New Zealand is currently legislating to define the social objectives of its public housing program. The Netherlands has a Housing Act (2015) defining the social task of all providers and protecting public investments made. Austria and Finland have established a stable legal framework governing all not-for-profit providers receiving public subsidies.

Under Austria's federal system, regional governments design conditional housing subsidy schemes providing grants and low interest loans for affordable housing. National federal legislation covers all providers in receipt of these regional subsidies. Providers must be audited and report to regional governments for their compliance. Further, Limited-Profit Housing Legislation regulates the following aspects of a provider's operations:

- permissible activities,
- eligibility for and conditional use of subsidies,
- use of public equity,
- rent setting and indexing,
- surplus accumulation and re-investment,
- administration costs,
- financing and construction costs,
- decision making and supervision, and
- auditing and reporting requirements.

3.6   Non-housing social infrastructure investment

Social infrastructure involves capital intensive accommodation assets. Schools, hospitals, courts and prisons can all be considered as forms of social infrastructure, alongside social housing. Typically these assets are provided by governments on the basis of need, involving mission orientated public investment rather than commercial rates of return and capacity to pay. Funding allocation, standards and charging policies are also designed to ensure standards are met and access is affordable to essential social and economic services.

An international review of investment pathways in education and health social infrastructure, encompassing the UK, the US and Canada was undertaken and provides the following insights:

- The structure and level of public investment, quality of its regulation and nature of charging policies greatly influences the capacity of governments to plan for, ensure and maintain accessible levels and locations of services.

- Given the importance of public investment to these forms of infrastructure, the division of government administrative responsibilities, taxation powers and transfer agreements play a significant role.

- The funding and administrative capacity and political willingness to provide social infrastructure varies considerably across and within governments. Short term electoral priorities can undermine efforts to raise sufficient long term funding. This can lead to inequitable service allocation, exacerbate social inequality and cause uneven economic development.

- There have been numerous attempts to introduce market mechanisms into the provision of health, education and justice services, motivated by a lack of trust in public administration and the perceived benefits of market competition, fuelled by investor appetite.

- Numerous organisational transformations have taken place, reducing the role of the public sector in provision, for example via payment for service regimes, contracting out entire services to third parties, long term lease of facilities, the establishment of arm's length management organisations, independent trusts and for-profit service and facility managers.

- Services with strong stable revenues, flexibility in the use of operating and capital budgets and private sector financial expertise have pursued private financing strategies in a range of formerly public social services, such as hospitals and educational services. This has sometimes led to two tier systems of private and public services, which has diversified providers but frustrated the capacity of government in needs based planning.

- Private financing of public services has become relatively costly to governments in recent years and for the UK in particular, where it has increased costs and constrained ongoing public budgets. The attractiveness of PFIs has weakened as the cost of public borrowing has declined.

While a log jam in in the provision of education or health services would be electorally intolerable, deficiencies in social housing provision have not generated the necessary political will to increase funding for social housing (Flanagan, Martin et al. 2018). Changing course requires a new approach to capital investment where housing assistance and capital investment is needs based and employed more equitably, efficiently and effectively, as is required and expected of other government services.

3.7 Implications of national and international experience for designing a more effective Australian investment pathway

Since the 1990s Australian governments have accumulated a backlog in both supply and maintenance of social housing. Inadequate and intermittent capital investment has led to stock decline and deterioration. A range of investment pathways have been pursued but few are likely to generate sufficient units to meet the need for social housing. A different approach is required to raise and allocate sufficient funds to grow and improve stock to meet current and future needs. Australia can learn from national and international experience to improve investment strategies.

Firstly, in order to maximise social and economic outcomes, social housing requires a capital investment strategy. An estimate of current and future need provides the foundation for any infrastructure investment program. International organisations increasingly call for more effective public investment and efficient financing of infrastructure, stressing the development of greater capacity in key areas of government responsibility: needs based planning, securing and allocating adequate funds and designing and implementing programs (IMF 2015: 13).

Secondly, productive social housing systems use a combination of instruments. Their governments utilise land policy instruments to reduce the cost of land, coupled with strategic public investment and efficient long term financing. Productive systems do not rely on demand-side subsidies alone, especially where rent setting is deregulated and demand conditions are tight.

Thirdly, productive social housing systems use efficient financing for infrastructure provision and this reduces costs to government, reduces pressure on service charges and ultimately reduces costs to taxpayers. Greater transparency in comparing the cost of capital is vital to help decision makers determine the ideal mix of funding and financing that should be used (NAO 2015).

All three domains require strengthening in Australian social housing investment strategy: needs based assessment, cost benchmarking and transparency in assessing the use of alternative funding and financing strategies. The following Chapters 4 and 5 aim to strengthen Australia's social housing investment strategy by boosting the government's capacity to estimate the level and location of social housing need, benchmarking the cost of procuring units in appropriate markets and assessing and evaluating the cost to government of different funding and financing strategies.

4 Scale of investment required on the basis of need

- This chapter develops a methodology estimating social housing required to address both current unmet need (the backlog) and future projected need, based on a proportionate share of expected future household growth.

- Using our 'bottom up' estimation method, it is calculated that, over the next two decades some 727,300 additional social dwellings will be required, implying an annual average growth of 5.5 per cent over the existing stock.

- Construction and land cost estimates indicate a range of procurement costs for a social housing unit of between $146,000 and $614,000. This variation is a function of both land values in different markets, and building types and construction costs in different regions. Based on the geographic distribution of the estimated need, the average procurement cost is around $270,000.

- Capacity of social housing tenants to contribute to these costs through rental payments and Commonwealth Rent Assistance is small, with a typical household estimated to be able to pay around $155 rent, excluding rent assistance for which around 85 per cent of households are estimated to be eligible.

Ideally, a needs-based, planned and appropriately resourced life cycle approach to capital investment begins with an estimation of overall need. As specified in Chapter 1 a key aim of this research is to inform the development of a more effective investment pathway that follows from the re-conceptualisation of social housing as needs-based infrastructure. This chapter estimates the scale of investment required to accommodate the quantum of unmet housing need across Australia.

There are two main elements to this: firstly, the conceptualisation and quantification of 'need' and, secondly, the investment requirements implicit in that—bearing in mind realistic procurement costs, and factoring in reasonable assumptions about the length of time needed to tackle the existing 'need backlog'. Accordingly, the analysis included in this chapter informs an 'aggregated annual cost of supply' target.

4.1 Assessing housing need: concepts and data sources

4.1.1 'Housing need' and its relevance to this study

'Housing need' is a normative concept anchored by the notion of clearly definable minimum acceptable housing standards. Thus, individuals in 'housing need' are those lacking housing of any kind (street homeless) or housed in 'unsatisfactory' circumstances. Whether a home is 'satisfactory' could refer to a dwelling's condition, its suitability for the household concerned (e.g. size, design, location), or its affordability given the occupying household's income. More specifically, as expressed by Rowley, Leishman et al. (2017: 8), housing need statistics reflect 'the aggregate minimum housing requirements (as defined by policy) of a nation or region that are unlikely to be satisfied through market-provided housing'.

Housing needs assessment can apply to an individual or it can quantify the housing circumstances of a local, regional or national population in aggregate. Quantifying the scale of housing need in this latter way is valuable partly as a contribution to the broader objective of measuring overall population welfare—e.g. to inform change over time comparisons. A more

specific objective is to gauge, to cost, and to plan for the reduction or elimination of such need (Seelig, Milligan et al. 2008). Allied to this is the utility of local housing needs estimates in justifying the case for affordable housing targets via inclusionary zoning arrangements. As such arrangements operate in the UK, for example, a local authority seeking to impose affordable housing requirements on a private developer is legally empowered to do so only if the policy is founded on credible evidence of affordable housing shortage (Bramley, Pawson et al. 2004: 102).

The estimation of aggregate housing needs is related to—albeit distinct from—analytical techniques to gauge the 'housing requirements' of the entire population so as to assess the relative adequacy of the existing overall dwelling stock and the rate of additions to that stock. For example, the former National Housing Supply Council estimated that, in 2010, and taking account of 'total underlying demand and total supply' since 2001, a cumulative deficit of 186,000 dwellings had built up over this period (NHSC 2011).

In this study the specific relevance of housing needs assessment is to derive an estimate of the scale of affordable housing assistance required over coming years across Australia—in particular, the quantified need for additional rental homes affordable to lower income households. Recent examples of such analyses published overseas include reports on affordable housing need in Scotland (Powell, Dunning et al. 2015) and Wales (Holmans 2015). The Scottish study focused on the 2016-2020 period, projecting a need for an annual increment of some 12,000 affordable rental housing units during this period. The Welsh study projected future annual needs for additional affordable rental housing within a larger all-tenure housing requirement.

4.1.2 Housing needs assessment—approaches and data sources

Numerous methods have been developed to quantify aggregate housing needs at the national, regional or local scale. These draw on various types of data source, as shown in Table 9.

Table 9: Types of data source potentially valuable in informing housing needs assessment

Type of source data	Example(s)	Pros and cons
Administrative data	Social housing waiting list; Australian Institute of Health and Welfare (AIHW) specialist homelessness services statistics	Reflects only 'expressed demand'; derived data subject to jurisdiction-specific eligibility rules and data management practices; may reflect 'system capacity constraints', e.g. on available bed spaces
Census data and related projections	Detailed local statistics on population/household profile and housing affordability stress; household projections	Homelessness and population data from the census is invaluable to social planning, but updates only every five years is a limitation
Population surveys and street counts	Australian Bureau of Statistics (ABS) Survey of Income and Housing; local council homelessness street counts	Sample surveys may collect more detailed data on housing circumstances than census, but generate statistics only at national, state and capital city level; street count rough sleeper statistics achieve only patchy coverage

Source: authors.

The simplest approaches to housing needs assessment confine their attention to 'expressed demand' (e.g. public housing waiting list statistics) or what could be called 'manifest demand'; that is, enumerated homelessness. Within this, a valid distinction can be made between 'chronic' rough sleepers and those whose lack of accommodation may be more fleeting in nature.

More sophisticated techniques recognise the fundamentally 'multi-dimensional' nature of housing need (Bramley 2007) and also the distinction between an existing stock of need and the ongoing flow of newly arising need. UK approaches incorporating this understanding (Housing Corporation 2003; Bramley et al. 2006) often involve quantification of such projected flows over a defined future period, for comparison against projected flows of affordable housing supply over the same timescale—i.e. properties becoming available for letting (whether involving the re-allocation of existing homes or the first letting of newly built dwellings). Noting limitations in data quality as it relates to existing (backlog) need, Rowley et al. (2017: 13) argue that 'It is more practical to calculate the housing required to meet need arising from new household formation'. However, any methodology placing emphasis on this process will need to recognise the potential circularity involved where, for example, household formation rates are suppressed by the lack of housing opportunities.

Another subtlety recognised in more advanced assessment techniques is the possibility that some forms of housing need (e.g. disrepair) may be resolved for the occupying household 'in situ', whereas others (e.g. overcrowding) unambiguously call for an additional dwelling. Where the main purpose of a housing needs assessment is to estimate future requirements for additional provision, the kinds of 'needs' potentially solvable through in situ interventions may be excluded from the analysis. Thus, since Bramley's 'gross flows' model 'focuses mainly on the need for additional subsidised provision', it 'does not purport to measure needs related to house condition or unsuitability' (Bramley 2007: 9).

4.2 Housing needs assessment in Australia: recent practice

4.2.1 Official guidance

How have approaches to housing needs assessment played out in Australia? Important to emphasise here is that in referring to 'recent practice' we are—in the main—speaking of methodological approaches recently developed by academics and/or metrics cited in mainstream media. Although the 2008–2013 National Housing Supply Council existed to quantify Australia's housing requirements, government application or endorsement of specific housing needs assessment techniques has been extremely limited.

This differs from the situation in some comparator countries—notably the UK. Here, governments have from time to time commissioned national housing needs assessments—e.g. Bramley, Karley et al. (2006) and Bramley, Pawson et al. (2010). Perhaps more importantly, central government in the UK has traditionally expected local authorities to periodically assess housing needs and has provided detailed guidance on how this should be undertaken (e.g. Bramley, Pawson et al. 2000; CLG 2007). Over the past twenty years this activity acquired particular importance because of the requirement for credible evidence of unmet housing need in underpinning 'inclusionary zoning' affordable housing policies—as discussed above.

Perhaps the nearest equivalent to an officially promoted housing needs assessment methodology in Australia was that involving the NSW Government's guidance on undertaking housing market analyses, produced in association with its Housing Kit Database (Housing NSW 2006). However, NSW local authorities have been under no obligation to undertake such analyses and those that have voluntarily opted to do so, have not enjoyed any reward for the effort in terms of financial support or planning powers. Consequently there is a huge gap in Australia resulting from the general reluctance of governments to engage with this area. As

noted in a recent study, such needs assessment is a fundamental pre-condition for any meaningful affordable housing strategy that might be developed at national or state/territory level (SGS Economics and Planning 2017).

Not only academics have attempted to estimate the level of need for affordable housing; recently the superannuation industry has also contributed to the discussion. Industry Super Australia attempted to identify the level and type of investment required to fulfil Australia's need for affordable rental housing (ISA 2017). The authors note that Australia's overall residential housing stock has expanded by 17.5 per cent over the decade to 2016, but social housing by only 2.5 per cent. Considering that this period included the one-off Social Housing Initiative that is a particularly sobering observation.

ISA (2017) estimates a national shortfall in housing (really a shortfall in affordable, public, and community housing or 'assisted housing') of around 230,000 dwellings, mainly in NSW and Victoria. Quantifying the adequacy of supply is based on calculating a ratio between household formation and dwelling completions. On this basis, at a national scale, demand has outstripped supply for 10 years, since 2007. An increase in completions in 2016 brings new supply back into balance with growing demand. Implicitly, however, it would take several years of supply exceeding demand to eliminate the cumulative deficit which, according to the report, exists almost entirely within NSW and Victoria.

The report estimates that to remedy the identified 'assisted housing' (affordable, public, community) supply gap would cost governments $96 billion over 10 years. Even a social housing 'standing still' strategy would cost $20 billion over the next decade. This is supported by the AHWG's acknowledgement that there is an annual need for an additional 6,000 social housing dwellings simply to keep pace with population growth.

'Simply increasing overall housing stock will not ensure that more [affordable] housing becomes available. Instead, increasing the supply of [affordable] housing specifically is required' (ISA 2017: 1). Above all, therefore, 'A comprehensive, long-term commitment to addressing the supply of affordable rentals for low to moderate earners is required' (ISA 2017: 6).

4.2.2   Private rental housing stress

Beyond the ubiquitous references to social housing waiting list statistics, the 'housing needs' metric perhaps most widely cited in Australia is the shortfall in the number of private rental homes available and affordable to low-income renters. This census-based statistic, sometimes termed 'private rental housing stress' applies a methodology originally developed by the US Housing and Urban Development Department (HUD) in the 1990s (Nelson 1994), first applied in Australia by Wulff and Yates (2001) and later adapted by the National Housing Supply Council (NHSC 2012).[11]

From the most recent Australian application of the HUD model, Hulse, Reynolds et al. (2015) estimate the national shortfall in available and affordable private rental homes for lowest income (quintile 1 and quintile 2) households as 271,000 in 2011, up from 150,000 in 1996. The scale of this deficit reflects two factors:

- the gross shortage of private rental properties made available at rents within the means of lowest income renters (i.e. costing no more than 30% of gross household income for members of this group).

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[11] There are also similarities to the US Government's 'worst case needs' indicator, a survey-based measure of housing stress routinely reported to Congress. WCN applies to very low income renters which are either 'severely rent burdened' or occupying 'severely inadequate housing' (US Dept. of Housing and Urban Development (2015).

- the extent to which rental dwellings let at rents 'affordable' to lower income renters are unavailable to this group because of being occupied by moderate or high income tenants.

However, although a highly instructive measure of changing rates of 'housing stress', the shortfall of private rental homes available and affordable to low income renters statistic isn't an ideal metric for the estimation of additional social rental dwellings required. Firstly, it calibrates the scale of a problem at a point in time (at the date of a census) and doesn't provide an obvious basis for projecting the changing scale of the problem into the future. Secondly, the resolution of the measured shortfall could be partially achieved by simply re-arranging the distribution of low rent housing so that a greater proportion is (somehow) reserved for low-income tenants. Thirdly, it takes no account of the appropriateness of the low cost dwelling stock that does exist for the households who need it.

4.2.3   Measuring the relative adequacy of social rental housing provision

Adopting an approach more focused on quantifying the adequacy of existing social housing provision, Groenhart and Burke (2014) estimated the required size of Australia's national social housing sector implicit in the social housing eligibility rules defined by the Victorian State Government, and bearing in mind the housing circumstances of low-income private renters, measurable via the census. National 2011 census data was therefore utilised to identify private renters:

- Receiving 'low incomes' within the threshold for social housing eligibility in Victoria, and

- Paying rents equating to more than 50 per cent or more than 30 per cent of gross household income

While 465,000 income-eligible private renters were identified in total, this reduced to 288,000 when the 'paying more than 30 per cent of income in rent' criterion was added. Applying the 'paying more than 50 per cent of income in rent' criterion the number of 'social housing qualified' private renters was cut to 159,000. However, expanding Australia's social housing stock to accommodate even this restricted group would require increasing provision (including Indigenous housing, public housing and mainstream community housing) from 5 per cent to 6.8 per cent of all dwellings.[12]

On the basis of the less restrictive criterion proposed by Groenhart and Burke (i.e. including all income-eligible private tenants paying more than 30% of income in rent), the implicitly required size of Australia's social housing sector would equate to 8.4 per cent of all dwellings.[13] Expressed another way, actual provision in 2011 would have needed to be expanded by between 38 per cent and 68 per cent to accommodate enumerated unmet need. Importantly, Groenhart and Burke emphasised that their methodology took no account of the additional need for social housing arising from the 'actually homeless' population, nor the numbers living in poor conditions (e.g. severe overcrowding).

Again, however, while powerfully illustrating the order of magnitude of Australia's social housing shortfall, Groenhart and Burke's method lacks suitability for estimating the scale of the new provision program required to 'resolve housing need', assuming that this were to be achieved entirely by expanding the social housing stock. This is because, while the generated 'shortfall

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[12] Note that Groenhart and Burke's estimates as published have been slightly amended to include the entire stock of social housing as at 2011, taking account of Indigenous housing (state-owned/managed and Indigenous Community Housing Organisation-managed) as well as public housing and mainstream community housing).

[13] In a similar approach, SGS Economics and Planning (2016: 12) estimated 'the combined percentage of households that currently live in social housing or require an affordable housing response in Australia' as 12.5 per cent of all households.

estimates' relate to a point in time (2011), any such program would run for many years, during which new additional need would inevitably arise.

4.2.4 Quantifying 'unmet housing demand' relating at municipality level

A similar limitation applies to the 'unmet housing demand' estimation model developed by the Government of WA (Considine and Mewett 2015). Drawing primarily on census data, this approach generates a snapshot statistic that encompasses private renters living in unaffordable housing, together with homeless households lacking any accommodation or occupying non-private dwellings. Component 'housing needs cohorts' are also classified in terms of appropriate 'housing products' that might be suitable in each instance. For some (e.g. street homeless) it is recognised that their needs will only be met through social housing. Other 'needs groups'—e.g. lower income private renters in affordability stress—may contain households for whom less deeply subsidised housing could be suitable.

Designed to facilitate disaggregation of unmet demand to local government area level, the WA model can thereby generate an objective ranking of localities in terms of their relative claims for social/affordable investment prioritisation. Once more, however, because it is a 'stock' rather than a 'flow' approach to needs assessment, it is unsuitable for informing the scale of a social housing development program calibrated to resolve housing need over a given period.

4.2.5 Maintaining—or recovering—the share

Another approach to calibrating the necessary level of new (additional) social housing provision has been to use, as a benchmark, a given share of the total housing stock that such accommodation 'should' represent. Thus, in an analysis focused on NSW, Yates (2016) takes as a starting point the state's current (2016) level of social housing provision (4.8%). Factoring in expected household growth, the model estimates the annual level of growth required simply to maintain this share. For NSW, from a 2016 starting point and looking forward over 20 years, Yates estimated that 2,000 new social rental properties would need to be added to the stock annually.[14]

Beyond this, the Yates formula also added in the additional social housing supply that would be required to rehouse the increase in low-income tenants paying more than 30 per cent of income in rent, as projected across the relevant time horizon (20 years in this instance). This part of the formula was based on the observation that private tenants in housing stress represented 6.8 per cent of all NSW households in 2013/14, also factoring in the overall projected increase in households to 2036. Combining the two components of need as defined above, Yates estimated that 'a total of 4,900 [social rental] dwellings is needed each year, or some 100,000 over the next 20 years' (Yates 2016: 2).[15]

While embodying a logical approach to forward projection for a single state, the above methodology is not ideal for our purposes. The most significant issue is its foundation on the current level of social housing provision at the start of the projection period—levels of provision

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[14] A similar approach applied at the national scale by Lawson, Milligan et al. (2012: 10) concluded that, factoring in forecast population growth over the coming five year period, stabilising the social housing share of all dwellings at its (very low) 4.3 per cent would necessitate a net annual increase in provision of some 7,000 dwellings.

[15] Moreover, emphasizing the 'conservative' nature of this estimate, three qualifications were highlighted. First, because of the necessity for some level of stock vacancy to allow for changes of tenancy, the number of additional homes required will need to slightly exceed the number of additional households needing homes. Secondly, because some erosion of the existing social housing stock (e.g. due to demolitions) is inevitable, the gross number of newly built dwellings will need to exceed the net requirement, accordingly. And, thirdly, that the projected new provision needed for tenants paying unaffordable rents assumes no further deterioration in the incidence of rental affordability stress.

which in fact vary significantly across jurisdictions. In 2015, for example, the proportion of social housing ranged from 3.6 per cent in Victoria to 7.6 per cent in ACT and 8.9 per cent in NT.[16] Similarly, rates of need vary by jurisdiction (and within jurisdictions).

