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An Australian social housing best practice asset management framework

Authored by
Callum Logan, RMIT University
Andrea Sharam, RMIT University
Sean McNelis, Swinburne University of Technology

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Authors

Callum Logan, RMIT University
Andrea Sharam, RMIT University
Sean McNelis, Swinburne University of Technology

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Acronyms and abbreviations used in this report

ABS	Australian Bureau of Statistics
AM	Asset Management
AMF	Asset Management Framework
AMP	Asset Management Plan
BPAM	Best practice Asset Management
BPAMP	Best practice Asset Management Plan
CA	Condition Assessment
CHP	Community Housing Provider
GIS	Geographical Information System
IT	Information Technology
IPWEA	Institute of Public Works Engineering Australasia
ISO	International Organization for Standardization
KPI	Key Performance Indicator
LOS	Levels of Service
NAMS	National Asset Management Support
NPV	Net Present Value
ODM	Optimised Decision Making
OHS	Occupational Health and Safety
RTA	Residential Tenancy Act
SHO	Social Housing Organisation

The Framework: An Australian social housing best practice asset management framework

1.1 Purpose of this guide

This guide provides a simplified generic asset management framework (AMF) intended for use by social housing organisations (SHOs) seeking to bring their asset management into line with best practice. It will provide a starting point for SHOs that have not yet developed an AMF or asset management plan (AMP). Other SHOs wishing to review, update and validate their current AMF and AMP may also find it useful.

This guide is intended to be used in conjunction with both:

- the International Infrastructure Management Manual produced by IPWEA,[1] which is a comprehensive but general guide to asset management (AM); and
- the associated NAMS Property Manual,[2] a more-specific guide to property AM.

Readers are encouraged to use the NAMS Property Manual in conjunction with this guide.

1.2 Why asset management?

SHOs across Australia hold billions of dollars in housing assets. Asset management is about stewardship. Stewardship is concerned with extending the life of assets to maximise the financial investment; it is concerned with ensuring assets are fit for purpose both in the present and the future; and are able to deliver a broad range of beneficial outcomes to tenants and society. Stewardship requires planning.

Failure to undertake appropriate AM exposes an organisation to significant financial and legal risks.

Lack of appropriate planning may be the consequence of a poor AM vision, often exacerbated by decision-making based on poor data. An example would be growing the portfolio at huge expense when, in five years' time, there is no funding to meet the bare minimum legal maintenance standards.

The systemisation of AM practice is a relatively recent practice. For example, the International Organization for Standards' (ISO) ISO 55000 was released only in 2014. Currently there is no publicly available guide to AM developed specifically for social housing providers. The NAMS Property Manual includes some good examples from social housing, but the highly specific nature of the social housing sector warrants special attention.

1 Available from https://www.ipwea.org/publications/ipweabookshop/iimm.
2 Available from https://www.ipwea.org/newzealand/bookshop/nzpubs/nzbookshop/pmia-nz.

Social housing has evolved into a complex set of delivery modes in Australia, ranging from some very large providers to many more small providers. Smaller SHOs often lack the resources to fund asset management adequately or lack well-trained asset staff. This makes them vulnerable to the unknown liabilities that lay ahead. One of the more complex arrangements are stock and management transfers governed by state agreements. For example, with management leases, the responsibility for maintenance and some renewal work rests with the CHP, yet structural works rest with the state. The SHAs' Director's Interest in the case of title transfers may inhibit portfolio reconfiguration, and adds another layer of regulation beyond existing community housing regulation.

Two examples highlight the special nature of social housing. In the private rental sector, value is expressed in terms of monetary value, determined by the net rent model. Other values, such as a dwelling being a 'home' and not simply a utilitarian service, are rarely considered. By contrast, a social landlord's *business* is tenant outcomes, and thus their asset management needs to take account of a broader range of metrics—for example, the impact of concentration of social housing. Social landlords are required to be strategic and consider not just how a neighbourhood might impact on their investment but how their investment will contribute to place.

Social housing provision involves a fragmented and complex set of delivery modes where some organisations own and manage their assets, some organisations lease and manage the assets, some are bound by management contracts with SHAs, some are registered providers, and some are not. Some providers are standalone organisations, while others are part of large human service or faith organisations. Regardless of who owns the assets, information about the assets and the appropriate use of that information to ensure the prudent management of those assets is critical to the success of social housing provision in perpetuity.