Another related approach has been to treat a given historic year as a 'year zero' when the proportion of social housing was at an acceptable level. Using 1996 as year zero has been justified on the basis that this was the point at which Australia ceased to have a routine public housing construction program. A 1996-based provision analysis is implicit in National Housing Supply Council thinking (NHSC 2010: 89). More recently, Yates (2018) adopted a similar approach in estimating the number of additional social housing dwellings that would be required to return the national social housing stock to the 6 per cent 1996 benchmark level. Over a 20-year period, this would call for an increase of some 330,000 additional social housing dwellings.[17]

4.2.6   Simulation model

In a notable methodological departure from previous Australian practice, an AHURI report by Rowley, Leishman et al. (2017) presents a 'simulation model' for estimating housing needs. This seeks to apply principles originating in Bramley's 'gross flows approach' (Bramley, Karley et al. 2006; Bramley, Pawson et al. 2010). Designed to enumerate 'the [housing] supply required to meet broad affordable housing demand' (Rowley, Leishman et al., 2017:1), the simulation separately models housing market conditions, the labour market situation, household formation and tenure choice. It generates estimates of newly arising need which are differentiated between:

- New households able to meet housing need via market options

- Residual need: (a) potential households unable to access market housing; and (b) households requiring assistance in the private rental market (to avoid rental stress)

In 2017, the base year, the model projects 527,000 potential households unable to enter market housing. Most 'will remain unformed [as households] unless new affordable housing becomes available' (ibid p40). With little ambiguity, this metric relates to the need for additional dwelling provision that can be made available at a sub-market rent—whether this is achieved through the development of social housing or private rental supported by subsidy sufficient to facilitate affordability for low-income households. In addition, the model estimates 806,000 private tenants needing rent assistance to avoid rental stress.

According to projections modelled under the central scenario in terms of housing and economic conditions in the period 2017–2025, the total number of households in housing need is forecast to increase from 1.3 million in 2017 to 1.7 million in 2025. While this will be taking place against the backdrop of generally rising population, the incidence of housing need—as measured in this way—is projected as rising from 14 per cent of all households to 16 per cent. There is also substantial variation across the country, with the incidence of housing need apparently falling significantly in Queensland and Western Australia, while the percentage rate of need is projected to remain fairly steady in South Australia, Tasmania, ACT and NT. In Victoria and especially in NSW, large increases in the incidence of need are projected.

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[16] Derived from 2015 'social housing' stock figures (including Indigenous housing) published by AIHW (Housing Assistance in Australia 2017) as related to 2016 'total households' figures from the ABS Census.

[17] Note that the Yates (2018) analysis incorporated a separate estimate for the amount of additional 'affordable rental' housing needed over the next 10-20 years—i.e. housing made available at below market rents targeted at low income workers (as opposed to the very low income earners towards whom social housing is targeted). Combining social and affordable housing needs, the Yates methodology estimated a total national need for 580,000 additional below-market rental homes over the period 2016-2036.

However, while innovative in methodology, the Rowley, Leishman et al. model is not designed to generate unmet housing need statistics that could be readily used to inform an affordable housing development program (as exemplified by the 2015 Scotland and Wales analyses cited above). If the National Housing Supply Council is ever re-established, it would be highly desirable for its remit to include the development of such a model.

4.3 Need-based estimate of social housing construction

The above overview of recent Australian practice on housing needs assessment shows a range of approaches. The method we employ below borrows from the most relevant of these (particularly Yates 2016) but is adapted for readily available data and one particular purpose— to provide a simple yet defensible basis for estimating the scale of social housing construction. While not particularly sophisticated, our focused approach incorporates a number of key components.

First, it accommodates a 20-year projection period for this investment and supply (2016–2036), incorporating both current (as of 2016) and projected need arising over that period. Second, it generates housing need estimates at smaller geographical scales. This is important for costing a social housing program because the unit cost is very different in, say, metropolitan Sydney and regional Tasmania. Third, it combines the need generated from different segments of the population, which comprises three main sources:

- the currently met need (i.e. existing social renters) projected forward as a share of households;

- the 'manifest need' (i.e. homeless populations), both current and projected; and

- the 'evident need' (i.e. those identified as having housing needs unmet by the market, but outside the above groups), both current and projected. This is operationalised as households that are on a low income (approximately the bottom quintile for the relevant household type) and in rental stress (in private rental and paying more than 30 per cent of income on rent).

This approach extends housing need beyond explicitly expressed need (i.e. social housing wait lists). There is also likely a large overlap of expressed need and any other housing segment identified as part of housing need estimate. As such, we do not enumerate expressed need, but instead identify the evident need.

Combined, these three populations accounted for around 9.4 per cent of all households in Australia in 2016, but the proportion varied by region. It is assumed that the proportion will hold constant in each region as overall household numbers grow over the next 20 years. The growth rate in each region (based on ABS series 3236.0) also varies. As such, the estimated need includes a projection based on the regional share of households, and projected regional household growth. Table 10 summarises that estimated need at a more aggregated level, with details of the method and findings explained further below. Full data tables are in Appendix 4.

Table 10: Summary of current and projected housing need estimates

Section of Australia	Social housing share		Manifest need		Evident need		Total need 2016–2036
	Current (met)	Projected to 2036	Current	Projected to 2036	Current	Projected to 2036	
	('000)	('000)	('000)	('000)	('000)	('000)	('000)
Greater Sydney	85.4	31.6	11.6	4.3	67.9	25.2	140.6
Rest of NSW	48.3	7.3	3.5	0.5	52.8	8.0	72.1
Greater Melbourne	46.5	20.6	8.2	3.6	65.9	29.2	127.5
Rest of Victoria	21.1	4.1	1.7	0.3	27.0	5.3	38.5
Greater Brisbane	32.3	15.4	3.7	1.8	39.4	18.8	79.2
Rest of Qld	35.3	14.1	5.0	2.0	53.4	21.3	95.7
Greater Perth	24.5	17.0	2.1	1.5	28.2	19.6	68.3
Rest of WA	14.9	6.2	1.5	0.6	7.0	2.9	18.2
Greater Adelaide	33.8	8.5	1.9	0.5	23.7	5.9	40.4
Rest of SA	9.7	0.9	0.6	0.1	7.2	0.7	9.5
Greater Hobart	5.7	1.0	0.3	0.1	4.4	0.8	6.6
Rest of Tasmania	6.4	0.6	0.3	0.0	6.1	0.6	7.6
ACT	9.9	4.1	0.6	0.3	2.5	1.0	8.5
Greater Darwin	3.1	1.0	0.7	0.2	0.9	0.3	3.2
Rest of NT	7.7	3.7	4.8	2.3	0.3	0.2	11.3
Australia	**384.6**	**136.2**	**46.6**	**18.1**	**386.8**	**139.7**	**727.3**

Source: authors.

The implication of this estimate is that, at the national scale, eliminating unmet need by 2036, through provision of just under 730,000 additional social housing dwellings, will require expanding stock to nearly three times its 2016 size of just over 380,000 dwellings (census-based estimate). Proportionate to the current level of provision, this would call for particularly large programs of stock addition in Melbourne, Perth and regional Queensland. Conversely, additional provision required in Canberra, Darwin and regional SA would be relatively modest. At a national scale, our 'bottom-up' estimate of required additional social housing is around double the comparable Yates (2018) estimate of the 2016–2036 expansion of social housing (330,000 dwellings) necessary to re-establish the 6 per cent social housing share of total housing as at 1996.

Nationally, the addition of social housing units on the scale identified as necessary through the above analysis equates to an annual average growth of 5.5 per cent over the existing stock. Figure 6, below, shows how this additional growth accounts for both current unmet need and future projected need (left), based on a proportionate share of future household growth (right).

This would amount to a more than tenfold increase on recent levels of social housing construction (ABS 8752 Table 33), and would represent around one quarter of total national house building that might be expected over the 20-year period.[18]

Figure 6: Social housing need met by 2036 (left), and as a proportion of all households (right)
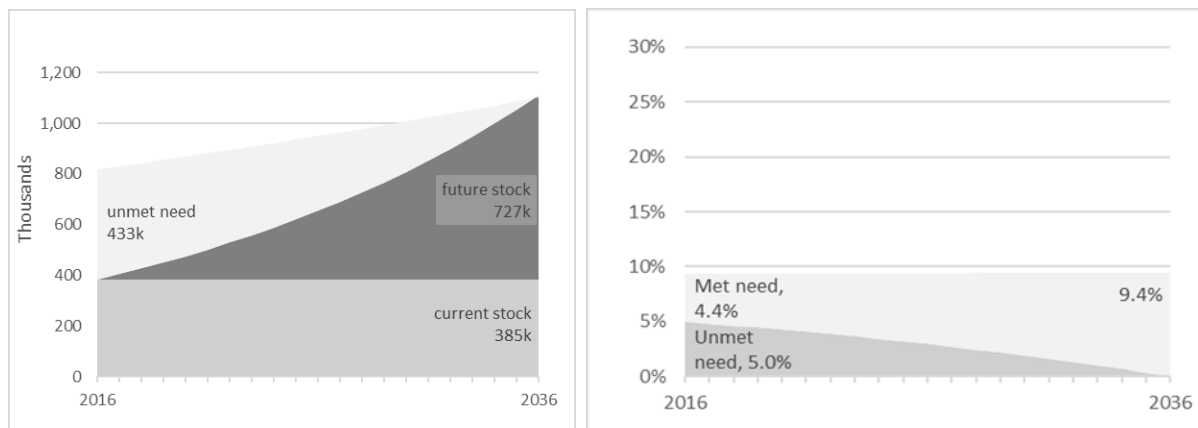
Source: authors.

By way of benchmarking, to simply prevent further deterioration in the current level of social housing shortfall, of over 430,000 dwellings (manifest need plus evident need—see Table 10), there is a need for a national program producing just over 290,000 homes over the projection period, or nearly 15,000 per year. This is more conservative than the 20,000-dwelling annual target of the 'affordable rental dwellings' recently estimated by Yates (2017: 29) as the required number needed to avoid any further worsening of the current shortage.

4.3.1   Currently met need and 'maintaining the share'

Enumerating existing social rental households is possible through census data. We identified households[19] categorised as renting from a state/territory housing authority or a housing co-operative, community or church group. This was adjusted to account for households without a known tenure, assuming the same tenure distribution among those households.

Household growth projections are also available from ABS (3236.0), for metro and non-metro regions of each state. We identified a 20-year growth rate by extracting the household numbers from 2016 and 2036 estimates, and calculated the number of new social housing dwellings in each geography, assuming the share of households in social housing will be maintained. Figure 7 shows the process for Australia-wide figures.[20]

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[18] As a benchmarking reference, UK local authorities and not-for-profit housing associations completed 35,000 homes in 2017—19 per cent of total national housing completions www.gov.uk/government/statistical-data-sets/live-tables-on-house-building.

[19] Households are defined in this report as occupied private dwellings, excluding visitor-only households.

[20] Note the national estimates in Figures 7 to 9 are a demonstration of method, and vary a little from those used in the analysis, which are calculated separately for each region and, as in Table 10, aggregated.

Figure 7: Method for calculating, and Australia-wide estimate of, current social housing share

A	B	C	D	E
All households 8,711.7	Known tenure 8,064.7	Social rent 354.2	Social rent share 4.4%	Met need 382.7
2016 Census	2016 Census	2016 Census	C/B	A*D

F	G	H	
2016-2036 growth 37.3%	Projected need (maintain the share) 142.8	Average annual construction 7.1	*All counts in thousands*
ABS 3236.0	E*F	G/20	
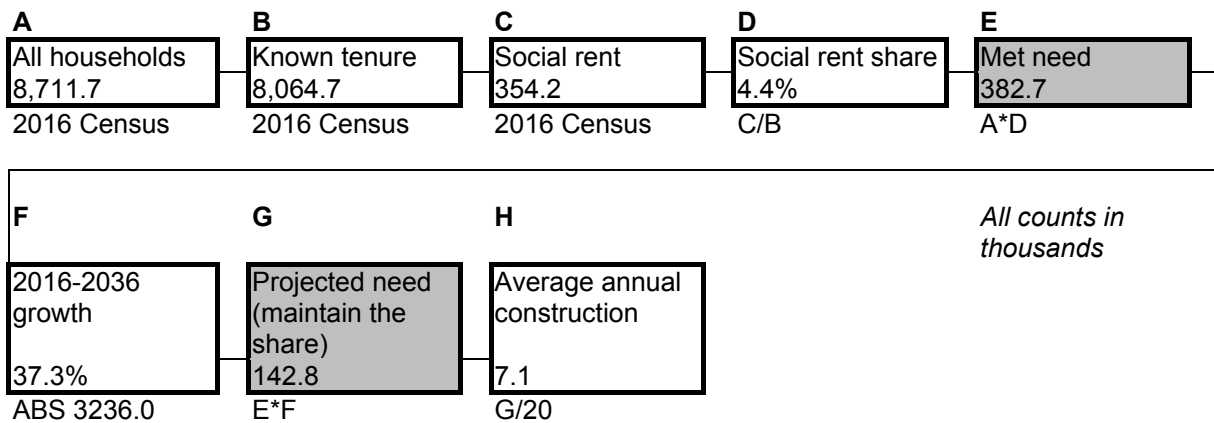
Source: authors.

This approach does not account for scope to better utilise existing social housing stock (i.e. possible gains from more efficient management of empty or under-occupied homes), potentially overestimating the need for new dwellings. Conversely, there is no allowance for the necessary demolition and replacement of the social housing stock in existence at the start of the projection period. As such this is an estimate of net new dwellings, with required gross dwelling construction being higher. Without knowing the age and condition of existing stock across Australia it is not possible to easily estimate the cost of replacement in the 20-year period.

Another limitation of this approach is that 'maintaining the share' in disaggregated geographies will, by itself, entrench uneven distribution of social housing. However, where an under-representation of social housing translates to a higher unmet need (through either homelessness or higher levels of rental stress) the enumerated need in those components will go some way to redress the uneven distribution.

4.3.2 Homelessness and 'manifest need'

Estimates for homeless populations are provided by ABS (2049.0) at small geographies. We adjusted this population to a housing need estimate by dividing by 2.5, the average household size. And, as with the met need, we projected this forward using household growth estimates. The average annual construction estimate assumes the backlog of current need will be met over the 20-year period. Figure 8 shows the process with Australia-wide figures.

Figure 8: Method for calculating, and Australia-wide estimate of, 'manifest need'

A	B	C	D	E
Homeless persons 116.4	Current manifest need 46.6	2016-2036 growth 37.3%	Projected manifest need 17.4	Average annual construction 3.2
ABS 2049.0	A/2.5	ABS 3236.0	B*C	(B+D)/20
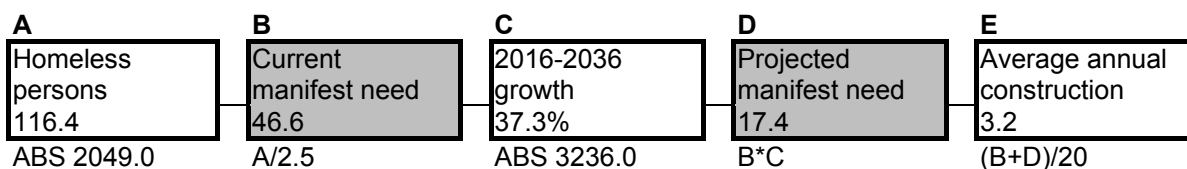
All counts in thousands

Source: authors.

Of note, homelessness figures are categorised from residing in 'improvised' dwellings through to 'severely crowded' dwellings. In the 2016 estimates, the plurality of enumerated homelessness (43%) related to severely crowded dwellings. By definition, these were large

households. The approach here will over count the housing need from this cohort, as it assumes all occupants require new dwellings. In reality crowding can be alleviated with only some occupants being rehoused. Conversely, this component of need does not account for non-homeless persons living in 'marginal housing', which in 2016 was almost all (83%) in crowded (but not severely crowded) dwellings. In the 2016 figures, there were four additional people in marginal housing for every five enumerated homeless people.

This feature of the enumerated homeless living in large households also qualifies the assumption that the homeless population will occupy homes at the average household size (2.5 persons). However, the estimates are translated to a cost projection based on average dwelling sizes. It is assumed that a comparable cost estimate will be generated if fewer, but larger, dwellings are generated to match this particular housing need.

In one final note, we tested the extent to which manifest need and evident need, described below, overlapped. The counts are taken from different sources, so could potentially result in double counting. However, analysis revealed that severely crowded dwellings—the most likely source of any significant overlap—were almost all outside the bottom quintile of households. This is likely due to the fact that the overcrowding is an attempt to share housing costs among more income earners, an alternative to going into housing stress. A proportion of crowded dwellings were social rentals, but the need for additional social rentals implies this is not a double count.

4.3.3   Rental stress and 'evident need'

Outside the first two categories already enumerated is a recognised cohort of households whose housing needs are not met by the market; and so, by implication, require some form of housing subsidy. We have operationalised this 'evident need' as non-student, private rental, low-income households in rental stress.

Low-income households are defined as approximately the bottom quintile, by household income, of three household types: singles, adult groups (almost all couples) and families (all households that include children).

The use of three household types is to ensure that larger households are not excluded from the bottom quintile of households by income. In other words, by raw household income, one of the highest income households among single-person households will be lower than one of the lowest income households among large two-income family households. Given that we are looking to identify households struggling to find suitable accommodation in the private rental sector, identifying the bottom quintile of separate household types is considered more appropriate.

The exact threshold is determined by household income brackets reported in census data, as follows:

- Single person households: earning up to $400 per week (21% of singles)
- Adult group households: earning up to $800 per week (23% of adult groups)
- Family households: earning up to $1,000 per week (19% of families)

This income threshold is quite conservative for 'low-income households', and it is expected that these household will need housing subsidy, and that they would be eligible for Commonwealth Rental Assistance (which is anyone renting and receiving a government payment or eligible for more than the base rate of the family tax benefit). In 2016, the basic age and disability support pension was just under $400 per week (DSS 2018), and the unemployment or sickness benefit was around $260 per week (DSS 2018a). Similarly, the threshold for the maximum family tax benefit (part A) was around $1,000 per week (although families earning under $1,800 per week

were eligible for more than the base rate for this tax benefit, and therefore CRA-eligible (DSS 2018b).

Private rental households are all renting households, excluding social renters defined above. Rental stress is defined as paying more than 30 per cent of gross household income as rental payment. The proportion of households in rental stress is calculated for each combination of reported household income bracket and rental payment bracket, assuming a flat distribution across the ranges of both brackets (following van den Nouwelant, Crommelin et al. 2016).

The counts were adjusted to exclude student households, which are not usually considered candidates for social housing, although they are also susceptible for high housing costs. Students also have high rates of nil reported income in the census, below the rate of government student allowance, suggesting other sources of financial support. Methodologically, this adjustment was made by calculating, and then excluding, households with a full-time student as the household reference person, for each combination of income bracket, rental payment bracket, household type, and region.[21]

Private rental households categorised by the above household types, rental payments, income, and student enrolment of household reference persons, are all available through the census. As with social housing, we adjusted estimates to account for households with no known tenure, income or rental payment, assuming the same distribution among these households. And as with manifest need, average annual construction estimates assume the backlog of current need will be met over the 20-year period. Figure 9 shows the process with Australia-wide figures.

Figure 9: Method for calculating, and Australia-wide findings of, 'evident need'
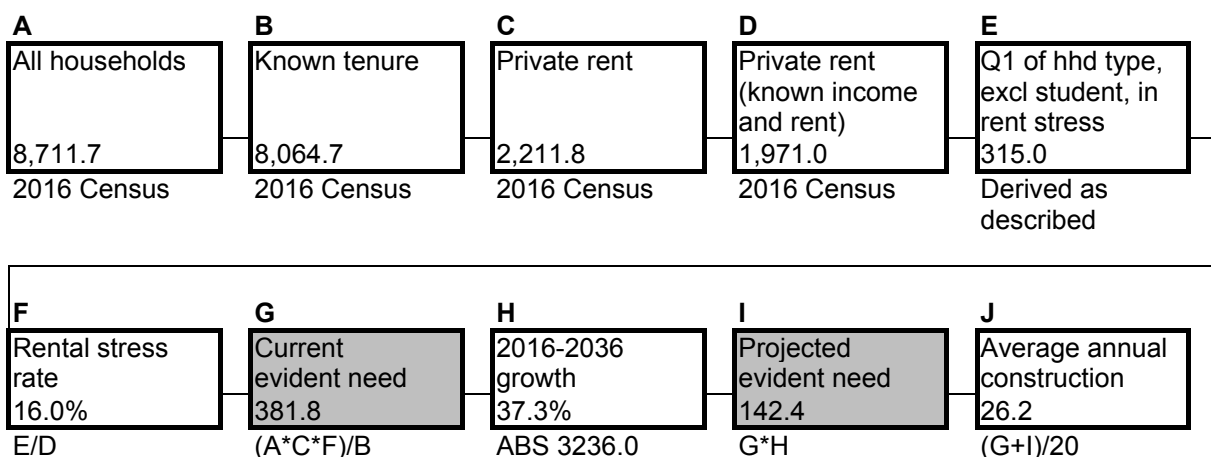
All counts in thousands

Source: authors.

At around 525,000 dwellings, 'evident need' is nearly three quarters of the total housing need estimate. Over half of the estimated need for new dwellings is to meet the current backlog alone. Some factors are therefore worth examining.

First, demarcating household types, and the income threshold for each in this way, does not result in households with a high income being considered in need of social housing. As noted,

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[21] These counts were significantly disaggregated, meaning the adjustment rate was susceptible to randomisation when counts were low. However, in those instances where counts were low, any error will necessarily have little impact on the aggregate estimates.

households are all anticipated to be eligible for rental assistance. Also, $1,000 per week (the highest income for any group considered) is still below the third decile by household income across all households. Nor does it increase the overall estimate. Alternative methods, omitting household type segmentation, produced similar estimates.

Second, this estimate is considered to translate to a demand for social housing, even though it accounts for all households likely to require housing assistance of some kind to meet their housing needs, not just those seeking social housing. Prima facie, the households considered are all in rental stress despite likely being eligible for (and perhaps even recipients of) rental assistance. The needs of these households are not being met by the private rental market, and therefore warrant consideration for social housing.

Third, there is a question of whether it is appropriate to project current levels of rental stress over the next twenty years. It has been acknowledged widely that rental affordability is currently very low. If this is a cyclical pattern, and affordability improves over the coming years, then the need estimate will be too high. On the other hand, if this is a structural shift, and both rates of private rental and the rates of housing stress associated with that tenure continue to rise, the need estimate will be too low. It is not possible to speculate on future trends, but affordability of rental has deteriorated in recent years, and so can reasonably be expected to continue to do so in the immediate future. Overall, the approach does provide a reasonable estimate for housing need over the next 20 years.