1.3 What is asset management?

Best practice social housing asset management considers all the social, economic, cultural and environmental benefits of social housing provision, introducing complexity. These broader elements, which are often ignored, are part of the sustainability set often referred to as 'all of government' or 'societal' costs and should be assessed. Housing has an ability to add significant social benefit not just by way of lower rent, but also in health benefits, education benefits, cultural and environmental benefits. For example, a solar generation retrofit program can lower energy costs for the tenant and have a positive impact on the environment.

An AMP should be a very transparent and defensible document that shows the alignment of strategy, tactics and operational planning. At the highest level, asset strategies and their KPIs will directly contribute to the housing organisation's goals and objectives. They should be devoid of political influence (both internal and external), and will represent the optimal programs of work, whether they be maintenance programs, capital renewal programs, redevelopment and new supply programs, or retrofit capital programs.

In its simplest form, an AMF consists of policy, strategy and a plan—or 'why', 'how' and 'what'. Policy is a broad term, encompassing organisational policy and external policy such as statutes and regulations. Strategy shows how the asset management of a portfolio of assets will add to policy outcomes, and the plan is the operational program guide. The AMF is the document that shows clear and transparent alignment of policy, strategy and programs of work. Policy, strategy and the plan are organic, and change as the environment, political landscape, economy and legal, social and technology settings change within and around the business of social housing.

Equally, an AMF is not just an annual process of documenting policy, strategy and work programs. It includes asset targets and an improvement plan, and should be seen as a living document that is constantly revisited and refined. Each organisation is different and will its own asset management needs, with individualised policy, strategy and plans.

1.4 The Framework

The Australian social housing best practice asset management Framework consists of two components:

- the material or content of the framework
- the processes and elements required to complete an best practice asset management plan (BPAMP).

These components are illustrated in Figure 1 and Figure 2, which detail the process.

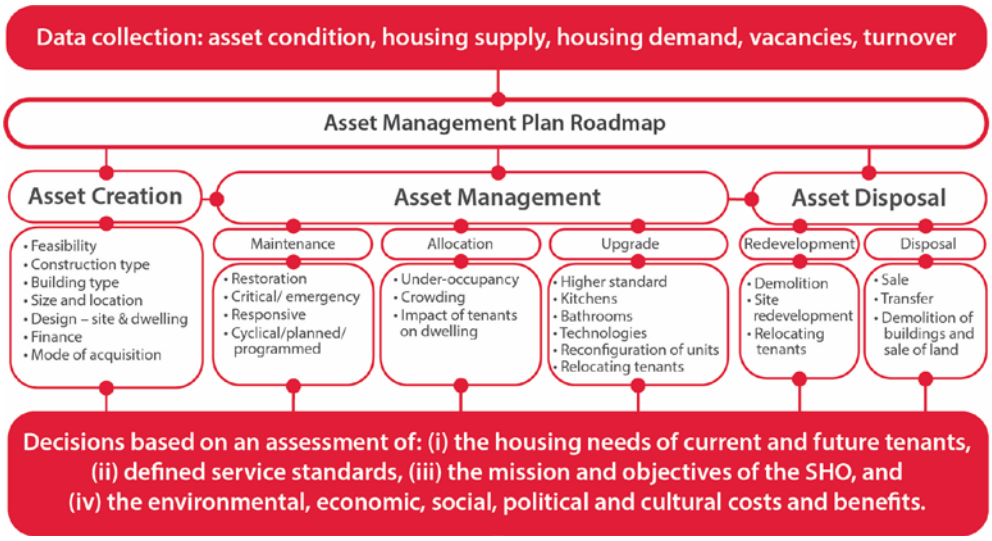
1.4.1 Content of an best practice asset management plan

The content of an best practice AMP includes data on assets, housing demand, vacancies, turnover and housing supply within the various housing sub-markets within which the organisation operates. This data informs asset planning, which covers dwellings at different stages of the life cycle:

- asset creation—the acquisition of stock through building, purchasing and head leasing
- asset management—the maintenance, allocation and upgrade of current stock
- asset disposal—demolition and redevelopment on sites that meet current or future demand, and the sale or transfer of land or dwellings that no longer meet current or future demand.

Figure 1 outlines the relationship between the different types of content within an best practice AMP.

Figure 1: Sustainable asset management over the life cycle of social housing



Source: McNelis 2020.

An asset management plan will cover all stages in the life cycle of housing assets: asset creation, asset management and asset disposal.