4.4 Estimating the construction and land costs for social housing

To calculate the necessary capital investment from government to meet the scale of social housing need as analysed above, it is first necessary to estimate the overall capital cost of delivering new social housing stock. A key challenge is that, to be realistic, unit cost estimates must factor in widely varying construction and land procurement costs applicable in different parts of Australia. Additionally, there is a need to recognise and account for the differing social housing 'built forms' that would be appropriate in different geographical settings across the country (e.g. detached houses in outer suburban and most non-metropolitan settings, and low or high-rise apartment blocks in inner metropolitan areas).

Our method here draws on quantity surveying standards (Rawlinsons 2017) to estimate construction costs, and a 'residual land value' calculation, based on a market development, to estimate land costs. That is, a land price is calculated based on what can be paid by a typical developer/builder seeking typical returns, after incurring typical costs, and building a typical dwelling on a typical parcel of land. More detail on this can be found in Appendix 5.

The estimated unit costs have been aggregated in Table 11 to the 15 spatial units enumerated above, and are outlined for each region alongside need estimates in Appendix 4. To illustrate the range of estimated procurement costs across Australia, the total land and construction cost is estimated to range from only $146,000 in certain regional areas of South Australia (where the dwelling concerned would be a small detached house), to $614,000 in Sydney's north west (where the dwelling concerned would be a small attached dwelling). As in the previous section, we first present our summarised estimates, before explaining in more detail how these have been generated.

Table 11: Estimated construction cost, and dwelling type distribution

Section of Australia	Share of needed growth	Range of estimated cost/unit	Distribution of unit type			
			detached	attached	low-rise	high-rise
Greater Sydney	19.3%	$210k–$614k	0%	21%	60%	19%
Rest of NSW	9.9%	$173k–$393k	79%	21%	0%	0%
Greater Melbourne	17.5%	$220k–$442k	0%	70%	13%	17%
Rest of VIC	5.3%	$170k–$203k	100%	0%	0%	0%
Greater Brisbane	10.9%	$208k–$357k	15%	61%	23%	0%
Rest of QLD	13.2%	$179k–$285k	72%	28%	0%	0%
Greater Perth	9.4%	$184k–$316k	0%	92%	8%	0%
Rest of WA	2.5%	$162k–$265k	100%	0%	0%	0%
Greater Adelaide	5.6%	$184k–$261k	0%	83%	17%	0%
Rest of SA	1.3%	$146k–$157k	100%	0%	0%	0%
Greater Hobart	0.9%	$271k	100%	0%	0%	0%
Rest of TAS	1.0%	$172k–$189k	100%	0%	0%	0%
ACT	1.2%	$418k	0%	100%	0%	0%
Greater Darwin	0.4%	$256k	0%	100%	0%	0%
Rest of NT	1.5%	$186k	100%	0%	0%	0%
Overall	100.0%	$146k–$614k	32%	44%	18%	7%

Source: authors.

The land and construction costs are based on a 'typical' neighbourhood to represent the housing market of each region.[22] Identifying such neighbourhoods was an iterative process, with the objective being a neighbourhood with:

- the average built form for the region (operationalised as the dwelling density in the household weighted median neighbourhood: i.e. about half the households in the region are in either higher or lower density neighbourhoods);

- the average house price for the region (operationalised as the household weighted average of the median sales price in each neighbourhood);

- a nearby regional centre, for regions outside the major metros, that has a construction cost loading in Rawlinsons (2017); and

- a sufficient volume of apartment sales, when that is determined to be the built form norm.

The neighbourhoods used and the associated regional centre, outside the major metros, are detailed in Appendix 4. For each of these neighbourhoods, two data items were obtained: a market price of the typical dwelling (from domain.com.au; where an SA2 incorporates multiple suburbs, the first suburb was typically used, unless insufficient data was available); and a

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[22] Again, SA4s are used as regions, with SA2s used as neighbourhoods.

construction cost for the typical dwelling (calculated from Rawlinsons 2017). Market price was obtained for both houses and apartments, and construction costs were obtained for four built forms: detached and attached houses, and low-rise (walk-up) and high-rise apartments (see Appendix 4 for APM figures for each SA4 and Appendix 5 for construction costs for each major capital city, derived from Rawlinsons 2017). From these two data items, along with assumptions about other land holding, financing and sales costs, taxes and professional fees, a land value was derived. Further detailed assumptions and calculations in the residual land value calculation are detailed in Appendix 5.

Two adjustments were made to this estimated land cost. First, when a lower-density built form—compared with the identified typical built form for the neighbourhood—commands a higher land value (per square metre), this is taken to be the price-setter for land cost. For example, in some neighbourhoods that were identified as low-rise apartment typology, high house prices resulted in a higher land value. This affected 18 of the 88 SA4s. Second, a floor of $20,000 was set for land costs of a market dwelling; this affected 15 of the 88 SA4s. These were all regional (and fairly remote) towns.

In practice, for both these adjustments, a development of the identified typical built form would likely pay for land at this adjusted rate, offset by lower developer margins, if any, (i.e. self-build) and lower construction quality (and so costs). In some cases, development of the identified built form might not be feasible under these conditions.

Social housing is assumed to be a smaller product than the market median built form. So the land value per social dwelling is adjusted for an anticipated higher yield compared with typical market dwellings (i.e. social housing will be slightly smaller units or on slightly smaller land parcels). Also, a separate construction cost is calculated (based on Rawlinsons 2017) for a similarly discounted social housing product for each region (although construction quality is not compromised). The social housing units modelled were:

- Detached: 2-bed house (100 sqm) with 1-car garage, medium quality materials, 500 sqm of land, 120 sqm landscaping, 1-year construction

- Attached: 2-bed house (100 sqm) with 1-car garage, medium quality materials, 250 sqm of land; 120 sqm landscaping, 1-year construction

- Low-rise: 2-bed apartment (75 sqm) in walk-up block (< 4 storeys) of 18 units, with 0.5 at-grade car spaces/unit, medium quality materials, 750 sqm of land with 50 per cent landscaped, demolition of two single dwellings, 2-year construction

- High-rise: 1-bed apartment (50 sqm) in lift-accessed block (> 4 storeys) of 75 units, with 0.5 underground car spaces/unit, medium quality materials, 1,000 sqm of land with 50 per cent landscaped, demolition of commercial building, 3-year construction

Multiplying the social housing needs estimates, as summarised in Table 10, and the estimated per unit development costs, as summarised in Table 11, (both outlined in detail in Appendix 4) produces an implicit national unit procurement cost of around $270,000. This figure conceals hugely varying construction and land costs across the country (as shown in Table 2), as well as the varying growth rates in different markets that mean the average unit cost in each year would vary (from $267,000 in year one to $273,000 in year 20; all in 2017$). Also, costs of land and construction will not necessarily grow in line with inflation, meaning their effective cost will differ from this gross weighted average. This is outlined in the next chapter, and results in a slightly different average unit cost in that analysis (of around $262,000 for year one).

4.5   Potential rental payment contributions

It is important to emphasise that the development costs inferred do not represent the 'cost to government', which is explored in the next chapter. Even at the low rents that need to be charged to preserve affordability for low-income social housing tenants, there is potentially scope for social landlords' rental income to generate a small surplus on operational management costs so that a limited amount of private finance (development debt) could be supported.

For example, the Affordable Housing Working Group established by the Council on Federal Financial Relations posited a social housing 'financing gap' of 60 per cent of procurement costs (AHWG 2016: 14). In other words, rental income could support debt equating to 40 per cent of such costs. On this basis, only 60 per cent of our estimated program procurement costs would be a direct 'cost to government' needing to be met through some form of capital grant or other subsidy. This is further investigated in Chapter 5.

As a final preliminary exercise, the average household rental contribution for each region (SA4) was calculated from census figures, as well as the proportion of households across all sources of need that are anticipated to be eligible for rental assistance. To calculate the rental payment, a single income was allocated to each household income bracket, a weighted average from the counts of the existing social rental households and the 'evident need' households in each bracket calculated, and the result converted to 30 per cent of this income. The income allocated is generally the midpoint of the bracket, except for households on negative, nil or $1–149, which is allocated an income of $90. This is to account for the fact that incomes in these brackets are below minimum unemployment benefits (and, indeed, any other welfare payment), so likely under-reported or at least below what that household would be eligible to receive. To calculate the rate of eligibility for rental assistance, the proportion of current social housing tenants earning over $1,000 per week was excluded.

Incomes of the manifest need are excluded from this calculation. As already noted, household incomes of the 'manifest need' cohort are either inflated through severe crowding or not available when individuals are not allocated to households (as defined here). It is also the smallest source of housing need, so unlikely to affect overall averages even if the incomes of this group are materially different.

The results of this calculation are included in Appendix 4, with the average rental payment estimated to range from around $130 per week in inner Sydney, Melbourne and Perth, to over $170 in parts of South East Queensland. Other than these outliers, 79 of the 88 regions had estimated average payments within $15 of $155. The estimated rates of eligibility for rental assistance range from under 80 per cent in some regional centres (e.g. South East Tasmania and the Murray region) to nearly 100 per cent in some remote areas (e.g. Outback WA and NT). The variation in estimated eligibility rates was not large, with 72 of the 88 regions within the 80 to 90 per cent range.

5　Evaluating alternative investment pathways

- This chapter evaluates social housing and infrastructure funding approaches using a transparent assessment criteria extended by financial modelling.

- To determine the capital investment required, the cost of delivering new social housing stock has been calculated for different housing forms and land markets, drawing on quantity surveying standards (Rawlinsons 2017), and a 'residual land value' calculation, based on a market development, to estimate land costs.

- Unit production costs vary substantially between $146,000 and $613,000 for various dwelling types in different land markets.

- The level of investment required, addressing established need and estimated cost of social housing in different housing markets, is significant and varies spatially.

- Affordable rents can only cover part of this cost and a subsidy will be required to fill the gap. The magnitude of the subsidy required depends on the costs of equity and debt as well as key land valuation and planning policies.

- Five investment pathways have been modelled to enable a comparison of their costs to government.

- Overall, the capital grant pathway is more cost effective than the operating subsidy model. Further advantages and disadvantages have been evaluated using a customised framework.

5.1　Approaches to evaluation in infrastructure and social housing investment

Australia requires a social housing investment pathway that is capable of delivering the most efficient form of investment over the longer term to meet the need for additional social and affordable housing and improve the existing social housing asset base.

The choice of financing instruments is often opaque and politically contentious. There are many competing interests and ideas about the role of governments, investment and markets. The varying costs and benefits of using different financing instruments can also be allocated in different ways between stakeholders.

Good evaluation aims to inform policy makers of the most desirable pathway to raise capital responsibly, transparently and accountably in the interests of both current and future generations (Henn 2015: 5–6). Ideally such a framework 'consists of the concepts, classifications, criteria and impact assessment method required to perform an assessment of a range of financing approaches'.

> *'the way in which public infrastructure projects are financed is critical. Such a perspective effectively accords with the view that financial markets are imperfect, and therefore the net cost of financing differs by instrument.' (Henn 2015)*

Evaluation frameworks focusing on alternative financing instruments for infrastructure, comparing the cost of government reserves, government borrowings, special purpose bonds

and private equity are rare. Unfortunately, there is no agreed approach to evaluating financing alternatives, even though their costs and benefits to the public and private stakeholders vary considerably and over time.

There also is a need for a financial evaluation framework that is fit for purpose (Productivity Commission 2014: 6) and relevant to the form of infrastructure provided. Several financial valuations have been applied to social housing—the following chapter reviews their contribution and incorporates relevant insights to build an evaluation framework for Australian social housing.

This chapter addresses the third research question: What is the most effective combination of financing instruments and institutions to deliver required housing outcomes based on defined policy criteria and cost modelling? We have utilised the Affordable Housing Assessment tool, developed from concrete research of social housing projects, to model the cost to government of different financing approaches.

5.1.1   Insights from evaluation of other infrastructure

Policy makers and treasury officials are constantly learning from international experience and it is now more broadly appreciated amongst governments that 'there is no free lunch' with PPPs. Evaluation frameworks are becoming crucial for decision makers as choices between pathways have ongoing implications for all parties involved: governments, consumers, citizens and investors.

As raised by the Productivity Commission, there is a need for a distinct, systematically consistent, comprehensive and multi-dimensional economic framework for selecting the best financing solution for specific forms of public infrastructure. We do not intend to duplicate the forthcoming related research investigating economic frameworks for appraising social housing as infrastructure and the role of various forms of assessment (Dodson and Denham 2018) and below are a selection of the evaluative frameworks applied. Their advice has informed the development of a customised framework for evaluating alternative investment pathways for social housing.

Following critical assessment of the UK's Public Finance Initiative, the National Audit Office (2015) recommended that government review the long term consequences of financing alternatives, including the dual impact on departmental balance sheets and consumer bills (NAO 2015: 10). It specifically recommended the following:

Improve the transparency of capital spending data.	• Trends in historical and forecast capital investment, and in the mix of financing and funding models, would be more readily observable if government reviewed the various public data sources and increased their consistency and completeness, which may support long-term planning.
Improve decision-makers' access to the terms of private finance deals.	• Central collection and distribution of financial close data, including all PFI and consumer-funded PPP projects, could improve the government's understanding of the relationship between project risks and cost of capital, reveal more opportunities for savings and could be incorporated into refreshed value-for-money assessment guidance.
Facilitate direct comparisons between the performances of similar projects with different financing choices.	• Detailed comparisons between the benefits and costs of alternative procurement decisions, such as individual cost items, asset quality and performance, and maintenance standards, could improve decision-making and increase confidence in the value-for-money

	assessment and benefits of long-term contracts with private sector partners.
Review the budget-setting process to create greater flexibility to exploit the government's collective advantage in financing.	• Revisions to the budget-setting process and greater flexibility to reconsider public finance in the period between budget-setting and financial close could reduce exposure to adverse developments in financial markets.
Take steps to achieve further savings from operational private finance contracts and consider the benefits of greater flexibility in future contracts.	• Opportunities to refinance and renegotiate contracts to allow for changes in customer requirements may represent value for money provided penalties and other costs are not excessive.

Australian evaluations of alternative funding and financing pathways have been reviewed for specific forms of transport infrastructure. Henn (2012) stresses the importance of intangible, often unquantifiable criteria that must be examined qualitatively and criticizes reliance on the minimal and narrow quantitative evaluations relied on in purely financial evaluations. Industry led approaches to evaluations in the financing for High Speed Rail by Henn (2012) do use qualitative indicators and Henn's summary of those used by consultants follows.

- Effectiveness

- Efficiency

- Equity

- Stability/reliability

- Administrative burden

- Compliance costs and certainty

- Accountability and transparency

- Stakeholder support

- Protection of the public interest

- Value for money

- Appropriate public control/ownership

- Accountability

- Fair, transparent and efficient processes.

5.1.2   Financing attributes of an evaluation framework

The cost of private finance (such as UK's PFI) compared with direct public investment has been a focus of several evaluations (NAO 2015: Edwards, Shaoul et al. 2004; Blanc-Brude, Goldsmith et al. 2006; Pollock, Price et al. 2007, Hodge and Greve 2009). In the main, direct public investment is less expensive for governments with strong stable tax revenues, able to repay their debt obligations (NAO 2015; 2018). To improve the rigour and quality of evaluations of infrastructure finance, Henn (2015) also puts forward the Multi-Criteria Financing Appraisal (MCFA) framework, which is worthy of further elaboration.

MCFA combines two components: a monetary appraisal of measurable performance indicators and a qualitative assessment of intangible aspects, as detailed below. Given our focus on cost effective investment, monetary performance indicators are defined as follows:

Table 12: Monetary performance indicators

Cost Elements		Performance Indicators	Characteristics
Cost of capital	Bonds	• General purpose bonds: 10 year government bond rate • Specific purpose infrastructure bonds: 10 year government bond rate upwardly adjusted to account for increased credit risk.	• For reserves, the cost of capital is derived from the opportunity costs of projects not being pursued. Financial returns estimated to be between GDP rate and gross stock market returns for 10 years. • Government-issued specific purpose infrastructure bonds typically involve interest costs of around 1 to 3 per cent higher than a comparable government general obligation bond. • SPI bonds have different finance servicing costs, PPP investors do not have recourse to government's general taxation funds, or the liquidation of the assets financed. • Equity is the riskiest form of investment, demanding a high premium
	Loans	• Commercial bank loans: Prime rate charged by commercial banks.	
	Reserves	• Economic Internal Rate of Return (EIRR) of project(s) not being pursued.	
	External equity	• Private sector required rate of return above the government bond rate.	
Contingent liabilities		• Risk premium for systematic risk. When external equity financing is involved, the portion of systematic risk remaining with public sector needs to be estimated.	• Depends on government's ability to control and influence some of the systematic risks, from 0%–5% as risk premium.
Credit rating impact		• Cost of capital premium associated with any credit rating downgrade anticipated given the use of a particular financing approach.	• Depends on revenue raising powers, borrowing capacities, influences cost of finance. • Depends on structure of agency and relationship with government. • Revenue bonds do not significantly impact on government credit ratings, since the debt and the related risks are shifted to the project entity
Taxes forgone		• Marginal corporate tax rate multiplied by the bond rate.	• The marginal corporate tax rate in Australia averaged 30% during the past decade
Cost of delay		• Composite indicator, accounting for estimated increases in construction cost, prime lending rate (should any bridging finance be used); and EIRR of the project.	• Expressed in terms of the period of delay per instrument compared to the project life. • Long delay for reserve based funding, no delay for bonds and loans, 18 month delay for equity bidding process, allocated proportionally.

Cost Elements	Performance Indicators	Characteristics
Administration/ transaction Costs	• Total estimated administration and transaction costs to taxpayers expressed as a percentage	• Costs vary according to financing instrument • Negligible for government bonds and allocations. • Specific purpose bonds and commercial bank loans involves higher administration costs • Considerable transactional costs, namely fees associated with raising external equity.

Source: adapted from Henn 2015

5.2 A suitable evaluation framework for social housing investment pathways

This section proposes a customised evaluation framework for social housing infrastructure and precedes a closer examination of costs and funding gaps requiring subsidy.

A small number of studies have evaluated financing mechanisms in social housing but few have focused on their funding. From Canada, Carlson (2014) examined four international models using a qualitative SWOT analysis: hybrid legal structures, social and affordable housing real estate investment trusts, capital raising and lending facilities and housing bonds, using nine case studies. The report provides a useful review, with many brief illustrations, rather than a particularly detailed or systematic analysis. It does not recommend a preferred model.

In Australia, the report by Allen Consulting Group: Better housing futures: stimulating private investment in affordable housing (2004) to the Affordable Housing Forum, argued that the cost of capital drives estimates in effectiveness. They emphasise four criteria: allocative efficiency, dynamic efficiency, investor interest and political feasibility and lastly cost to government. These are used to assess three financing options: government bonds supplemented by flexible capital grants and recurrent subsidies; private sector investment (debt/equity) supplemented by flexible government grants and recurrent subsidies and finally, a tax credit model where private sector equity or debt investment supplemented by government subsidies is delivered via a tax credit.

The government bonds were found to be the least costly and most effective option, due to lower borrowing and transaction costs and less subsidy required, but at the time (in the mid-2000s), this option was considered less politically feasible amidst contractionary budgetary policy.

Intangible, less measurable economic and social benefits of investment in social housing were also cited, such as impact on economic growth, alleviation of housing stress, improved social wellbeing, more efficient labour markets, as well as more socially and environmentally sustainable urban development, but no clear indicators were developed.

Funding social housing and the cost this poses to government is a critical consideration which we examine in more detail in 5.3. Allen Consulting Group (ACG 2004) examined this issue separately from their evaluation. They cautioned that reliance on cost to government alone can be misleading. Their expanded criteria included not only the cost of capital, but also the cost to tenants, related subsidies required and assistance to households, the impact on taxation revenue due to displaced and additional investment, and broader economic impacts (ABS multipliers to production, consumption and employment), as well as the number of households assisted in new and improved housing situations.

More recently, the West Australian Government commissioned AHURI to examine alternative financing mechanisms. The resulting study (Lawson, Gilmour et al. 2014) examined six international financing mechanisms channelling investment towards affordable rental housing in Europe and North America. It developed an evaluation framework, covering both tangible and intangible values, to highlight the impact of alternative financing pathways on the capacity to address housing supply, protect public budgets, reduce the cost of finance, moderate rent levels, promote social equity, ensure appropriate risk allocation, and more broadly contribute to economic stability, sustain political commitment and promote effective delivery (Lawson, Gilmour et al. 2010: 14).

Critically, the research team was able to draw on local experts and practitioners to cover the following mechanisms:

- dedicated and tax-privileged savings deposit system for affordable housing in France
- housing tax credits in the US
- loan and bond system with public guarantees in Switzerland
- aggregated bonds issuer (the Housing Finance Corporation) in the UK
- social housing mortgage guarantee scheme in the Netherlands
- housing construction convertible bonds instrument in Austria.

While financing mechanisms were the focus of this research, underlying the financing of the international models was various forms of funding: grants, revenue support and tax exemptions.

The resulting evaluation found that overall, strategic capital funding and efficient mission focused financing arrangements provide the foundations of a productive and efficient affordable housing system. Private financing, where used, could be made more purposeful and efficient with special purpose intermediaries and instruments such as government guarantees. This finding inspired further policy research by AHURI to determine the appropriate form of such an intermediary and guarantee scheme for Australian policy and market conditions (Lawson, Berry et al. 2009; Lawson, Milligan et al. 2012; Lawson 2013; Lawson, Berry et al. 2014) leading to the establishment of the National Housing Finance Investment Corporation in 2018 (Parliament of Australia 2018; AHWG 2016; 2017).

We now put forward a customised framework for assessment in Table 13 of the most cost efficient investment pathway for Australian social housing infrastructure. This framework contains ten key elements, elaborated with performance indicators, which are further clarified by their empirical characteristics. This is used in our final assessment in 5.3.7 of this chapter.

Table 13: Criteria for evaluating Australia's social housing investment pathway

Cost Element	Performance indicator	Characteristic
Cost effectiveness	• Maximum delivery of social housing, at benchmark standard and cost.	• Clarify all costs to government, both direct and indirect and ascertain their contribution to the supply and quality of social housing dwellings produced.
Cost reducing	• Minimal financing costs for social housing delivered at benchmark standard and cost	• Impact of financing costs on overall unit costs, commensurate with the risks and comparable with the cost of public finance
Rent reducing	• Financing model places minimal pressure on tenants' rents	• Impact of funding and financing on rent levels and the indexing of rents, at an individual, project and provider level. • Impact of financing on rent assistance demanded
Equitable	• Optimise allocation of available subsidies to benefit lowest income households and those with complex needs.	• Greatest allocation of direct and indirect subsidies to address greatest need: deeper subsidies for complex needs, shallower subsidies for less complex needs.
Appropriate risk allocation	• Appropriate and fair allocation of risk across key players: government, providers, investors and tenants.	• Risks allocated appropriately and managed to reduce financing costs and improve housing outcomes. Rate of return commensurate with investor risk.
Impact on public finances	• Allocation from government budget is predictable, stable and affordable for government over time	• Cost to government well defined, stable, able to be anticipated and agreed on by government. Protects health of public finances.
Robustness	• Mechanism maximises economic and financial stability and moderates volatility.	• Ability to provide appropriate levels and costs of finance in adverse market conditions
Feasibility	• Mechanism attracts long term political and stakeholder support.	• Contributes to social housing policy objectives. Supported by peak industry bodies, providers, administrators and governments.
Effective delivery	• Optimised application of professional and industry standards in delivery.	• Reinforces adherence to regulations, best practice and promotes ongoing improvements in social housing management
Enhances capacity	• Maximum professional standards of delivery of social housing under given finance arrangements.	• Conditions of finance reinforce performance of registered providers. Subsidies require providers to adhere to applicable standards. Supports preferred housing providers to improve and increase the supply of social and affordable housing.

Source: authors.

5.3 Modelling the cost of social housing investment to government

The housing need analysis to 2036 (see Chapter 4) established both a quantum of housing required and a tenant income profile by geography, which generates a more geographically nuanced assessment of costs and potential rental revenues. This defined housing need was then input into a reconfigured version of the Affordable Housing Assessment Tool developed as part of previous research (Randolph, Troy et al. 2018).

The approach taken here is to model costs of developing and operating social housing dwellings across a 20-year timeframe on the assumption that a policy framework can deliver a cost neutral outcome at year 20 and can be replicated year on year to deliver the total housing needs estimated to 2036. Policy levers are then applied to show the impacts on overall feasibility and cost to government under different program scenarios. All cash flows are represented in Net Present Value (NPV) based on a current CPI of 1.9 per cent, with the final feasibility test being an NPV neutral position at year 20 based on current CPI indexation rates.

Cost and revenues have been modelled based on the quantum of housing required in year 1 by each spatial area. This quantum is based on the total needs estimated by geography across the 20-year timeframe to 2036. By using proportional volumes by geography to estimate costs in the first program year, total costs are therefore weighted by the geography of housing need and the relative cost differences in meeting that need across different areas. Total cost to government is then estimated by multiplying the costs of the year 1 program by the total volume of dwellings required to 2036 and dividing by 20 years.

The model assumes a not-for-profit housing developer, so does not include any profit margin within the feasibility assessment. This represents the lowest cost option, as a for-profit development model would include a profit margin as part of the cost structure. The construction cost component, as noted in Chapter 4, has been based on industry standard costs, so does not make any assumptions about real or perceived differences in costs where building work is undertaken by private or public sector. However, one of the modelled impacts is the costs of taxation concessions given to the not-for-profit community housing sector, which is not accessible by for-profit developers, and would introduce an added cost layer if for-profit models were also assumed desirable.

The not-for-profit model can use two different existing pathways in the Australian context: public sector or community housing sector. There are two critical differences in development feasibility between a public sector not-for-profit developer and a community housing sector not-for-profit model. The first is the access to tax concessions (Goods and services tax (GST), land tax and stamp duties) which cumulatively have substantial impact on the overall costs of development. The second is access to Commonwealth Rent Assistance (CRA) payments, with the current public housing model precluding state housing tenants from receiving CRA payments, and in effect limiting the total rent that state agencies can charge.

However, these are essentially policy decisions that preclude state housing agencies from accessing either tax concessions or CRA payments. Moreover, from a cost to government point of view, assuming that funding is primarily sourced from the Australian Government, the net impact of GST will be zero. That is, costs of development will increase by the GST amount, which will then be paid back to government. In the case of CRA, this could equally be understood as an operational subsidy, which if excluded under a notional 'public' housing model, would only result in the costs appearing in another part of the model—either as an operational subsidy or as capital grant. CRA has been modelled and itemised separately, however it does not make sense to construct separate scenarios because it does not have an impact on the cost structure. For these reasons, there is no need to differentiate between public and community not-for-profit housing delivery in the modelled scenarios below.

5.3.1   Indexation and operating costs assumptions

Indexation rates and operating costs have substantial impact on overall costs when modelled over 20 years. Tables 14 and 15 below detail the range of assumptions included in the model and held constant across all scenarios. Indexation rates have been based on CPI rates and are consistent across both costs and revenues. Given that revenues are largely based on government pension payments given the likely tenant profile, it is acknowledged that policy decisions by government over indexation of social security payments will have substantial bearing on the revenue profile over the long term.

Operating costs of the dwellings has been based on evidence compiled as part of previous AHURI research (Randolph, Troy et al. 2018; Pawson, Milligan et al. 2015) and is consistent with government documents that address the issue (AHWG 2017). It should be noted that these figures represent a 'best guess' based on available data and require more detailed empirical investigation.

Operating costs include allowances for responsive maintenance (repairs), planned maintenance, and sinking funds. Many dwellings in an inner urban area would take apartment form, and no allowance has been made for a specific strata levy. Strata levies typically include sinking fund costs, so under this model an allowance for sinking funds would be included as part of a strata levy. Again, there is limited data available on differences in costs estimates under strata or single ownership (i.e. complete CHO ownership) so it has not been modelled here.

Table 14: Indexation items and rates

Indexation items	Rate
Development Cost Indexation	2%
Operating Cost Indexation	1.9%
Revenue Indexation	1.9%
CPI (for NPV calculations)	1.9%
Base finance interest rate	5.0%

Source: authors.

Table 15: Operating costs

Maintenance costs of dwellings	Annual as a % of replacement value	Annual average per dwelling
Repairs	0.1%	$195
Planned maintenance	0.5%	$977
Replacement/Sinking fund	0.5%	$977
Total maintenance costs	**1.1%**	**$2,148**
Other costs	**% of rental income**	
Vacancy rate (% max annual rent)	2.0%	$160
Bad debt rate (% rent - vacancy losses)	2.5%	$196
Total other costs		**$335**
Fixed charges		
Management costs		$1,800
Water rates		$1,000
Council rates		$800
Insurance		$800
Total fixed costs per dwelling		**$4,400**
Total average costs		**$6,904**

Source: authors.

The operating subsidy model has been loosely based on the parameters set out under the now discontinued NRAS scheme, with operating subsidy payments in place for 10 years, and annual payment indexation rates of 5 per cent. Ultimately the model establishes what operating subsidy is required so that development is cost neutral in NPV terms at year 20, and varying the indexation rate has little impact on the total cost requirement. However, extending the length of the program will increase overall costs as this implies holding debt for a longer period of time.

5.3.2   Funding gap and capacity to carry debt

Modelling the costs of social and affordable housing delivery and the likely 'funding gap' that exists between revenues and costs has largely occurred without reference to geographical context (e.g. AHWG 2017). Our research began to unpack the market context and its effects on feasibility of project level affordable housing developments across Australia (Randolph, Troy et al. 2018). It is important to understand that geographic variation impacts in two ways, the first is housing need which is highly variable across Australia's cities and regions. Most housing need is within major cities which present a qualitatively different market in which housing is to be delivered. The second way is the impact of geographical variation on the costs of developing social and affordable housing, which predominantly relates to land values. However, potential rental income streams are relatively constant, as many social housing tenants derive income from nationally-fixed government support payments. This means the relationship between the cost of development and the revenue streams varies substantially across the country.

Figure 10 shows the basic funding model and subsidy gap based on the geographically weighted housing need analysis and construction cost. These figures are broadly similar to the gap analysis produced in the Australian Treasury's Affordable Housing Working Group (AHWG

2017). The main difference relates to the overall costs of developing social housing, which is weighted by the relative differences in need and costs across the different regions of Australia.

The funding gap demonstrates that there is very limited capacity for social housing dwellings to carry debt, even after CRA payments are taken into account. The modelling indicates that the average amount of debt that can be serviced per dwelling, based on the residual cost of provision, after operating costs are accounted for is approximately $70,000 (NPV). This compares with an average per dwelling development cost, including market based residual land value, of $262,000. In aggregate terms, therefore, 73 per cent of the cost of newly developed homes must be underpinned by subsidy of some kind. Albeit established through a methodical, bottom-up process, this is close to the Affordable Housing Working Group's recent estimate (AHWG 2017).

Figure 10: Average gap in net present value
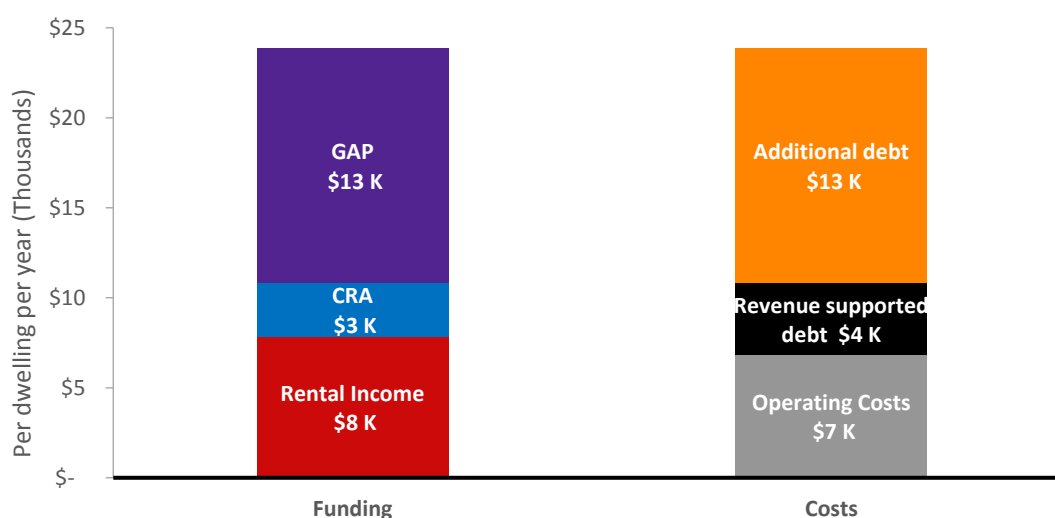
Source: authors.

This funding gap, however, is highly variable across different locations, with the highest modelled total development cost being approximately $600,000 per dwelling and the lowest modelled cost $143,000. This resulted in the highest 'gap' being $35,000 (NPV) per dwelling per annum compared with the lowest of $5,000 (NPV) per dwelling per annum. Figure 11 shows the highest and lowest funding gap SA4s compared with national aggregate values. Figure 12 presents the funding gap values by SA4 across Australia, with higher costs in capital cities generally, but more acute in Sydney and Melbourne, the most expensive housing markets in the country. While there are some variations in development costs related to the delivery of apartments (higher) to detached houses (lower), the main difference in costs relates to underlying land values.

Figure 11: Geographically variable annual funding gaps per dwelling in net present value
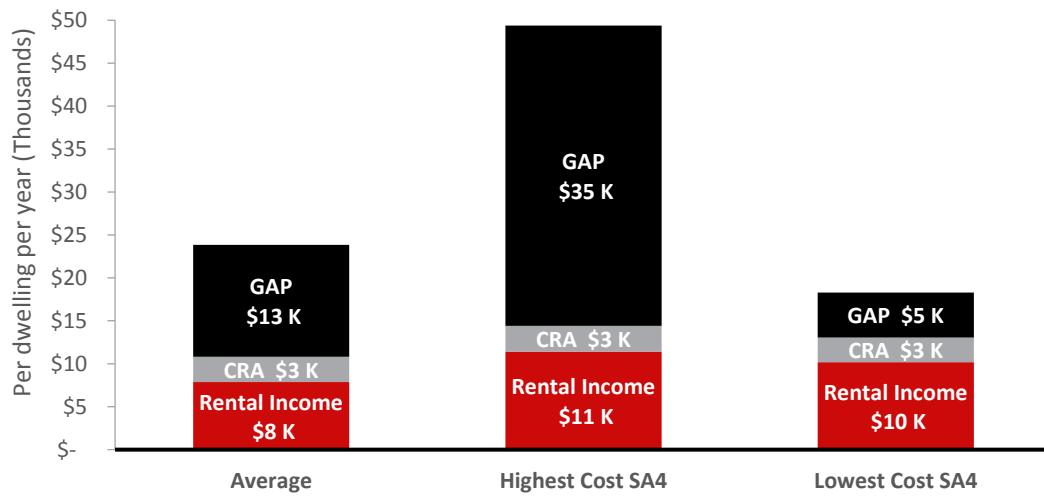
Source: authors.

Figure 12: Funding gap per dwelling by SA4

Annual funding gap per dwelling

- $5,253 - $10,000
- $10,001 - $15,000
- $15,001 - $25,000
- $25,001 - $34,962

Adelaide

Brisbane

Hobart

Melbourne

Perth

Sydney
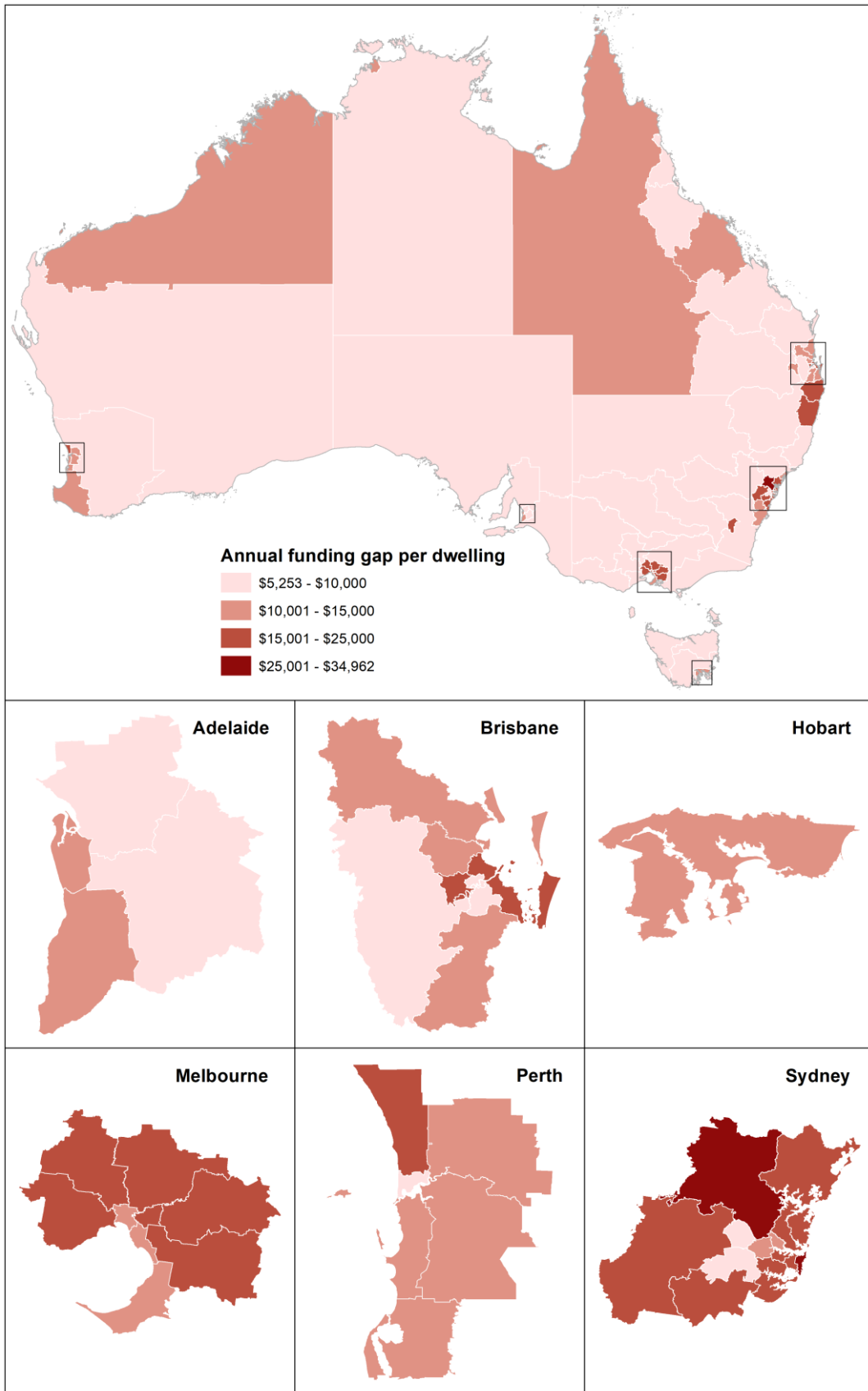
Source: authors.

5.3.3 Scenario testing

Next, building on the above analysis, we go on to compare the cost to government utilising different subsidy models. The sections below present five different scenarios that test various funding models and three policy levers: the first subsidises operating costs, the second subsidises capital costs (which may include land and taxes), and the third reduces finance costs. The scenarios test the impacts of operating subsidies, capital grants and reduced finance costs.

- Scenario 1 funded by private debt finance

- Scenario 2 funded by private debt finance assuming NHFIC bond aggregator

- Scenario 3 funded by up-front capital grant

- Scenario 4 funded by up-front capital grant assuming NHFIC bond aggregator

- Scenario 5 funded by up-front capital grant and NHFIC bond aggregator, but with tenants not eligible for CRA

All scenarios have been modelled over 20 years with any residual debt liabilities for each individual SA4 paid down by this time.

Scenario 1: Recurrent operating subsidy to pay for debt

Figure 13 shows a development model where the funding gap is supported by an annual operational subsidy payment that supports paying for finance (where all the required debt is taken out by the provider in the expectation of future subsidy support). The figure demonstrates the relationship between the development costs funded by debt that is carried through into operation phase of housing. This scenario represents the base case, or maximum gap model whereby all of the required funding is provided by private finance. Subsequent scenarios that change some critical parameters both reduce and fill the remaining gap.

Figure 13: Costs, funding and revenues for operating subsidy scenario
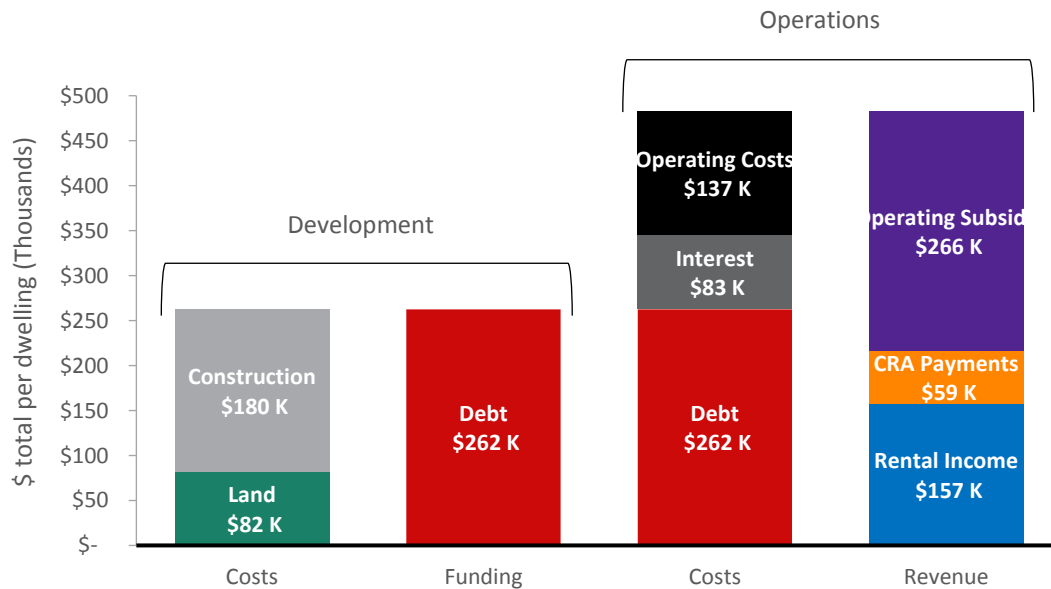
Source: authors.

Table 16 shows the total costs of operational subsidy payments per dwelling and as an annual average national expenditure over the life of a program to meet current and future housing need to 2036. As discussed in the needs modelling above, it would make more sense to deliver

housing on a proportional basis over the 20-year program, rather than in fixed annual increments. This scenario assumes that an annual construction target could be set such that with each passing year a larger volume is delivered, so construction targets would be say, 20,000 dwellings in year 1 and 60,000 in year 20, but proportionally the same, i.e. 5 per cent of year 1 stock and 5 per cent of year 20. Consequently, total annual government expenditure would also shift proportionally: expenditure in year 1 would need to be a lot less than $11 billion in the example below in Table 16, and would be more in year 20. This would also mean that as a share of GDP, social housing investment can be held relatively constant, and proportionally more modest than the average figures below. For these reasons it is more appropriate to consider the year 1 NPV total as an indicator of the size of program required and relative impact on Australian Government budgets.

Total costings below have, however, been presented as an average across the 20 years, rather than a specific cost by year. Like dwelling volumes, costs would be lower in year 1 compared to year 20. Total government subsidy is the sum of CRA payments and separate operational subsidies.

Table 16: Program level annual costings for operational subsidy to cover debt model

Program summary	Year 1 NPV total	Per dwelling average	20-year annual average
Total development costs (excl. GST and taxes)	$7.0 billion	$346,000	$12.6 billion
Total operating costs	$2.8 billion	$137,000	$5.0 billion
Rental income	$3.2 billion	$157,000	$5.7 billion
Operating subsidy	$5.4 billion	$266,000	$9.7 billion
CRA payments	$1.2 billion	$59,000	$2.1 billion
Government subsidy	$6.6 billion	$325,000	$11.8 billion

Note: 20-year annual average reflects the growing size of the program over 20 years to deliver the same proportion of dwellings year on year (i.e. 20K in Y1 and 60K in Y20)

Source: authors.

Scenario 2: Operating subsidy with NHFIC bond aggregator interest rate reduction (or efficient or capped financing model)

Figure 14 builds on Scenario 1 but applies an interest rate deduction on private finance of 1.5 per cent, which is the estimated impact of a bond aggregator on the cost of private finance. The assumed base market cost in the model is 5 per cent with the deduction reducing the rate to 3.5 per cent. The main difference under this scenario compared with Scenario 1 is the total interest bill, which is reduced from $83,000 per dwelling to $57,000 per dwelling across the 20-year model, which in turn slightly reduces the operating subsidy requirement.