1.4.2 Process to develop an AMP

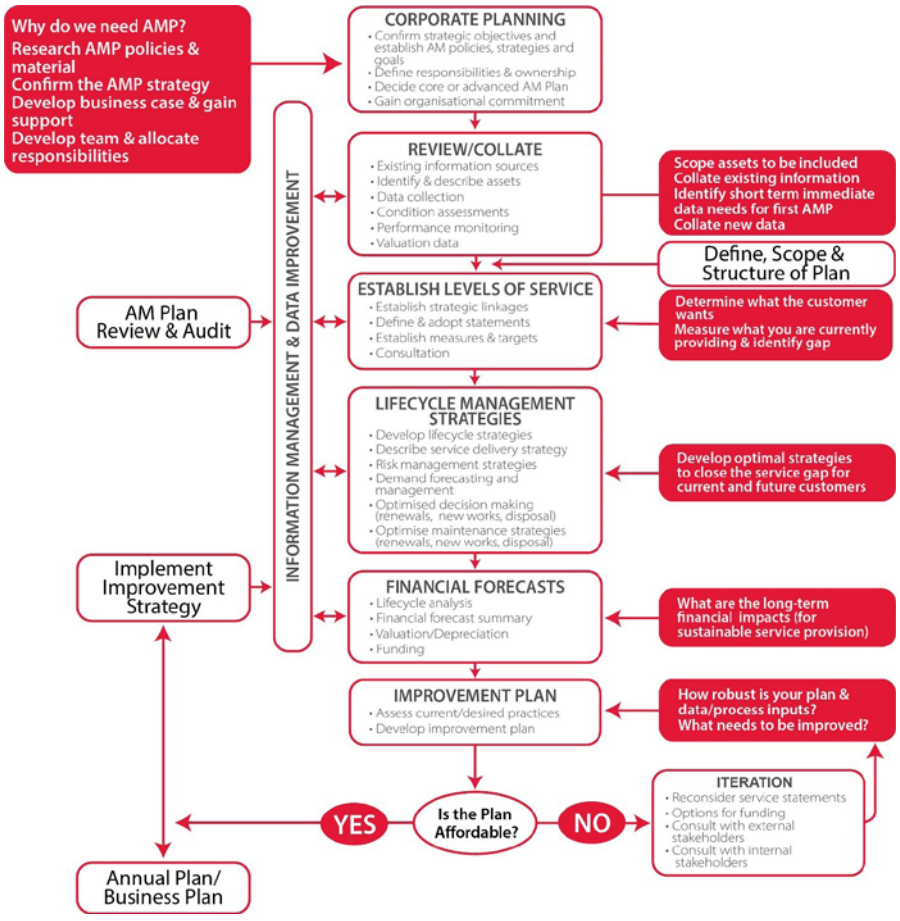
Figure 2 depicts the asset management plan (AMP) roadmap, detailing the process and elements needed to complete an AMP. It starts with understanding the organisational mission and objectives, and development of complementary asset strategies. During the scenario modelling and optimised decision-making (ODM) process, levels of service (LOS) evolve.

ODM is defined as the best asset strategy or project to minimise long-term costs and maximise outcomes for the organisations and its customers. LOS are the standards the SHO aims to deliver. These are powerful components within the planning process, and should be used to help inform and refine organisational objectives and policy as much as organisational objectives and policy inform the AMP.

It starts with understanding the organisational mission and objectives, and the development of complementary asset strategies. The asset management framework (AMF) for social housing considers vertical and horizontal integration of an iterative annual asset management planning process, with life-cycle management that accounts for all aspects of sustainability required for ODM. That means that all points of an asset's life cycle, data, systems and tools allow for ODM.

The AMF must provide data and systems for this type of decision-making to ensure the sustainability of portfolios under management over time.

Figure 2: Asset management plan roadmap



Source: Adapted from IIMM 2015.

1.5 Developing an asset management plan

1.5.1 Preliminaries

For asset management to be effective, the asset team must be allowed time to plan rather than be consumed by reactive needs and wants. This often represents a leap of faith by organisations, which is normally followed by an investment in asset staff, training, software and data collection. Good asset data, tools and systems are critical to make the task of asset management and planning manageable. Training, allocation of responsibilities and reporting lines are critical, as well as documented processes and deliverables, and creation of team key performance indicators (KPIs). Good asset planning requires resources. Smaller organisations may choose to contract-out the asset management planning component or work cooperatively with other like-minded organisations.

The content of an AMP is defined by the AMP roadmap (Figure 2). A good reference for chapter and subheadings for an AMP is contained in the NAMS Property Manual (NAMS, 2014: 7.15–7.18). The NAMS Property Manual is also a good source to asset management practitioners because of its many practical property-asset management examples, including social housing.

1.5.2 Corporate planning

The role of the asset manager is to link strategic, tactical and operational asset planning with the organisation's mission, objectives, goals and priorities. This requires sitting down with the chief executive officer and others who helped develop the organisation's business plan to gain a thorough understanding of it, in order create an AMP that actually adds value to the business.