As noted in other research (Lawson, Berry et al. 2014), the value of the NHFIC bond aggregator extends beyond interest rate efficiency; it creates a normalised, professionalised financial market in social housing finance that greatly standardises the debt-raising process, and would therefore introduce other operational costs savings to CHP developers not factored in here.

Figure 14: Costs, funding and revenues for operating subsidy with bond aggregator scenario
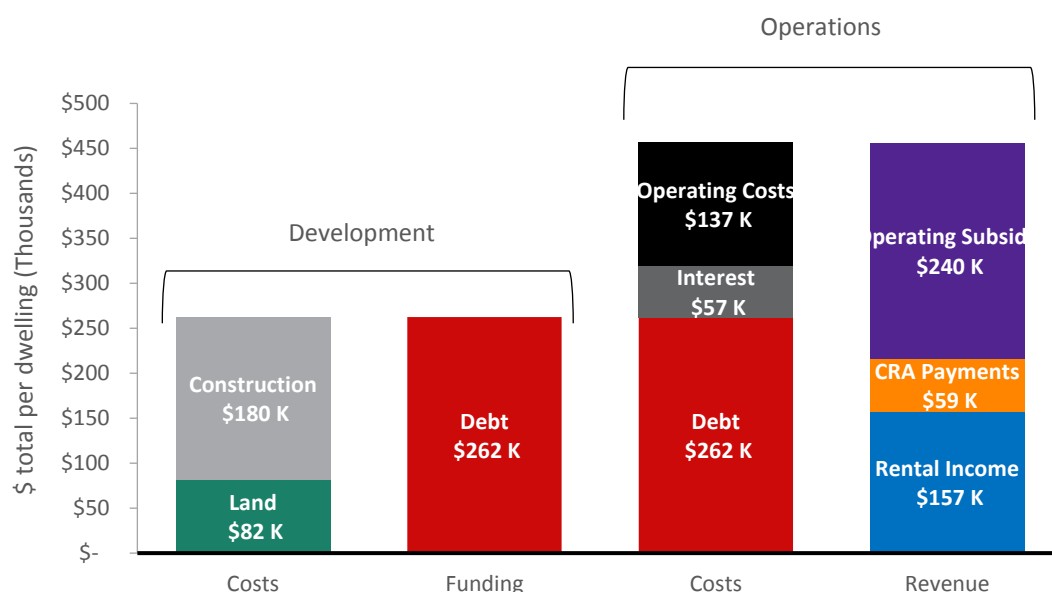
Source: authors.

Table 17 shows the total costs to government under this delivery scenario, with the total average subsidy required reduced from 11.8 billion to $10.9 billion per annum.

Table 17: Program level annual costings for operational subsidy and interest rate deductions model

Program summary	Year 1 NPV total	Per dwelling average	20-year annual average
Total development costs (excl. GST and taxes)	$6.4 billion	$319,000	$11.6 billion
Total operating costs	$2.8 billion	$137,000	$5.0 billion
Rental income	$3.2 billion	$157,000	$5.7 billion
Operating subsidy	$4.8 billion	$240,000	$8.7 billion
CRA payments	$1.2 billion	$59,000	$2.1 billion
Government subsidy	$6.0 billion	$299,000	$10.9 billion

Source: authors.

Scenario 3: Capital grant

Private finance models of housing delivery revolve around holding and paying the costs of long term debt, which introduces the recurrent cost component of the subsidy gap identified in the two scenarios above. The alternative to private debt is to capital fund developments which reduces the level of required subsidy because it eliminates financing costs. Figure 15 shows the subsidy gap of a capital grant funded model and shows the size of the cost burden carried over into the operating phase to be reduced commensurate with the level of capital grant input.

While this scenario still utilises finance, it is only done to the extent that cash flows in operation can bear that cost. Again, this reduces overall cost by lowering the interest paid per dwelling over the life of the project.

Figure 15: Costs, funding and revenues for capital grant subsidy scenario
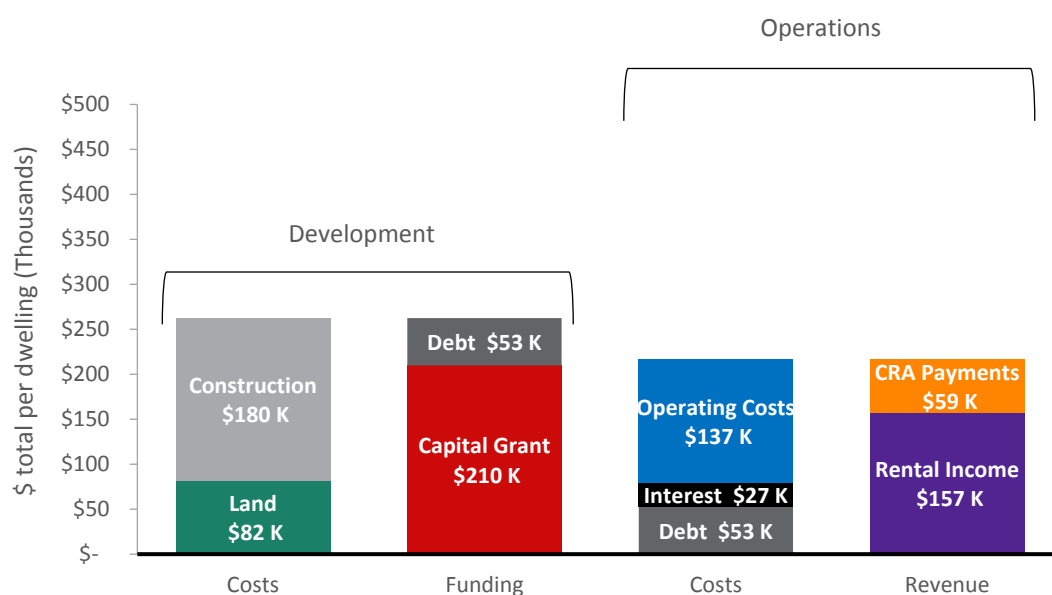
Source: authors.

Table 18 shows the overall program cost of a capital funded model which is $2 billion less than the operational subsidy model presented in Scenario 1. The key cost saving here is reducing the need for providers to hold debt and pay interest, which is reflected in the total development cost.

Table 18: Program level annual costings for capital grant subsidy model

Program summary	Year 1 NPV total	Per dwelling average	20-year annual average
Total development costs (excl. GST and taxes)	$5.8 billion	$289,000	$10.5 billion
Total operating costs	$2.8 billion	$137,000	$5.0 billion
Rental income	$3.2 billion	$157,000	$5.7 billion
Capital grants	$4.2 billion	$210,000	$7.6 billion
CRA payments	$1.2 billion	$59,000	$2.1 billion
Government subsidy	$5.4 billion	$269,000	$9.8 billion

Source: authors.

Scenario 4: Capital grant with bond aggregator interest rate deduction

This scenario introduces an interest rate deduction on the capital grant model similar to that of Scenario 2 above. This reduces the interest rate of finance from the assumed market rate of 5 per cent per annum to 3.5 per cent per annum The net effect (see Figure 16) is to modestly reduce the level of capital grant subsidy required per dwelling and reduce the total interest payment per dwelling over the 20-year model.

Figure 16: Costs, funding and revenues for capital grant subsidy with bond aggregator scenario
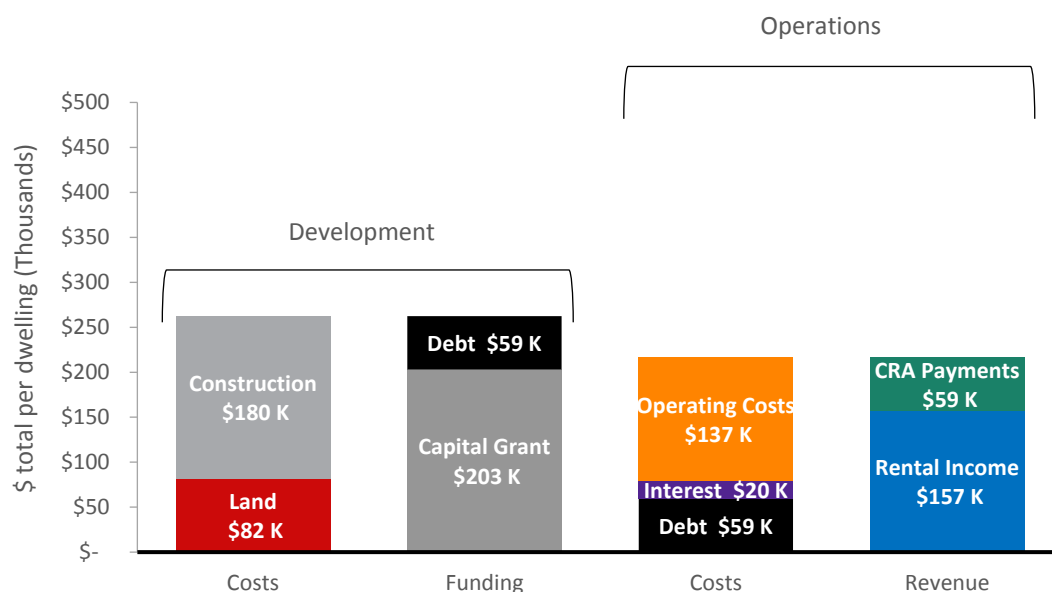
Source: authors.

The total cost to government under this scenario is shown in Table 19 below and is estimated to be $9.5 billion per year over 20 years. This is approximately $300 million less per annum compared with Scenario 3, and $1.4 billion per annum less than Scenario 2.

Table 19: Program level annual costings for capital grant and interest rate deduction subsidy model

Program summary	Year 1 NPV total	Per dwelling average	20-year annual average
Total development costs (excl. GST and taxes)	$5.7 billion	$283,000	$10.3 billion
Total operating costs	$2.8 billion	$137,000	$5.0 billion
Rental income	$3.2 billion	$157,000	$5.7 billion
Capital grants	$4.1 billion	$203,000	$7.4 billion
CRA payments	$1.2 billion	$59,000	$2.1 billion
Government subsidy	$5.3 billion	$262,000	$9.5 billion

Source: authors.

Scenario 5: Capital grant with bond aggregator interest deduction and no CRA income

As noted above, CRA has been included through the modelling and itemised separately. While there are legitimate policy questions about affordable housing tenants accessing CRA payments, previous literature on community housing development models generally factor in CRA as a background assumption and not directly part of the operational subsidy model. Moreover, because it is often assumed to be a central part of affordable rental housing income generation, it is not often conceptualised as a cost to government in terms of delivering new housing developments. If CRA payments are included in total costings of the funding model, a

policy decision could presumably more efficiently reallocate the spending to an up-front capital grant form. Figure 17 below shows the impact of excluding CRA payments from a capital grant model. The net effect is to reduce to the total cost to government.

This scenario is a capital grant model with finance interest deductions of 1.5 per cent per annum and removes CRA income from the analysis. Because the amount of debt that can be repaid from rental receipts net of operating costs is extremely small, the net effect is to increase the level of capital grant required per dwelling. However, it reduces the overall cost to government, assuming CRA is ordinarily included as a cost, as in the scenarios above. Increasing the capital grant effectively reduces interest payments of the life of the project and therefore reduces total costs.

Figure 17: Costs, funding and revenues for capital grant subsidy with bond aggregator scenario and no CRA income
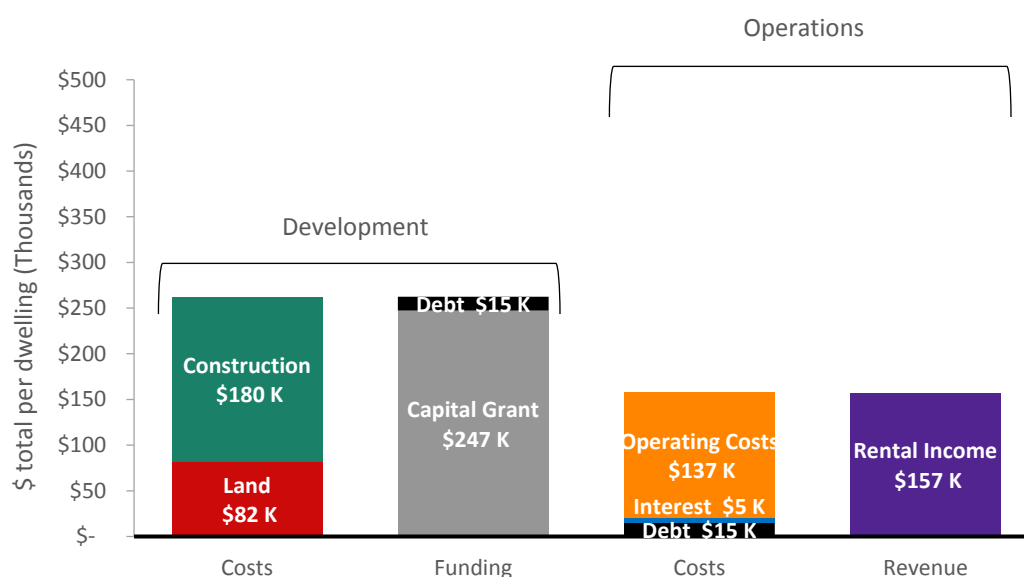
Source: authors.

Table 20 below shows the total cost to government of Scenario 5 and produces the lowest cost outcome of all scenarios at $9.0 billion per annum over 20 years, compared with $11.8 billion in Scenario 1.

Table 20: Program level annual costings for capital grant subsidy model with interest rate deductions and no CRA

Program summary	Year 1 NPV total	Per dwelling average	20-year annual average
Total development costs (excl. GST and taxes)	$5.4 billion	$268,000	$9.7 billion
Total operating costs	$2.8 billion	$137,000	$5.0 billion
Rental income	$3.2 billion	$157,000	$5.7 billion
Capital grants	$5.0 billion	$247,000	$9.0 billion
CRA payments			
Government subsidy	$5.0 billion	$247,000	$9.0 billion

Source: authors.

5.3.4   Impact of land

Development costs predominantly consist of land and construction costs, and while some savings may be possible within the construction space it is outside the scope of this report. The modelling in this report has used a residual land valuation method (described in Chapter 4 and defined in Appendix 5) to estimate development costs, however it must be acknowledged that this valuation method calculates a maximum land value determined through development potential rather than either existing use, or real cost of land if provided from other government sources. The key idea to note is that land values are not fixed and are impacted by a range of policy decisions that governments can implement. In the past, government policy, for example, has attempted to control land prices through a combination of supply measures and explicit policy of not paying residual value, but acquiring urban development land at existing use value (see Troy 1978 for a full account of the land commission program).

The impact of land on development feasibility can be demonstrated by the share of development costs it represents. On average across Australia, land costs under a residual market model represent approximately 31 per cent of total development costs, however it varies between 10 and 72 per cent. In low value housing market locations, such as rural areas, residual land values are very low or even negative, hence development of new housing is more expensive than buying existing housing, making private for-profit housing development not viable. In high value locations, the difference between these two valuations is potentially substantial, particularly if commercial land is converted to residential. Figure 18 shows the average development cost for construction and land, as well as the highest and lowest cost SA4.

Figure 18: Average, highest and lowest development costs differences
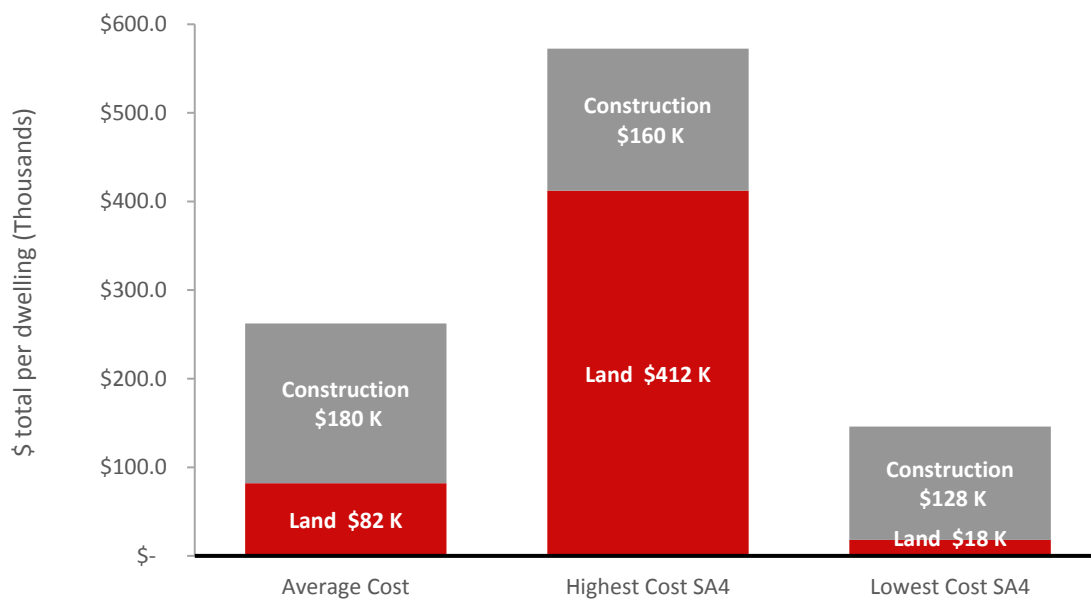
Source: authors.

5.3.5   Tax concessions

The not-for-profit development model delivers a number of tax concessions that affect the development process, including GST, stamp duties and land tax. As noted above, these are typically only available to non-government NFP developers, however as argued above, may have no net impact on expenditure under a government led NFP model, assuming government funding. The impact of exemptions can be examined from two perspectives. The first is an

impact on the direct cost of these taxes, which amount to 7 per cent of total costs, over the life of the project. The second impact, which is far more significant, is the reduction in debt liabilities and interest costs, which if being funded through operating subsidy payments in turn results in a reduction in the level of subsidy required.

Table 21 demonstrates the differences in costs per dwelling over the life of the project and assumes that in tax payments, liabilities would have to be met by increasing gap funding to make projects viable. This cost increase, from a government point of view, would be offset by an increase in tax revenue, reducing the net overall costs, as shown in the table. The final difference, in essence, is the interest payments required on any tax liabilities over a 20-year period, as any increase in costs must be funded through increasing finance.

Table 21: Impact of tax exemptions of long term costs

	Operating subsidy—with tax exemption	Operating subsidy—no tax exemption
Per dwelling total subsidy	-$325,000	-$370,000
Tax receipts		+$35,000
Balance	-$325,000	-$335,000
Difference between models		$10,000

Source: authors.

5.3.6   Sources of 'gap' funding

It should be noted that each of the scenarios above estimate a cost to government to fill the 'funding gap'. The models do not make any assumptions about where government may source this funding and have therefore not included any additional costs that may be associated. For example, if a program is backed by government borrowing then presumably there is an interest cost attached, while funding through taxation revenue raises a different proposition. Discussion on potential sources of funding should be had within the context of competing priorities of government to spend money on any particular policy program and revenues that may be able to be generated through taxation. For example, as has been noted in previous research (see Groenhart, 2014), government expenditure on tax concessions given to investor home owners far outweighs direct spending on housing (including funding to public housing authorities and CRA). Tax reform, therefore, offers one potential avenue to secure additional funding for programs costed through the modelling above.

The Research Report by Dodson and Denham (2018), which forms an integral part of this AHURI inquiry, specifically addresses how policy makers may appraise competing government spending priorities in respect of investment in housing. However, if an additional cost is likely to result from the preferred funding source, any of the scenarios presents the same problem—that operating subsidies programs need to be paid for just like capital grant programs need to be paid for.

One assumed benefit of an operating subsidy program is to spread government subsidy over a longer period as opposed to a capital grant program which may have a higher up-front cost burden. Figure 19 below shows the annual payment liability based on an operating subsidy program (Scenario 1) and a capital grant program (Scenario 3) over a 30-year period. Thirty years has been used to include the operating subsidy expenditure of dwellings built in year 20 and subsidies for 10 years following. This figure demonstrates that government expenditure on an operating subsidy program may initially be lower, however not over the long term, with any difference marginal by year 10. This is because with each passing year, an operating subsidy

program is required to also pay for the previous years' housing development. So by year 10, operating subsidies are paid on 10 years' worth of development. Of course, the real disadvantage of this model comes at the end of year 20, when operating subsidies would still be required to be paid out on dwellings built in the later part of the program, unlike a capital grant model.

Figure 19: Annual expenditure under capital or operating subsidy programs
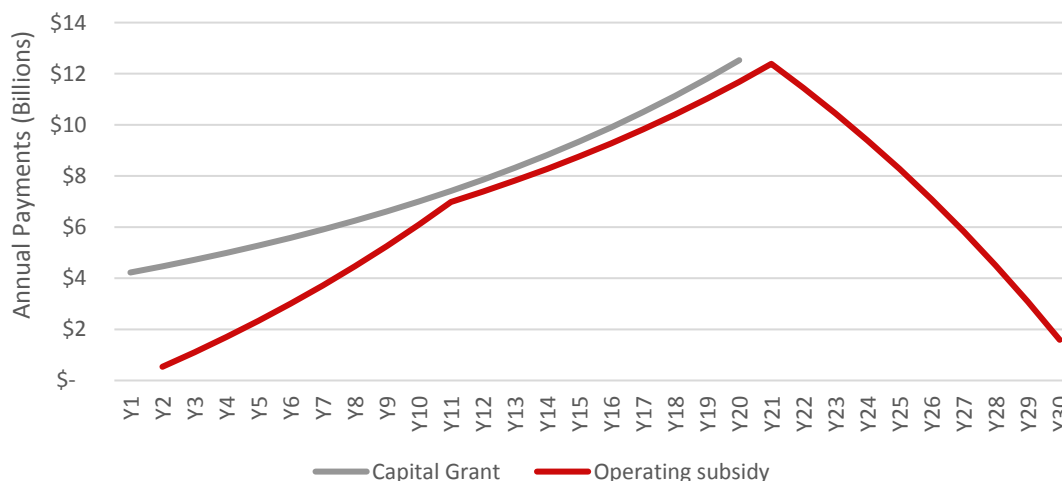
Note: all values represented in NPV, and do not include any costs associated with CRA payments

Source: authors.

5.3.7   Conclusions from modelling cost to government

In summary, modelling the cost of producing required social housing, and the associated cost of any capital and operational subsidy, must take into account significant variations in costs of producing this housing in different land markets. The scenarios above estimated an average construction and land cost (including professional fees and charges) of $262,000, however noted the high geographic variability, principally related to land cost components. Current policy settings have also created significant differences between public and not-for-profit providers in access to tax concessions, debt and CRA, influencing the cost of providing social housing and operating revenue received. For this exercise, it is assumed that providers would have access to the benefits of all.

The capacity of providers to carry debt varies with the cost of producing housing in different markets but remains limited without substantial operational subsidy to pay for the interest and holding costs associated with private finance. This funding gap of social housing in different geographies varies from $5,000 to $35,000 per annum.

The cost to government of an operating subsidy under the debt financed model is substantial— $9.1 billion per year plus $2.1 billion in CRA. In contrast, were capital grants introduced into the mix, alongside a modest amount of cost efficient debt finance, the requirement for an operating subsidy disappears altogether. Instead, a capital grant of $6.9 billion is invested in retained public assets and a similar $2.1 billion for CRA is drawn on.

The cost of a large scale program of an average of 35,000 social housing units per annum, addressing both the backlog and need arising over a 20 year period, is substantially reduced by minimising reliance on private debt. Where debt is utilised it would ideally be raised from the most cost effective source, such as the Australian Government's NHFIC bond aggregator.

A further consideration is how the constructed housing is treated as an asset over a longer period. The above costs represent considerable sums compared to current expenditure on

social housing; though not compared to total government expenditure on wider housing commitments in the form of tax concessions to home owners (Groenhart 2014). However, there is also an opportunity if expenditure on social and affordable housing is treated as equity with ownership of assets retained. The cumulated value of housing generated from a large scale construction program would exceed the costs of development and cost of government direct input. This partly explains the tendency by governments to treat land assets at 'full market value' in relation to subsidising housing programs (as noted in Chapter 2), and also poses a risk that at some point the 'value' contained in owning the assets and sale may be a tempting remedy to budget problems in the future. However, the potential benefits of directly investing in housing are clear—government expenditure is ultimately retained by government in the form of housing assets, as opposed to paying operating subsidies to cover debt repayments which would see expenditure leak to the private sector.

Moreover, as alluded to in Chapter 2, and addressed more thoroughly in Dodson and Denham (2018), there are wider benefits that would flow from such a substantial program of investment by government into residential development across Australia. Providing stability in labour markets through predictable and long term construction activity, as well as smoothing out some of the cyclical fluctuations in housing development across major cities, are further indirect benefits of this type of investment. Though these benefits have not been captured through modelling on direct costs to government, they will be captured through cost benefits approaches expanded upon in the supporting research project for the overall inquiry (Dodson and Denham 2018).

5.4   Recommended investment pathway

Investment in infrastructure is expected to contribute to social equity, economic growth, environmental sustainability, and government service objectives of equity, effectiveness and efficiency. The Productivity Commission (2014: 2) stresses the urgent need to reform the way governments invest in Australian infrastructure, requiring better decision making, funding and financing choices to achieve these goals. This imperative also applies to social housing, where current investment pathways are failing to deliver and address growing need.

As shown above, when alternative funding and financing scenarios are compared, the capital grant model (with its direct capital investment) is clearly the most cost effective for governments. It produces tangible assets which in turn can deliver key societal objectives—economic productivity, social wellbeing and environmental sustainability—and, where private financing is not required, does not require an operating subsidy.

There are of course important evaluation criteria above and beyond what is most cost effective for governments. Tenants and landlords are crucial participants in the ecosystem of social housing provision and consumption, as outlined in the criteria in Table 13, Section 5.2. We now return to these and consider the broader implications of a capital investment pathway.

Cost effectiveness

- For the first time, our evaluation has been able to provide a quantitative assessment of the cost to government based on concrete Australian evidence. It draws on real costs of funding and financing alternatives relevant to diverse market conditions. Importantly, this modelling incorporates not only geographically differentiated needs over time, but also relevant land and construction costs for appropriate housing forms in these settings. This is a substantial advancement on current methods and practice and provides vital evidence to inform Australia's future funding and financing pathways.

- The modelling of scenarios shows that the capital grant model is substantially more cost effective for governments than privately financed operating subsidy models. Most

importantly it will provide a supply and access to a tangible accommodation asset to address need. Operating subsidy models underpinned by debt finance introduce a layer of cost that is ultimately paid for by government either through increased operating subsidy or increased tenant incomes, such as CRA or other social security payments.

- The more direct pathway via capital grants has more potential than operating subsidies to define and ensure the supply and quality of housing outcomes delivered. This investment can be made from a range of sources: general government revenue, government public borrowings, as well as contributions from public land banks and any eventual contributions from planning instruments.

Cost reducing

- The preferred model also makes use of modest and sustainable levels of debt which can be supported from actual levels of rent revenue, using the most cost effective route: NHFIC loans targeted to providers operating on a not-for-profit basis for approved developments. The interest cost of these loans is further kept to a minimum as NHFIC bonds are backed by a government guarantee. This will reduce borrowing costs to slightly above comparable public bonds.

- With sufficient levels of investment, the requirement for an operating subsidy is minimised substantially, which also has the potential to reduce longer term demand for CRA.

- Land allocation and valuation policies are critical to the cost of social housing provision and substantial savings can be achieved by pro-social housing land policies and valuations. The Productivity Commission (2014: 3) recommends that governments reform land reservation policies and clarify design specifications to help reduce land and construction costs and ensure feasible infrastructure provision. Such reforms should also address the need for social housing infrastructure.

- While this model cannot achieve these goals on its own, for the first time the cost of land and construction have been brought to the fore and empirically examined via modelling this project. The capital investment model makes use of real time costs in different land and housing markets and this data can be used drive further efficiencies.

- Land costs are highest in areas of highest need, presenting a challenge in delivering lower development costs, but also offering opportunity for other government policies to make significant impacts on overall costs. The role of planning and development agencies will be critical in this regard.

- A capital investment approach also enables grant agencies to have a greater role in setting standards and cost benchmarks to promote efficiencies. The provision of model designs and building technologies, which can be duplicated, can further reduce construction costs for providers and user costs for tenants.

- Such approaches are integral to subsidy approval processes elsewhere, as in Scotland, Austria and Finland and in Australia's emerging disability housing funded under the NDIS.

Rent reducing

- The proposed model offers permanent and secure affordable housing. It anticipates from the outset that households requiring social housing will have low or fixed household incomes (Q1). It does not rely on commercial providers, who may only be interested in social housing projects when market conditions or temporary incentives are on the table.

- Given that financing costs are minimised there is less pressure to increase tenants' rents and draw on CRA to cover excessive operating costs.

- Direct capital investment can vary levels of subsidy in high and low cost land areas to ensure that well located sites can be retained and used for social housing, rather than be exploited in a once-off asset recycling exercise.

Equitable

- As shown in Chapter 4, the need for social housing is significant but varies geographically, as does the cost of producing housing in different land and housing markets.

- A well designed mixed co-funding program will enable government to steer desired housing outcomes to the highest needs households and areas where need is greatest through co-investment conditionality and development approval processes. However, this also requires clearly defined expectations, as discussed below.

- The proposed model responds to the needs of households with the lowest quintile incomes, in housing stress and or homeless. It acknowledges that the need for social housing and the costs of providing it vary geographically.

- It also involves the flexible use of different levels of public equity given the different needs and costs involved. In this way it offers more potential than privately led investor models to ensure development produces dwellings for households where they are needed most, rather than opportunistically, and in forms where investors capture the greatest public subsidy with little regard for social outcomes.

- Unlike NRAS, the model involves more direct measures and this potentially means housing, land and planning authorities can play an effective role in site selection, land valuation and planning.

- It also offers the potential, as in Finland, to increase or decrease the required capital subsidy to reflect the nature of needs addressed. A sliding scale of grants could be tailored from deep (for people who are homeless or disabled with complex support needs) to shallow (for students requiring more modest suitably co-located accommodation and shared facilities).

Appropriate risk allocation

- Risks from financing pathways can threaten all parties—investors, providers and tenants. In this model the risk posed by short term and higher cost financing is avoided entirely. Such risks have proven very costly in the UK (NAO 2018).

- The approach makes use of providers that operate on a not-for-profit basis. This does not mean that such providers cannot generate any surpluses, as these are required to mitigate unforeseen risks. However, better regulation would ensure that these surpluses as well as significant levels of government equity are reinvested in the dwellings and services within the project or providers' portfolio within a reasonable period of time.

- The above will require carefully designed reforms to existing regulation to ensure that the mission of social housing providers remains appropriate to their task, and risks are minimised appropriately across all parties.

Impact on public finances

- Clearly a capital investment approach will have an impact on levels of public investment in capital infrastructure assets as opposed to recurrent operating expenditure. It can also enable savings in certain areas of housing assistance, such as CRA. Further reforms to other areas of implicit housing assistance, such as capital gains tax and negative gearing, could increase resources available.

- Debt based approaches will have lower impact on public expenditure only in the short term and will increase to a size commensurate with a capital investment approach within a

number of years. Additionally, this approach would impact on public finances for a much longer period of time and ultimately at a higher cost.

- Capital investment programs can set volume or supply targets to enable more predictable, stable and reasonable costs for government and reduce reliance on CRA.

- A capital investment program also allows governments to better direct resources for a range of social, economic and environmental goals over time and adjust capital investment to suit policy preferences and market conditions.

- Reduced reliance on private financing and thus lower operating costs also minimises the demand for an operating subsidy and protects the health of public finances further.

Robustness

- The capital investment approach increases the capacity for government to utilise public investment in order to maximise economic and financial stability, and moderate housing market and construction volatility, as in countries such as Finland, France and Austria.

- It also enhances government's ability to alter the mix of funding and finance as required and act as an economic multiplier and shock absorber in adverse market conditions.

Feasibility

- While there is strong finance industry support for PFI operating subsidy models, there is growing recognition among governments that social housing can sustain only limited amounts of debt and this has constrained the growth of social housing construction in Australia (AHWG 2017).

- As examined in Chapter 2, different stakeholders involved in infrastructure funding and financing have different interests and motivations. When using public resources, private interests seeking higher rates of return using government operating subsidies should be subordinate to broader community interests of equity, efficiency and effectiveness.

- Recognition by public policy and treasury officials of the cost effectiveness of direct public investment approaches over more costly and less effective PFI and operating subsidy models is vital for political feasibility of the capital investment approach.

- It is highly likely that a well-designed capital investment program will be strongly supported by peak housing industry, construction and social service bodies.

Effective delivery

- The capital investment provides the necessary funding gap to ensure supply.

- It will generate a long term pipeline of developments and better utilise a not-for-profit housing sector which is growing in expertise and capacity.

- Clearly more work needs to be done to ensure that the substantial subsidies involved can be used appropriately.

- Efforts will need to be made to reform and reinforce adherence to regulations and best practice and promote ongoing improvements in social housing management.

Enhances capacity

- A capital investment approach necessarily keeps governments in the game—researching needs, indexing costs, engaging in land use planning decisions and ensuring good housing standards.

- A needs-based approach to capital investment, aware of important market differences, will institutionalise a nationally consistent method to assess needs, land and housing costs and innovations that will directly inform delivery.

- A capital investment approach also supports the capacity of providers. It can provide clear standards, space for innovation and reinforce good performance and values among registered providers, such as transparency, tenant involvement and decent housing quality.

6   Directions for a more effective social housing infrastructure investment pathway

Increasingly, heads of treasuries, housing providers and institutional investors agree on the existence of a funding gap posed by social housing's low rent revenues (AHWG 2017; ISA 2017). While more efficient NHFIC financing will reduce the magnitude of this gap (NSWFHA 2016) only strategic co-investment can ensure a timely pipeline of social housing developments in the right areas, and in turn, a more constructive role for investors in long term NHFIC bonds.

Today, there is broadening momentum for a more effective range of policy measures required, such as mission focused public co-investment, purposeful land policy and equitable tax reform. More appropriate regulation of the not-for-profit sector is also on the policy agenda (AHWG 2017).

Social housing provides essential shelter for low-income and vulnerable households. This requires a need-based approach to capital investment to ensure the delivery of required accommodation assets in the right place. Mission driven co-public investment is the most reliable pathway to ensure appropriate forms of provision. It has proven useful in the past and remains the most cost effective strategy for governments, compared with operating subsidy PFI alternatives.

A capital investment approach addresses the difference between income constrained rent revenue and the real cost of social housing construction and management over time and space. It should be informed by the level and distribution of need, rather than driven by market mechanisms, to ensure it is delivered at a suitable scale, standard and allocation.

This study goes a long way to quantify need for social housing and models the most cost effective investment approach to address it. It has relied on a quantitative modelling of needs and costs, informed by project case studies, industry consultation, and national and international experience. The report takes into account Australia's vast geographical and housing market differences, and provides Australian governments, industry and civil society with a robust method and estimation of the need for secure social housing, using the most appropriate, up-to-date and available data. Further qualitative work, involving policy makers, landlords and tenants could examine these estimates more closely, set appropriate benchmarks and develop more effective investment programs.

This study's needs-based investment modelling clearly points to the most cost-effective pathway to address Australia's social housing need. The capital investment model combined with efficient NHFIC finance is substantially less expensive for Australian governments than an operating subsidy/majority debt-financed model. A capital investment strategy will contribute to the public estates and provide a valuable hedge against rising land costs. It ensures a revolving asset base which can then be strategically leveraged to address changing needs over the long term.

It is imperative for all levels of government to refine and institutionalise the needs assessment and financial modelling tools presented in this report, to secure adequate funds for necessary capital investment requirements of social housing, and extend the work of NHFIC and CEFC in the supply of social housing. Importantly, more effective regulation of providers (that keeps pace with rapid industry developments) will be required to optimise this investment. Combining funding with financing, driven by effective land policy and mission focused providers, will deliver Australia's social housing infrastructure for the long term.

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Appendix 1: Organisations involved in this research

Organisations interviewed

AMP Social Infrastructure Investment Fund, 22 May 2017

ARA Finnish Housing Financing Development Centre, 2 June 2017

Austria's Federal Ministry of Science, Research and Economy, 29 May 2017

Austria's Housing Investment Bank, 1 June 2017

Council of Europe Development Bank, 1 June 2017

European Investment Bank, 18 May 2017

G20 Infrastructure Hub, 2 June 2017

Housing Europe, 17 May 2017

MAV Local Government Financing Vehicle, 28 June 2017

New Cap Investments, 6 June 2017

UK National Housing Federation, 25 May 2017

UK National Infrastructure Commission, 23 June 2017

Industry workshops conducted

Clean Energy Finance Corporation, Sydney, 19 October 2017

- Project Appraisal Team,

NSW Federation of Housing Associations (now Community Housing Industry Association (CHIA) NSW), CFO group, Sydney, 20 October 2017

- City West Housing
- Hume Housing
- SGCH
- Bridge Housing
- Compass Housing
- Evolve Housing
- GCH
- Coast Community Housing
- Homes North
- Argyle Housing

Appendix 2: Costs and benefits of public and private financing of infrastructure

Table A1: Costs and benefits of public and private financing of infrastructure

	Public Investment Model (PI)	**Private Finance Initiative (PFI) Model as part of a PPP**
Definition	Government provides equity and raises debt to finance private construction	Special Purpose Vehicle raises investment from debt and equity markets for private construction
Benefits	• Costs can be spread out over time • Cost of capital lower than private sector • Simplicity • Use of fixed price contracts can overcome cost overruns • Government self-insures against building and business interruption • Cheaper in the long run	• When public budgets are insufficient to pay up front, PFI is the only option • Costs are spread out over time as repayments • SPV debt is off government balance sheet, even though it invests in public infrastructure • In short term lowers government debt and spending • Transfers risk to private sector of cost and time overruns • Certainty of costs • Promotes efficiency as operators have incentive to reduce costs, but may come at cost to service • Contracted to ensure quality and maintenance of assets, but this requires adequate regulation • Maintenance standards tend to be higher
Costs	• Tax receipts and government borrowing	• Comparatively high cost of private finance—between 2 and 3.75% more than government bonds in 2010, delivered 2%–8% above government bonds to investors in 2013 • Risks are factored into costs from the outset (e.g. political risk) and initial costs under estimated, leading to unforeseen costs • Small changes in cost of finance or contractual variations have major implications for government • Costs include interest and debt, bank fees, shareholder dividends, management, advisory and insurance fees (up to 2% of total for legal arrangement), credit rating, SPV management and accounting • Legally complex and requires extensive advice for all parties

Public Investment Model (PI)	Private Finance Initiative (PFI) Model as part of a PPP
	• Unlike government, unable to self-insure.
	• While a debt a liability, but not reported in national accounts or PSNB
	• Repayments continue well beyond construction phase costing the government more
	• Inflexible long term contracts mean governments are locked into paying for assets and services they may no longer require
	• For schools, little or no improvement in costs, NAO analysis shows 40% higher costs of PFI over PI projects. For hospitals no evidence of operational efficiency and for some services higher costs than non-PFI, HM Treasury in 2011 found 70% higher costs than public sector comparator and higher costs in hospital maintenance.

Source: UK National Audit Office (2018)

Appendix 3 Outline of International Social Housing Investment Pathways

Selected European approaches

Europe offers a smorgasbord of approaches to social housing and infrastructure investment, which are managed by public housing agencies and government owned companies as well as not-for-profit or limited profit housing associations and co-operatives, as outlined in Table 22. National and multi-lateral public finance institutions have also played a key role in supporting a range of infrastructure including social housing, as well as promoting more sustainable forms of construction and urban development and attracting additional private investment. To varying degrees governments have made efforts to reduce the cost of this private investment, via good regulation, co-investment and government guarantees.

Table A2: Approaches to social housing investment in selected countries in Europe

Europe	Model	Funding and Financing Mechanism
Austria	Structured finance	Long term low interest public loans and grants, combined with commercial loans raised via HCC Bonds and developer/tenant equity sustains legislatively defined cost rent limited-profit housing. Promotion supported by municipal land policy and land banking.
Finland	Sliding grants with efficient finance	Combines sliding grants with interest subsidies on approved most efficient loans. Loans are provided by public financial intermediary Munifin. Legislatively defined cost rent not-for-profit housing delivered by public and private providers regulated under NFP legislation. Land is leased.
France	Savings scheme	Tax free household savings scheme (CDC) finances off-market loans to HLM providers alongside state and local subsidies, tax incentives and other loans. Land provided by local authorities and development contributions.
Ireland	Public grants	Centrally funded grants to approved providers for construction, statutory financial intermediary provides low interest loans for land acquisition, interest financed by central government, limited grants from local authorities.
Netherlands	Revolving fund	Replaced direct loans and subsidies with guaranteed capital market loans and rent assistance. Dutch guarantee fund (WSW) and Central Fund (CFV) provide security and assist HAs to reduce their financing costs. HAs have been free to determine own investment strategy, asset base and surpluses intended to be used as a 'revolving fund' to achieve their social task, which has recently been defined in legislation. Formerly, HAs held a strong position as primary partner for municipal development, now they face greater competition from private for-profit developers.

Europe	Model	Funding and Financing Mechanism
Sweden	Capital market	Corporate tax exempt municipal housing companies have always been financed by capital market loans which were sometimes backed by municipal guarantees, grants as well as the company's own resources. In the past interest rate subsidies were provided by the central government but these have ceased. Housing companies formerly had a strong position in the land market and as primary partner for municipal residential development.
Switzerland	Co-operative finance	Commercial loans, loans from a bond issuing co-operative, revolving loans, and own equity, supported by municipal urban policy and land banking. A liberal rent policy allows landlords to raise rents to recover costs, including changing financing costs. Limited profit system defined in charter.
England	Debt equity	Debt finance raised against grant equity (now 15%, previously 75%) and future social rental income, was secured by rising rents and a deep housing benefit as well as discounted land and development contributions under section 106 provisions. Rent policy is turbulent, currently linked to CPI + 1%.

Source: authors.

Australia's Asian neighbours

Australian housing research rarely reviews the housing policies and systems of its immediate neighbours. Few Australian studies (Davies and Chan, 2007) critically examine the institutions and policies underpinning housing investment in countries such as Singapore, South Korea, China and India and only a handful compare these with developments in the West (Chen, Stephens et al. 2013; Groves, Murie et al. 2007; Doling 1999).

One reason for overlooking Asia may be their diverse economic and political systems. Yet these countries do provide inspiration for different infrastructure investment pathways and approaches than taken in Australia. In part this is due to the different role affordable and social housing plays in social wellbeing and economic development.

A concise overview of many of our neighbouring countries' approaches to social housing investment is provided in Table 23 below. Notable is the use of housing finance intermediaries and provident funds in several Asian countries and the about face shift away from home ownership and towards investment in public rental housing following the GFC in China. Closer to home and also worth watching is New Zealand, which reversed its operating subsidy and shared value capture approach to social housing in 2017 with a more traditional direct public investment approach.

Table A3: Approaches to social housing investment in selected countries in Asia and Oceania

Asia and Oceania	Model	Funding and Financing Mechanism
China	State directed private investment and land value recapture	Affordable housing became integral to economic and social policy and investment after the GFC. Provident Fund was rechannelling from ownership to public rental housing. Publicly-led development utilises gains from land value recapture and finance raised by local financial intermediaries to produce a range of social and affordable housing.
India	Tax incentive for PFI	Lack of effective land use planning and land policy frustrates housing development. Increasing reliance on PFI models and tax incentives to generate large scale private investment. Limited results from this strategy amidst economic malaise.
New Zealand	From Income Rent Rebate to Direct Investment	Recent switch from PFI model utilising income rent rebate subsidies and shares in value uplift from densification of older public housing to a new program of direct public investment in repair and supply. It is too early to evaluate the outcomes of this strategy.
Singapore	Provident fund for social good	For those outside the Provident Fund which provides loans for ownership, Housing Development Agency provides limited social rental housing for low-income households.

Asia and Oceania	Model	Funding and Financing Mechanism
South Korea	Mixed public and solidarity	Grants, provider equity (surpluses and returns from land value recapture), public loans and pooled savings accounts from home owners are used to fund a variety of public rental housing forms of differing rent levels and eligibility. Currently focused on youth.

Source: authors.

The Americas

From South to North America, investment pathways affecting infrastructure and social housing vary considerably across the continent, as demonstrated by Table 24. Brazil, Mexico and Argentina have been strong advocates of PPP approaches to infrastructure investment (Osei-Kyei and Chan 2017). The US has the dual system of direct and indirect public investment via federal programs supporting public housing, and tax credit support for affordable not-for-profit housing. Canada has recently returned to a publicly-funded national housing policy, previously devolved to the regions in the 1990s, establishing a National Housing Co-Investment fund to provide grants and public loans for social housing and a national rental housing allowance.