Asset data, analysis and forecasting is key to understanding how the asset portfolio can evolve and what the limitations are.

Equally important is the involvement of senior asset team members in the development of the business plan, as this may result in changes to an organisation's mission statement to something more attainable. This is particularly important for organisations that are new to asset planning. This process should be viewed as a top-down and bottom-up approach to objective setting.

Strategic, tactical and operational planning must show clear linkage to the business plan and added value outcomes:

- **Strategic planning:** the connection with organisational objectives.
- **Tactical planning:** the asset actions or options taken to solve problems.
- **Operational planning:** the individual programs or interventions and resources used by the assets.

Ultimately, the strategy, statements and actions should be highly visible within an AMP and reflect all of the work undertaken to collect asset data, the analysis of that data, forecasting of operational and capital expenditure, sensitivity testing, risk management, and options analysis to determine the optimal set of actions.

An example of an organisational mission statement may be: 'ABC Organisation will provide affordable, secure and suitable housing.'

In this example, there are AM strategy linkages around a definition of suitable housing that will consider condition standards, tenant matching to typology, amenities and location. The word 'secure' housing refers to security of tenure, but could also refer to security for tenants and their possessions, which leads to all kind of considerations around design to minimise the potential for criminal activity and security features such as door locks, alarm systems and security lighting. An organisational goal could also reference growing the portfolio to meet emerging demand. Where the organisational resources dictate alternate solutions are needed, a tactical asset solution may be to consider leasing additional dwellings or exploring a partnership arrangement with private developers, or other alternatives such as building on leasehold land. Where none of these options are possible the organisations business plan needs to reflect this constraint.

1.5.3 Review and collate: data collection

Current and future demand

As part of the process of developing an AMP, the organisation should undertake an analysis of current and future demand for social housing—especially demand that will impact their organisation and the future demand they will need to satisfy.

Establishing future demand for social housing is a complex task, given the number of variables that may influence demand. It is not simply the number of people seeking social housing, nor the number of people who are eligible. Demand also includes the type of housing that will be needed. So, an estimate of future demand requires an analysis by household type.

Econometric modelling can be used to forecast demand using relevant economic and demographic variables derived from different sources such as the Reserve Bank of Australia or ABS. Future demand should be analysed across dwelling typologies, household type and locations in order to plan to fund and develop complementary asset solutions. Wiewiora, Brown et al. (2012) emphasise the need for customer-centric planning to obtain greater alignment of assets to user requirements. Demand forecasting and management must involve current and prospective tenant consultation to ascertain location, dwelling type and dwelling amenity expectations. These models are highly sensitive to changes in tenant allocation settings, and will complicate the future demand forecasting process.

New supply to meet demand represents new capital—apart from leased dwellings—and must be considered alongside other competing capital projects in long-term forecasting and cashflow analysis.

Asset register

An organisation will also need to develop and maintain an inventory or asset register. This will include:

- whether dwellings are owned or managed and, if managed, the term of the headlease and its conditions
- property descriptions
- critical components
- condition of buildings
- functionality of buildings
- utilisation of buildings
- strategic land holdings.

Land and dwelling data

Ideally an AMP includes sufficient dwelling data to produce individual asset long-term (life-cycle) forecasts of rent and expenses—including rates, insurance, management costs and owner corporation fees—along with maintenance backlog and projections, and capital renewal work. Capital renewal would be informed by understanding the condition-based life-cycle forecasting, but could be overridden by redevelopment options and modelling of cashflow in order to determine cost–benefit.

This allows for strategic decision-making at the individual asset level. Based on the outcomes from the analysis, each asset can ultimately be assigned a code: Long-Term hold, Redevelop or Sell. Information systems should be able to aggregate this data for any number of assets and allow subset analysis by:

- number of bedrooms
- type—for example, public housing estate, standalone dwellings, units, townhouses, apartments
- location
- total portfolio
- tenure

- portfolio under management by individual asset managers
- dwellings that have redevelopment potential
- property amenity offered—for example, disability amenities
- local amenity offered—for example, properties within 10 km of a medical service
- overcrowding
- underutilisation
- vacancy.

In addition, there is a requirement to be able to identify individual properties that fall short of LOS targets, so that programs of work can be identified, packaged and undertaken on assets. These shortfalls could arise from a failure against a standard for an existing asset component, or address a component that is missing. Assets coded 'redevelopment' or 'sell' may only need to meet minimum legal regulatory compliance until disposed of. An exception to this is when a higher sale price could be achieved that more than offsets the cost of renovation.