Table A4: Approaches to social housing investment in selected countries in the Americas

America	Model	Funding and Financing Mechanism
Argentina	Emerging PFI	Formerly direct public investment model reliant on land provided by local government and waiting lists of beneficiaries. Demand outstripped supply. Mixed experience with PPPs, complexity and corruption. Renewed efforts towards mixed tenure and income developments. International finance agencies have stepped in to extend tenure and reduce cost of finance.
Brazil	Emerging operating subsidy	Focus has been on large scale promotion of home ownership. Some over production. Builders incentivised to provide social rental housing for eligible households, via payment of landlord operating subsidy guaranteeing rent for 30 years.
Canada	Emerging mixed public finance	New strategy launched public financial intermediary National Housing Co-Investment Fund to provide grants and public loans alongside established housing allowances, heralding the return of national leadership and funding to affordable and social housing policy.
Mexico	Progressive mutual financing	Like Brazil, government has promoted large scale home ownership via use of provident funds, funded in part by employers' mandated contributions. These use progressive interest rate policies to broaden access. Some mortgages include favourable access to credit for green technologies. Poor quality monotonous estates led to planning reforms and measures to include subsidised housing in development.
US	Dual mixed system	Rent geared to income in public housing is funded by federal capital and operating subsidies and provided by city and county based public housing authorities. Not-for-profit housing is eligible for Housing Vouchers and Low Income Housing Tax Credits and commercial finance to provide below market rental housing. Access to land is facilitated by planning instruments. Shifts to higher cost rents for the most vulnerable under the current administration in 2018.

Source: authors.

Appendix 4: Regional (SA4) housing need and construction cost data

Table A5: Housing need and construction cost data: Greater Sydney

Region (SA4)	Central Coast	Sydney—Baulkham Hills and Hawkesbury	Sydney—Blacktown	Sydney—City and Inner South	Sydney—Eastern Suburbs	Sydney—Inner South West	Sydney—Inner West	Sydney—North Sydney and Hornsby	Sydney—Northern Beaches
Current (2016)									
Households	126.0	71.7	106.2	136.7	106.8	192.8	111.0	152.9	91.6
Social rentals (met need)	4.6	0.5	8.8	11.6	4.6	11.8	3.7	2.4	1.7
Homeless (manifest need)	0.4	0.2	0.6	2.5	0.6	1.5	1.0	0.4	0.2
Rental stress (evident need)	6.8	1.1	4.6	3.6	2.5	11.5	3.8	3.4	1.6
Unmet need	7.2	1.3	5.3	6.1	3.1	13.0	4.8	3.8	1.8
Projected new (2017–2036)									
Households	46.7	26.6	39.3	50.6	39.6	71.4	41.1	56.6	33.9
Social rent (maintain the share)	1.7	0.2	3.3	4.3	1.7	4.4	1.4	0.9	0.6
Homeless (manifest need)	0.2	0.1	0.2	0.9	0.2	0.5	0.4	0.2	0.1
Rental stress (evident need)	2.5	0.4	1.7	1.3	0.9	4.2	1.4	1.3	0.6
Unmet need	4.4	0.6	5.2	6.6	2.8	9.2	3.1	2.3	1.3

Region (SA4)	Central Coast	Sydney—Baulkham Hills and Hawkesbury	Sydney—Blacktown	Sydney—City and Inner South	Sydney—Eastern Suburbs	Sydney—Inner South West	Sydney—Inner West	Sydney—North Sydney and Hornsby	Sydney—Northern Beaches
Total (to 2036)									
Homeless (manifest need)	0.6	0.2	0.9	3.4	0.8	2.0	1.4	0.6	0.3
Rental stress (evident need)	9.3	1.5	6.4	5.0	3.4	15.7	5.1	4.7	2.2
Unmet need	11.5	1.9	10.5	12.7	5.9	22.1	7.9	6.1	3.1
Metrics									
Average annual construction	0.6	0.1	0.5	0.6	0.3	1.1	0.4	0.3	0.2
Annual growth rate (%)	6.5%	8.2%	4.0%	3.8%	4.3%	5.4%	5.9%	6.5%	5.4%
Households in need (%)	9.3%	2.4%	13.2%	12.9%	7.2%	12.9%	7.6%	4.1%	3.8%
Current need met (%)	39.0%	28.3%	62.5%	65.4%	59.6%	47.7%	43.7%	38.8%	47.6%
Construction (% hhd growth)	24.7%	7.2%	26.6%	25.0%	15.0%	31.0%	19.3%	10.8%	9.2%
Benchmark neighbourhood									
Suburb	Narara	Baulkham Hills	Blacktown	Newtown	Double Bay	Canterbury	Five Dock	Chatswood	Dee Why
Regional centre	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Built form	attached	attached	low-rise	high-rise	high-rise	low-rise	high-rise	low-rise	low-rise
Suburb trends (APM)									
House	558	1,157	705	1,460	3,810	1,300	1,703	2,500	1,665
Apartment	n/a	705	485	755	1,511	707	860	960	802

Region (SA4)	Central Coast	Sydney—Baulkham Hills and Hawkesbury	Sydney—Blacktown	Sydney—City and Inner South	Sydney—Eastern Suburbs	Sydney—Inner South West	Sydney—Inner West	Sydney—North Sydney and Hornsby	Sydney—Northern Beaches
Social unit costs									
Land	81.2	387.7	31.3	136.9	410.3	137.9	174.8	260.0	183.8
Construction (incl. GST)	225.3	225.3	179.8	161.1	161.1	179.8	161.1	179.8	179.8
Total (incl. on-costs & local tax)	305.5	613.6	210.2	297.7	572.5	317.4	335.8	440.1	363.5
Tenant rental contribution									
Average weekly payment	162	164	162	129	137	154	143	140	153
CRA eligibility rate	85%	89%	94%	91%	89%	90%	87%	87%	90%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A6: Housing need and construction cost data: Greater Sydney (continued)

Region (SA4)	Sydney—Outer South West	Sydney—Outer West and Blue Mountains	Sydney—Parramatta	Sydney—Ryde	Sydney—South West	Sydney—Sutherland
Current (2016)						
Households	86.1	108.7	147.8	64.7	123.0	78.6
Social rentals (met need)	6.2	4.7	11.0	2.3	9.4	2.2
Homeless (manifest need)	0.4	0.5	1.7	0.2	1.2	0.1
Rental stress (evident need)	3.3	4.5	8.9	2.1	8.8	1.5
Unmet need	3.7	5.0	10.6	2.3	10.0	1.6

Region (SA4)	Sydney—Outer South West	Sydney—Outer West and Blue Mountains	Sydney—Parramatta	Sydney—Ryde	Sydney—South West	Sydney—Sutherland
Projected new (2017–2036)						
Households	31.9	40.3	54.8	24.0	45.5	29.1
Social rent (maintain the share)	2.3	1.7	4.1	0.9	3.5	0.8
Homeless (manifest need)	0.2	0.2	0.6	0.1	0.5	0.0
Rental stress (evident need)	1.2	1.7	3.3	0.8	3.2	0.6
Unmet need	3.7	3.6	8.0	1.7	7.2	1.4
Total (to 2036)						
Homeless (manifest need)	0.6	0.7	2.4	0.3	1.7	0.1
Rental stress (evident need)	4.5	6.2	12.2	2.9	12.0	2.0
Unmet need	7.4	8.6	18.7	4.0	17.2	3.0
Metrics						
Average annual construction	0.4	0.4	0.9	0.2	0.9	0.1
Annual growth rate (%)	4.0%	5.4%	5.1%	5.1%	5.3%	4.4%
Households in need (%)	11.5%	8.9%	14.7%	7.2%	15.8%	4.8%
Current need met (%)	62.3%	48.3%	50.9%	50.4%	48.5%	57.5%
Construction (% hhd growth)	23.1%	21.3%	34.1%	16.9%	37.7%	10.3%

Region (SA4)	Sydney—Outer South West	Sydney—Outer West and Blue Mountains	Sydney—Parramatta	Sydney—Ryde	Sydney—South West	Sydney—Sutherland
Benchmark neighbourhood						
Suburb	Ingleburn	Windsor	Parramatta	West Ryde	Fairfield	Cronulla
Regional centre	n/a	n/a	n/a	n/a	n/a	n/a
Built form	attached	attached	low-rise	low-rise	low-rise	low-rise
Suburb trends (APM)						
House	627	635	1,064	1,473	715	1,878
Apartment	555	n/a	640	654	430	840
Social unit costs						
Land	116.5	120.6	105.6	112.3	32.3	202.1
Construction (incl. GST)	225.3	225.3	179.8	179.8	179.8	179.8
Total (incl. on-costs & local tax)	341.0	345.2	284.9	291.7	211.2	381.9
Tenant rental contribution						
Average weekly payment	166	163	153	144	159	153
CRA eligibility rate	93%	89%	92%	89%	91%	91%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A7: Housing need and construction cost data for rest of NSW and ACT

Region (SA4)	Capital Region	Central West	Coffs Harbour—Grafton	Far West and Orana	Hunter Valley excl. Newcastle	Illawarra	Mid North Coast	Murray
Current (2016)								
Households	87.0	80.1	54.6	44.4	98.9	109.6	87.8	46.8
Social rentals (met need)	3.0	3.7	2.2	2.9	4.0	8.1	3.4	1.5
Homeless (manifest need)	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.1
Rental stress (evident need)	3.7	4.0	3.5	2.0	5.6	4.6	5.6	2.4
Unmet need	4.0	4.1	3.8	2.2	5.8	5.0	5.9	2.5
Projected new (2017–2036)								
Households	13.2	12.1	8.3	6.7	15.0	16.6	13.3	7.1
Social rent (maintain the share)	0.5	0.6	0.3	0.4	0.6	1.2	0.5	0.2
Homeless (manifest need)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Rental stress (evident need)	0.6	0.6	0.5	0.3	0.9	0.7	0.8	0.4
Unmet need	1.1	1.2	0.9	0.8	1.5	2.0	1.4	0.6
Total (to 2036)								
Homeless (manifest need)	0.3	0.2	0.3	0.2	0.2	0.5	0.3	0.1
Rental stress (evident need)	4.3	4.6	4.1	2.4	6.5	5.2	6.5	2.8
Unmet need	5.1	5.3	4.7	3.0	7.3	6.9	7.3	3.1

Region (SA4)	Capital Region	Central West	Coffs Harbour—Grafton	Far West and Orana	Hunter Valley excl. Newcastle	Illawarra	Mid North Coast	Murray
Metrics								
Average annual construction	0.3	0.3	0.2	0.2	0.4	0.3	0.4	0.2
Annual growth rate (%)	5.1%	4.6%	5.9%	3.7%	5.4%	3.2%	5.9%	5.8%
Households in need (%)	8.0%	9.8%	11.0%	11.5%	9.9%	11.9%	10.6%	8.6%
Current need met (%)	42.9%	47.1%	36.9%	56.1%	40.3%	61.9%	36.6%	37.2%
Construction (% hhd growth)	38.3%	44.0%	56.8%	44.9%	49.0%	41.8%	54.8%	44.3%
Benchmark neighbourhood								
Suburb	Yass	Parkes	Sawtell	Wellington	Telarah	Figtree	Wauchope	Deniliquin
Regional centre	Goulburn	Bathurst	Coffs Harbour	Dubbo	Maitland	Wollongong	Port Macquarie	Albury
Built form	detached	detached	detached	detached	detached	attached	detached	detached
Suburb trends (APM)								
House	380	269	615	163	300	728	382	216
Apartment	n/a	n/a	390	n/a	n/a	375	n/a	n/a
Social unit costs								
Land	39.1	16.7	163.6	16.7	16.7	166.1	41.5	16.7
Construction (incl. GST)	168.3	163.6	163.6	168.3	157.4	227.6	166.7	157.4
Total (incl. on-costs & local tax)	206.5	179.4	327.1	184.0	173.2	393.2	207.5	173.2

Region (SA4)	Capital Region	Central West	Coffs Harbour—Grafton	Far West and Orana	Hunter Valley excl. Newcastle	Illawarra	Mid North Coast	Murray
Tenant rental contribution								
Average weekly payment	151	146	160	148	160	154	159	140
CRA eligibility rate	83%	85%	82%	88%	86%	90%	80%	79%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A8: Housing need and construction cost data for rest of NSW and ACT (continued)

Region (SA4)	New England and North West	Newcastle and Lake Macquarie	Richmond—Tweed	Riverina	Southern Highlands and Shoalhaven	Australian Capital Territory
Current (2016)						
Households	71.0	139.3	97.2	58.9	58.7	148.9
Social rentals (met need)	3.4	8.2	3.4	2.5	2.2	9.9
Homeless (manifest need)	0.3	0.5	0.5	0.2	0.1	0.6
Rental stress (evident need)	4.0	5.9	5.9	2.7	2.8	2.5
Unmet need	4.3	6.3	6.5	2.9	2.9	3.1

Region (SA4)	New England and North West	Newcastle and Lake Macquarie	Richmond—Tweed	Riverina	Southern Highlands and Shoalhaven	Australian Capital Territory
Projected new (2017–2036)						
Households	10.7	21.1	14.7	8.9	8.9	61.5
Social rent (maintain the share)	0.5	1.2	0.5	0.4	0.3	4.1
Homeless (manifest need)	0.0	0.1	0.1	0.0	0.0	0.3
Rental stress (evident need)	0.6	0.9	0.9	0.4	0.4	1.0
Unmet need	1.2	2.2	1.5	0.8	0.8	5.4
Total (to 2036)						
Homeless (manifest need)	0.4	0.6	0.6	0.2	0.2	0.9
Rental stress (evident need)	4.6	6.7	6.8	3.1	3.2	3.5
Unmet need	5.5	8.5	7.9	3.7	3.7	8.5
Metrics						
Average annual construction	0.3	0.4	0.4	0.2	0.2	0.4
Annual growth rate (%)	5.0%	3.6%	6.2%	4.6%	5.0%	3.1%
Households in need (%)	10.8%	10.4%	10.1%	9.2%	8.8%	8.8%
Current need met (%)	43.7%	56.2%	34.3%	46.8%	43.4%	76.2%
Construction (% hhd growth)	51.1%	40.5%	54.0%	41.5%	41.5%	13.8%

Region (SA4)	New England and North West	Newcastle and Lake Macquarie	Richmond—Tweed	Riverina	Southern Highlands and Shoalhaven	Australian Capital Territory
Benchmark neighbourhood						
Suburb	Narrabri	Edgeworth	Ocean Shores	Wagga Wagga	North Nowra	Chifley
Regional centre	Tamworth	Newcastle	Byron Bay	Wagga Wagga	Nowra	Canberra
Built form	detached	attached	detached	detached	detached	attached
Suburb trends (APM)						
House	360	400	669	385	448	774
Apartment	n/a	n/a	515	283	n/a	390
Social unit costs						
Land	33.1	29.7	194.1	48.8	81.0	175.4
Construction (incl. GST)	163.6	227.6	160.5	160.5	160.5	243.3
Total (incl. on-costs & local tax)	195.9	256.0	354.7	208.6	241.0	418.1
Tenant rental contribution						
Average weekly payment	146	154	160	146	162	150
CRA eligibility rate	85%	89%	82%	85%	84%	95%

Notes: all counts in thousands, except average weekly payment; ACT uses Sydney as construction cost baseline

Source: authors.

Table A9: Housing need and construction cost data for Melbourne

Region (SA4)	Melbourne —Inner	Melbourne —Inner East	Melbourne —Inner South	Melbourne —North East	Melbourne —North West	Melbourne —Outer East	Melbourne —South East	Melbourne —West	Mornington Peninsula
Current (2016)									
Households	266.9	132.6	155.8	175.8	124.0	180.6	253.0	248.0	112.5
Social rentals (met need)	15.8	2.0	3.0	4.8	2.9	3.5	5.7	6.2	2.6
Homeless (manifest need)	1.9	0.5	0.5	0.7	0.6	0.5	1.7	1.4	0.3
Rental stress (evident need)	8.2	4.1	4.7	7.2	6.0	5.4	12.2	12.6	5.4
Unmet need	10.1	4.6	5.2	7.9	6.6	6.0	13.9	14.1	5.8
Projected new (2017–2036)									
Households	118.3	58.8	69.0	77.9	55.0	80.0	112.1	109.9	49.9
Social rent (maintain the share)	7.0	0.9	1.3	2.1	1.3	1.6	2.5	2.8	1.1
Homeless (manifest need)	0.9	0.2	0.2	0.3	0.3	0.2	0.8	0.6	0.2
Rental stress (evident need)	3.6	1.8	2.1	3.2	2.7	2.4	5.4	5.6	2.4
Unmet need	11.5	2.9	3.6	5.6	4.2	4.2	8.7	9.0	3.7

Region (SA4)	Melbourne —Inner	Melbourne —Inner East	Melbourne —Inner South	Melbourne —North East	Melbourne —North West	Melbourne —Outer East	Melbourne —South East	Melbourne —West	Mornington Peninsula
Total (to 2036)									
Homeless (manifest need)	2.8	0.7	0.7	1.0	0.8	0.7	2.5	2.1	0.5
Rental stress (evident need)	11.8	5.9	6.8	10.4	8.7	7.9	17.5	18.2	7.8
Unmet need	21.6	7.5	8.9	13.5	10.8	10.2	22.6	23.1	9.4
Metrics									
Average annual construction	1.1	0.4	0.4	0.7	0.5	0.5	1.1	1.2	0.5
Annual growth rate (%)	4.4%	8.1%	7.2%	6.9%	8.1%	7.0%	8.3%	8.1%	8.0%
Households in need (%)	9.7%	4.9%	5.3%	7.2%	7.6%	5.3%	7.8%	8.2%	7.4%
Current need met (%)	61.0%	30.4%	36.2%	37.8%	30.4%	37.3%	29.2%	30.6%	30.8%
Construction (% hhd growth)	18.3%	12.7%	12.8%	17.4%	19.6%	12.7%	20.2%	21.0%	18.9%
Benchmark neighbourhood									
Suburb	Richmond	Hawthorn	Carnegie	Bundoora	Coburg North	Ringwood	Springvale	Keilor Downs	Skye
Regional centre	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Built form	high-rise	low-rise	low-rise	attached	attached	attached	attached	attached	attached

Region (SA4)	Melbourne—Inner	Melbourne—Inner East	Melbourne—Inner South	Melbourne—North East	Melbourne—North West	Melbourne—Outer East	Melbourne—South East	Melbourne—West	Mornington Peninsula
Suburb trends (APM)									
House	1,220	1,980	1,312	681	760	824	717	618	534
Apartment	542	542	520	365	389	501	440	461	n/a
Social unit costs									
Land	63.0	163.5	95.1	152.8	193.2	226.0	171.2	120.6	77.6
Construction (incl. GST)	157.8	179.9	179.9	215.7	215.7	215.7	215.7	215.7	215.7
Total (incl. on-costs & local tax)	220.2	343.1	274.4	368.0	408.6	441.6	386.5	335.6	292.4
Tenant rental contribution									
Average weekly payment	128	138	144	158	164	160	160	157	160
CRA eligibility rate	87%	84%	82%	87%	87%	87%	87%	86%	82%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A10: Housing need and construction cost data for rest of Victoria

Region (SA4)	Ballarat	Bendigo	Geelong	Hume	Latrobe—Gippsland	North West	Shepparton	Warrnambool and South West
Current (2016)								
Households	62.9	60.7	107.2	67.8	109.9	60.5	50.3	49.2
Social rentals (met need)	2.4	2.3	3.6	2.6	3.8	2.5	2.1	1.8
Homeless (manifest need)	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1
Rental stress (evident need)	3.2	2.9	5.1	3.0	5.6	2.7	2.4	2.0
Unmet need	3.4	3.1	5.4	3.2	5.9	2.9	2.7	2.1
Projected new (2017–2036)								
Households	12.3	11.9	21.0	13.3	21.6	11.9	9.9	9.7
Social rent (maintain the share)	0.5	0.4	0.7	0.5	0.7	0.5	0.4	0.4
Homeless (manifest need)	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Rental stress (evident need)	0.6	0.6	1.0	0.6	1.1	0.5	0.5	0.4
Unmet need	1.1	1.1	1.8	1.1	1.9	1.1	0.9	0.8
Total (to 2036)								
Homeless (manifest need)	0.3	0.2	0.4	0.2	0.3	0.2	0.3	0.2
Rental stress (evident need)	3.8	3.5	6.1	3.6	6.8	3.2	2.9	2.4
Unmet need	4.5	4.2	7.2	4.4	7.8	3.9	3.6	2.9

Region (SA4)	Ballarat	Bendigo	Geelong	Hume	Latrobe—Gippsland	North West	Shepparton	Warrnambool and South West
Metrics								
Average annual construction	0.2	0.2	0.4	0.2	0.4	0.2	0.2	0.1
Annual growth rate (%)	5.5%	5.4%	5.6%	5.0%	5.8%	4.9%	5.1%	4.9%
Households in need (%)	9.2%	8.9%	8.4%	8.6%	8.8%	8.9%	9.5%	8.1%
Current need met (%)	41.2%	42.1%	40.3%	44.7%	38.9%	46.1%	44.4%	46.1%
Construction (% hhd growth)	36.7%	35.0%	34.0%	32.7%	36.3%	33.2%	36.3%	30.2%
Benchmark neighbourhood								
Suburb	Delacombe	White Hills	Newcomb	Beechworth	Warragul	Merbein	Cobram	Hamilton
Regional centre	Ballarat	Bendigo	Geelong	Wangaratta	Traralgon	Mildura	Shepparton	Warrnambool
Built form	detached	detached	detached	detached	detached	detached	detached	detached
Suburb trends (APM)								
House	338	311	322	374	360	227	258	227
Apartment	n/a	n/a	282	n/a	275	n/a	n/a	n/a
Social unit costs								
Land	31.7	17.9	23.5	48.7	42.9	16.7	16.7	16.7
Construction (incl. GST)	153.2	153.2	153.2	154.7	153.2	160.9	154.7	154.7
Total (incl. on-costs & local tax)	184.1	170.3	175.9	202.8	195.5	176.7	170.6	170.6

Region (SA4)	Ballarat	Bendigo	Geelong	Hume	Latrobe— Gippsland	North West	Shepparton	Warrnambool and South West
Tenant rental contribution								
Average weekly payment	149	152	153	147	145	141	145	144
CRA eligibility rate	83%	84%	84%	83%	81%	82%	84%	84%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A11: Housing need and construction cost data for greater Brisbane

Region (SA4)	Brisbane—East	Brisbane—North	Brisbane—South	Brisbane—West	Brisbane Inner City	Ipswich	Logan—Beaudesert	Moreton Bay—North	Moreton Bay—South
Current (2016)									
Households	81.7	80.8	121.6	62.9	103.8	112.0	107.7	88.7	67.3
Social rentals (met need)	3.0	3.9	5.2	1.4	3.8	5.2	4.7	3.8	1.3
Homeless (manifest need)	0.2	0.2	0.6	0.1	1.2	0.5	0.5	0.4	0.1
Rental stress (evident need)	3.0	2.8	4.4	1.6	3.4	7.5	7.2	6.6	2.8
Unmet need	3.2	3.0	5.0	1.7	4.6	8.0	7.7	7.0	3.0
Projected new (2017–2036)									
Households	39.0	38.6	58.1	30.1	49.6	53.5	51.5	42.4	32.2
Social rent (maintain the share)	1.4	1.8	2.5	0.7	1.8	2.5	2.2	1.8	0.6
Homeless (manifest need)	0.1	0.1	0.3	0.1	0.6	0.2	0.2	0.2	0.1
Rental stress (evident need)	1.4	1.3	2.1	0.7	1.6	3.6	3.4	3.2	1.4
Unmet need	3.0	3.3	4.9	1.5	4.0	6.3	5.9	5.2	2.0

Region (SA4)	Brisbane—East	Brisbane—North	Brisbane—South	Brisbane—West	Brisbane Inner City	Ipswich	Logan—Beaudesert	Moreton Bay—North	Moreton Bay—South
Total (to 2036)									
Homeless (manifest need)	0.3	0.3	0.9	0.2	1.7	0.7	0.7	0.5	0.2
Rental stress (evident need)	4.5	4.1	6.6	2.3	5.0	11.2	10.6	9.8	4.2
Unmet need	6.2	6.3	9.9	3.2	8.6	14.3	13.6	12.2	5.0
Metrics									
Average annual construction	0.3	0.3	0.5	0.2	0.4	0.7	0.7	0.6	0.2
Annual growth rate (%)	5.7%	5.0%	5.5%	6.0%	6.1%	6.9%	7.1%	7.4%	8.1%
Households in need (%)	7.6%	8.5%	8.4%	5.0%	8.1%	11.8%	11.5%	12.2%	6.4%
Current need met (%)	48.4%	56.2%	50.6%	45.9%	45.6%	39.2%	37.8%	35.5%	31.1%
Construction (% hhd growth)	15.8%	16.3%	17.1%	10.6%	17.3%	26.8%	26.4%	28.7%	15.5%
Benchmark neighbourhood									
Suburb	Ormiston	Aspley	Coorparoo	Kenmore	Brisbane	Ipswich	Loganholme	Narangba	Murrumba Downs
Regional centre	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Built form	attached	attached	low-rise	attached	low-rise	attached	attached	detached	attached

Region (SA4)	Brisbane—East	Brisbane—North	Brisbane—South	Brisbane—West	Brisbane Inner City	Ipswich	Logan—Beaudesert	Moreton Bay—North	Moreton Bay—South
Suburb trends (APM)									
House	613	568	850	660	552	362	418	465	490
Apartment	339	373	410	670	470	n/a	n/a	n/a	308
Social unit costs									
Land	127.7	104.7	49.8	151.8	46.3	21.2	35.5	95.1	64.8
Construction (incl. GST)	205.2	205.2	162.0	205.2	162.0	205.2	205.2	155.7	205.2
Total (incl. on-costs & local tax)	332.4	309.2	211.1	356.5	207.6	225.3	239.7	250.3	269.1
Tenant rental contribution									
Average weekly payment	165	158	157	158	138	171	171	169	182
CRA eligibility rate	87%	88%	88%	88%	83%	87%	88%	82%	85%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A12: Housing need and construction cost data for rest of Queensland

Region (SA4)	Cairns	Central Queensland	Darling Downs—Maranoa	Gold Coast	Mackay—Isaac—Whitsunday	Queensland—Outback	Sunshine Coast	Toowoomba	Townsville	Wide Bay
Current (2016)										
Households	93.0	81.7	48.4	216.9	62.0	27.2	134.6	56.6	86.0	115.9
Social rentals (met need)	4.5	3.5	1.2	5.0	2.3	5.8	3.2	1.7	4.2	3.8
Homeless (manifest need)	0.9	0.4	0.1	0.7	0.3	0.8	0.4	0.2	0.6	0.6
Rental stress (evident need)	6.0	4.4	2.5	12.9	3.3	0.5	7.2	3.2	4.9	8.4
Unmet need	7.0	4.8	2.7	13.6	3.6	1.3	7.5	3.5	5.5	9.0
Projected new (2017–2036)										
Households	37.1	32.6	19.3	86.5	24.7	10.8	53.6	22.6	34.3	46.2
Social rent (maintain the share)	1.8	1.4	0.5	2.0	0.9	2.3	1.3	0.7	1.7	1.5
Homeless (manifest need)	0.4	0.1	0.1	0.3	0.1	0.3	0.1	0.1	0.2	0.2
Rental stress (evident need)	2.4	1.7	1.0	5.1	1.3	0.2	2.9	1.3	2.0	3.4
Unmet need	4.6	3.3	1.5	7.4	2.4	2.8	4.3	2.1	3.9	5.1

Region (SA4)	Cairns	Central Queensland	Darling Downs—Maranoa	Gold Coast	Mackay—Isaac—Whitsunday	Queensland—Outback	Sunshine Coast	Toowoomba	Townsville	Wide Bay
Total (to 2036)										
Homeless (manifest need)	1.3	0.5	0.2	1.0	0.4	1.1	0.5	0.3	0.8	0.9
Rental stress (evident need)	8.4	6.1	3.6	18.0	4.7	0.7	10.0	4.5	6.9	11.8
Unmet need	11.5	8.1	4.2	21.0	6.0	4.1	11.8	5.5	9.3	14.2
Metrics										
Average annual construction	0.6	0.4	0.2	1.0	0.3	0.2	0.6	0.3	0.5	0.7
Annual growth rate (%)	6.5%	6.1%	7.9%	8.6%	6.6%	2.7%	8.0%	7.5%	6.0%	8.0%
Households in need (%)	12.3%	10.2%	8.0%	8.5%	9.6%	25.9%	8.0%	9.2%	11.3%	11.1%
Current need met (%)	39.4%	42.6%	30.8%	26.8%	39.0%	82.2%	30.0%	33.2%	43.2%	29.8%
Construction (% hhd growth)	31.1%	24.8%	21.9%	24.2%	24.2%	37.4%	22.0%	24.5%	27.3%	30.7%

Region (SA4)	Cairns	Central Queensland	Darling Downs—Maranoa	Gold Coast	Mackay—Isaac—Whitsunday	Queensland—Outback	Sunshine Coast	Toowoomba	Townsville	Wide Bay
Benchmark neighbourhood										
Suburb	Machans Beach	Kawana	Dalby	Pacific Pines	Cannonvale	Longreach	Tewantin	North Toowoomba	Mount Louisa	Tinana
Regional centre	Cairns	Rock-hampton	Dalby	Gold Coast	Mackay	Longreach	Sunshine Coast	Toowoomba	Townsville	Maryborough
Built form	detached	detached	detached	attached	detached	detached	detached	attached	detached	detached
Suburb trends (APM)										
House	370	273	268	520	443	189	510	310	380	332
Apartment	n/a	n/a	n/a	363	240	n/a	343	290	n/a	n/a
Social unit costs										
Land	33.6	16.7	16.7	80.1	62.4	16.7	118.1	16.7	37.3	17.0
Construction (incl. GST)	169.7	179.1	163.5	205.2	179.1	218.0	155.7	209.3	171.3	166.6
Total (incl. on-costs & local tax)	202.5	194.8	179.3	284.5	240.7	233.5	273.5	224.8	207.7	182.7

Region (SA4)	Cairns	Central Queensland	Darling Downs— Maranoa	Gold Coast	Mackay— Isaac— Whitsunday	Queensland —Outback	Sunshine Coast	Toowoomba	Townsville	Wide Bay
Tenant rental contribution										
Average weekly payment	156	152	151	168	154	159	168	164	158	160
CRA eligibility rate	83%	86%	81%	81%	85%	97%	82%	82%	84%	78%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A13: Housing need and construction cost data for Greater Perth and Rest of WA

Region (SA4)	Mandurah	Perth—Inner	Perth—North East	Perth—North West	Perth—South East	Perth—South West	Bunbury	Western Australia—Outback (North)	Western Australia—Outback (South)	Western Australia—Wheat Belt
Current (2016)										
Households	38.1	69.2	92.1	197.7	178.9	149.4	66.9	26.7	43.6	53.0
Social rentals (met need)	1.2	2.4	3.3	5.7	6.6	5.2	2.7	5.6	3.6	3.0
Homeless (manifest need)	0.1	0.4	0.3	0.4	0.6	0.4	0.2	0.7	0.4	0.2
Rental stress (evident need)	2.5	2.0	3.5	7.2	7.2	5.8	3.3	0.3	1.7	1.7
Unmet need	2.6	2.3	3.7	7.6	7.8	6.2	3.5	1.1	2.1	1.9
Projected new (2017–2036)										
Households	26.4	47.9	63.9	137.0	124.0	103.6	27.7	11.1	18.1	21.9
Social rent (maintain the share)	0.8	1.7	2.3	4.0	4.6	3.6	1.1	2.3	1.5	1.2
Homeless (manifest need)	0.1	0.3	0.2	0.3	0.4	0.3	0.1	0.3	0.2	0.1
Rental stress (evident need)	1.8	1.4	2.4	5.0	5.0	4.1	1.4	0.1	0.7	0.7
Unmet need	2.7	3.3	4.9	9.3	10.0	7.9	2.6	2.8	2.4	2.0

Region (SA4)	Mandurah	Perth—Inner	Perth—North East	Perth—North West	Perth—South East	Perth—South West	Bunbury	Western Australia—Outback (North)	Western Australia—Outback (South)	Western Australia—Wheat Belt
Total (to 2036)										
Homeless (manifest need)	0.2	0.6	0.5	0.6	1.0	0.7	0.3	1.1	0.6	0.2
Rental stress (evident need)	4.3	3.3	5.9	12.2	12.2	9.9	4.7	0.4	2.4	2.4
Unmet need	5.3	5.6	8.6	16.9	17.8	14.1	6.1	3.8	4.5	3.9
Metrics										
Average annual construction	0.3	0.3	0.4	0.8	0.9	0.7	0.3	0.2	0.2	0.2
Annual growth rate (%)	8.8%	6.2%	6.6%	7.1%	6.7%	6.8%	6.0%	2.6%	4.1%	4.3%
Households in need (%)	10.1%	6.9%	7.7%	6.8%	8.1%	7.6%	9.3%	24.9%	13.2%	9.1%
Current need met (%)	31.2%	51.0%	46.8%	43.0%	46.1%	45.3%	43.8%	84.1%	63.5%	61.1%
Construction (% hhd growth)	20.1%	11.7%	13.5%	12.3%	14.3%	13.6%	21.9%	34.4%	24.8%	17.7%
Benchmark neighbourhood										
Suburb	Mandurah	Perth	Ballajura	Kingsley	Belmont	Hamilton Hill	Margaret River	Dampier	Geraldton	Mount Barker
Regional centre	n/a	n/a	n/a	n/a	n/a	n/a	Bunbury	Karratha	Geraldton	Albany
Built form	attached	low-rise	attached	attached	attached	attached	detached	detached	detached	detached

Region (SA4)	Mandurah	Perth—Inner	Perth—North East	Perth—North West	Perth—South East	Perth—South West	Bunbury	Western Australia—Outback (North)	Western Australia—Outback (South)	Western Australia—Wheat Belt
Suburb trends (APM)										
House	327	530	433	580	450	485	475	492	320	233
Apartment	273	360	n/a	450	335	388	352	n/a	n/a	n/a
Social unit costs										
Land	24.3	16.7	51.5	100.3	55.8	64.8	118.5	67.9	33.2	16.7
Construction (incl. GST)	216.9	167.9	216.9	216.9	216.9	216.9	133.8	197.5	140.1	146.5
Total (incl. on-costs & local tax)	240.1	183.6	267.3	316.4	271.7	280.7	252.1	264.5	172.7	162.4
Tenant rental contribution										
Average weekly payment	158	132	152	154	152	153	156	161	149	150
CRA eligibility rate	82%	85%	88%	89%	89%	89%	87%	99%	89%	89%

Notes: all counts in thousands, except average weekly payment

Source: authors.

Table A14: Housing need and construction cost data for greater Adelaide and Rest of SA, Greater Darwin and Rest of NT

Region (SA4)	Adelaide—Central and Hills	Adelaide—North	Adelaide—South	Adelaide—West	Barossa—Yorke—Mid North	South Australia—Outback	South Australia—South East	Darwin	Northern Territory—Outback
Current (2016)									
Households	114.7	159.9	141.6	93.8	45.4	32.7	75.4	47.3	24.8
Social rentals (met need)	4.6	12.3	7.8	9.0	1.9	4.3	3.6	3.1	7.7
Homeless (manifest need)	0.4	0.6	0.4	0.4	0.1	0.3	0.3	0.7	4.8
Rental stress (evident need)	4.1	9.2	6.2	4.2	2.0	1.4	3.7	0.9	0.3
Unmet need	4.5	9.8	6.6	4.6	2.1	1.7	4.0	1.6	5.1
Projected new (2017–2036)									
Households	28.8	40.1	35.5	23.5	4.4	3.1	7.2	15.0	11.9
Social rent (maintain the share)	1.1	3.1	2.0	2.3	0.2	0.4	0.3	1.0	3.7
Homeless (manifest need)	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.2	2.3
Rental stress (evident need)	1.0	2.3	1.6	1.1	0.2	0.1	0.4	0.3	0.2
Unmet need	2.3	5.6	3.6	3.4	0.4	0.6	0.7	1.5	6.2

Region (SA4)	Adelaide—Central and Hills	Adelaide—North	Adelaide—South	Adelaide—West	Barossa—Yorke—Mid North	South Australia—Outback	South Australia—South East	Darwin	Northern Territory—Outback
Total (to 2036)									
Homeless (manifest need)	0.5	0.8	0.5	0.5	0.1	0.3	0.3	0.9	7.1
Rental stress (evident need)	5.1	11.5	7.8	5.3	2.2	1.6	4.1	1.2	0.5
Unmet need	6.8	15.4	10.2	8.0	2.5	2.3	4.7	3.2	11.3
Metrics									
Average annual construction	0.3	0.8	0.5	0.4	0.1	0.1	0.2	0.2	0.6
Annual growth rate (%)	4.7%	4.1%	4.3%	3.2%	4.3%	2.2%	4.3%	3.5%	4.6%
Households in need (%)	7.9%	13.9%	10.2%	14.5%	8.8%	18.3%	10.0%	10.1%	51.7%
Current need met (%)	50.4%	55.7%	54.2%	66.1%	47.2%	71.5%	47.4%	65.5%	60.3%
Construction (% hhd growth)	23.6%	38.4%	28.9%	34.1%	57.2%	72.6%	65.1%	21.1%	94.5%
Benchmark neighbourhood									
Suburb	Adelaide	Craigmore	Hallett Cove	Seaton	Kapunda	Port Augusta	Millicent	Driver	Katherine East
Regional centre	n/a	n/a	n/a	n/a	Barossa	Whyalla	Mount Gambier	Darwin	Katherine
Built form	low-rise	attached	attached	attached	detached	detached	detached	attached	detached

Region (SA4)	Adelaide—Central and Hills	Adelaide—North	Adelaide—South	Adelaide—West	Barossa—Yorke—Mid North	South Australia—Outback	South Australia—South East	Darwin	Northern Territory—Outback
Suburb trends (APM)									
House	580	303	460	481	268	175	200	439	325
Apartment	430	n/a	303	289	n/a	n/a	n/a	n/a	n/a
Social unit costs									
Land	27.5	20.8	75.8	86.6	18.0	16.7	16.7	43.1	16.7
Construction (incl. GST)	156.9	175.4	175.4	175.4	128.5	140.8	140.8	214.0	170.1
Total (incl. on-costs & local tax)	183.6	195.3	250.6	261.4	145.9	156.7	156.7	256.1	185.9
Tenant rental contribution									
Average weekly payment	144	154	153	146	143	140	144	155	165
CRA eligibility rate	87%	91%	90%	90%	85%	92%	83%	94%	99%

Notes: all counts in thousands, except average weekly payment; Northern Territory uses Adelaide as construction cost baseline

Source: authors.

Table A15: Housing need and construction cost data for greater Hobart and Rest of Tasmania

Region (SA4)	Hobart	Launceston and North East	South East	West and North West
Current (2016)				
Households	89.2	57.5	15.2	44.8
Social rentals (met need)	5.7	3.2	0.2	3.0
Homeless (manifest need)	0.3	0.2	0.0	0.1
Rental stress (evident need)	4.4	3.1	0.6	2.4
Unmet need	4.7	3.3	0.6	2.5
Projected new (2017–2036)				
Households	16.2	5.5	1.5	4.3
Social rent (maintain the share)	1.0	0.3	0.0	0.3
Homeless (manifest need)	0.1	0.0	0.0	0.0
Rental stress (evident need)	0.8	0.3	0.1	0.2
Unmet need	1.9	0.6	0.1	0.5
Total (to 2036)				
Homeless (manifest need)	0.4	0.2	0.0	0.1
Rental stress (evident need)	5.2	3.4	0.6	2.6
Unmet need	6.6	3.9	0.7	3.0
Metrics				
Average annual construction	0.3	0.2	0.0	0.2
Annual growth rate (%)	3.9%	4.1%	7.3%	3.5%

Region (SA4)	Hobart	Launceston and North East	South East	West and North West
Households in need (%)	11.7%	11.2%	5.4%	12.4%
Current need met (%)	54.5%	48.9%	26.6%	54.9%
Construction (% hhd growth)	40.9%	71.3%	47.2%	70.8%
Benchmark neighbourhood				
Suburb	Kingston Beach	Riverside	Huonville	Spreyton
Regional centre	n/a	Launceston	Huonville	Devonport
Built form	detached	detached	detached	Detached
Suburb trends (APM)				
House	509	314	280	349
Apartment	401	216	n/a	n/a
Social unit costs				
Land	107.6	16.7	16.7	30.3
Construction (incl. GST)	164.0	155.8	164.0	159.1
Total (incl. on-costs & local tax)	271.2	171.6	179.8	188.6
Tenant rental contribution				
Average weekly payment	152	144	151	148
CRA eligibility rate	88%	85%	76%	86%

Notes: all counts in thousands, except average weekly payment

Source: authors

Appendix 5: Construction cost estimates and residual land calculation

Table A16: Construction cost estimates calculated using Rawlinsons (2017): market median dwelling

Density	Sydney	Melbourne	Adelaide	Brisbane	Hobart	Perth
Detached	$198,400	$194,800	$156,400	$197,000	$210,800	$163,600
Attached	$281,800	$269,800	$220,000	$256,400	$326,600	$271,000
Low-rise	$289,233	$282,033	$257,833	$256,800	$313,833	$282,283
High-rise	$251,610	$245,650	$243,410	$242,950	$65,300	$274,380

Source: Rawlinsons (2017)

Table A17: Construction cost estimates calculated using Rawlinsons (2017): Social housing unit

Density	Sydney	Melbourne	Adelaide	Brisbane	Hobart	Perth
Detached	$155,800	$153,200	$122,400	$155,700	$164,000	$127,400
Attached	$225,300	$215,700	$175,400	$205,200	$260,500	$216,900
Low-rise	$179,808	$179,859	$156,901	$162,012	$207,946	$167,881
High-rise	$161,073	$157,783	$155,973	$156,483	$37,683	$175,303

Source: Rawlinsons (2017)

Residual land calculation

The residual land calculation uses market price (in Appendix 2) and construction costs (above; incorporating regional loading as appropriate) to determine the value of a parcel of land for the market median product in each SA4. It accounts for other development, sales and land holding costs, and taxes and fees. The formula used for the residual value of land is, roughly speaking:

- net revenue (market price less margin, fees and taxes)
- minus development costs (construction plus fees and taxes)
- minus development borrowing costs
- all multiplied by a factor that deducts fees, taxes and borrowing costs for the land purchase.

$$RLV = \left(\begin{array}{c} \left(S(1 - f_M - t_{GS})(1 - m) \right) \\ - \left(C \left((1 + f_D)(1 + t_I + t_{GC}(m - 1)) + t_D \right) \right) \\ - \left(C((1 + f_D)(1 + t_I) + t_D) \left(\frac{e^{rp} - 1}{p(e^r - 1)} - 1 \right) \right) \end{array} \right) \left(\frac{2 - e^{rp}}{1 + t_L + f_L} \right)$$

RLV = residual land value, ex. GST (margin scheme assumed, so no borrowing costs on GST)

S = sale/market price

C = construction costs, inc. GST

Constants

f_M	=	fees, marketing/sales commissions:	**1.5%** (of sale price)
t_{GS}	=	tax, GST:	**9.09%** (of sale price)
m	=	profit margin/developer take:	**20%** (of net sales, i.e. after tax and marketing)
f_D	=	fees, design/engineering, inc. GST:	**8%** (of construction costs)
t_I	=	tax, local infrastructure contributions:	**1%** (of construction and design costs)
t_{GC}	=	tax, GST charged by suppliers:	**9.09%** (of construction/design costs; deducted to ensure GST not double paid at time of sale)
t_D	=	tax, development application:	**0.15%** (of construction costs)
r	=	interest rate on borrowings:	**5%** (apr; land costs borrowed in year Y_0, construction costs borrowed in equal parts from Y_1 to Y_p, all paid back in Y_{p+1})
p	=	development period (in years):	**1** for houses; **2** for walk-ups; **3** for high-rises
f_L	=	fees, legals for land transaction:	**0.5%** (of land value)
t_L	=	tax, land tax and stamp duty:	**10%** (of land value)

Using the values for the constants identified above, this boils down to:

$RLV = 0.6141S - 0.8704C$ for attached and detached houses

$RLV = 0.5792S - 0.8436C$ for low-rise apartments

$RLV = 0.5425S - 0.8122C$ for high-rise apartments

AHURI Research Centres

AHURI Research Centre—Curtin University

AHURI Research Centre—RMIT University

AHURI Research Centre—Swinburne University of Technology

AHURI Research Centre—The University of Adelaide

AHURI Research Centre—The University of New South Wales

AHURI Research Centre—The University of South Australia

AHURI Research Centre—The University of Sydney

AHURI Research Centre—University of Tasmania