Individual asset-maintenance projections and capital renewal projections determined by an averaging approach —based, for example, on the decade built—is insufficient for BPAM. This averaging process represents a planning risk, as it will make some assets appear to be better than they are and others worse than they are, leading to suboptimal asset decisions. This type of data cost-saving measure should be avoided.

It is critical to ensure asset data integrity, reliability and currency. Before conducting condition assessments, it is important to develop a data management strategy that will include a process for updating renewed component data and condition grades. This will also determine the resources needed.

Another important issue is to determine the ideal level of componentisation to collect data. For example, do you record the condition of paint on walls in one room or all four walls? Thousands of components exist for one dwelling, but the cost of collecting that level of data and maintaining it may involve high costs. This may not represent value for money. There will be a point between the cost of collection and value gained from having the data that will determine component level. A practical consideration when determining component level is the base lives of components, since components that depreciate at different rates should be separated in order to forecast their renewal.

A final important consideration that will determine component level is how your organisation can package planned maintenance work or renewals in a way that achieves economies of scale during any tendering process. For example, packaging multiple room redecoration work for tender rather than calling on contractors to paint one or two walls in each dwelling in an unplanned and unpackaged manner. From a contractor's perspective, their tender price will reflect their own cost-saving strategies, such as minimising travel costs or bulk purchase of paint and other materials.

Periodic inspection and measurement against LOS standards will determine the level of failure of each component and trigger how remediation will be prioritised. For example, a health and safety issue will require immediate repair or replacement. Non-critical work forms a backlog maintenance that should be addressed though forward-planned maintenance and forward-planned capital to address the amenity gap.

Ideally, planned maintenance should reduce reactive maintenance costs. For example, when the cost of contracting bulk purchase and replacement of hot-water services is less on a per unit basis than getting a plumber in for emergency replacement on a weekend. Where possible, reactive maintenance should be avoided because of the costs involved in individual jobs (including internal administrative costs). No more than 20 per cent of the maintenance budget should be allocated to reactive maintenance under an BPAM regime. Setting such a benchmark as a KPI will drive the systems change needed to deliver the desired efficiencies. Reactive maintenance levels and costs should reduce with better condition assessment processes and better planning. Packaging planned works, tendering and contract management will become easier. This will lead to economies of scale and reduced internal administration.

As the condition assessment requires the identification of component condition grades—which is a scaled assessment of component life cycle—then qualified builders or building surveyors would normally be tasked with conducting the condition assessment (CA). Training is vital for this role, so that all involved have a collective understanding of component condition ratings using practical examples and photos of different levels of degradation with matching condition grade. For example, picture cards may be provided to assessors to be used on site to show different condition states, such as peeling paint, worn carpet or water damage with matching condition grades. Auditing of condition grade assessment should also form part of the process to improve accuracy. Auditing, training and aids such as condition-grade pictures should aim to remove variation between assessors and improve accuracy.

The current condition, base life estimates and criticality of components—combined with their associated replacement or repair cost schedule—is part of the data-collection process. This data, combined with predictive forecast tools, determines the timing of component failure and life-cycle projections of planned maintenance and capital renewal. The 'nice to have' programs such as new capital initiatives will be feed into the ODM model as optional extras to be assessed using net present value (NPV) analysis.

In addition to condition and amenity data, Geographical Information System (GIS) data should be used to help determine:

- viability for development sites by overlaying land-use planning and comparison to current built form
- calculating distances to local amenities, such as hospitals, schools, public transport
- submarket analysis studies of local population trends, other social housing provider locations, concentration levels, etc.

GIS-based measures can be used to create yet another set of standards—for example, a standard that all dwellings shall be within 5 km of a medical clinic.

Data collection, data storage and analysis, interpretation and reporting are key to achieving best practice AM practice. This can be categorised into five data groups, as outlined in Table 1.

Table 1: Categorisation of data

Data category	Data required
Physical property attributes	• Condition of components including all site improvements • Site slope • Number of bedrooms • Lot/section size • Number of bathrooms • Car parks • Accessibility (disability features) • Floor area • Single/multi-level • Body corporate details (Strata) • Level of flexibility • Functionality • NaTHErs rating • Energy-efficient elements such as solar panels • Cultural design elements • Existing building standards, e.g. insulation? • Means of heating • Stove—efficiency rating? • Lighting type—LED/incandescent

Data category	Data required
Neighbourhood or spatial attributes	• Distance to healthcare • Distance to main employment centres • Distance to mental health services • Distance to schools • Distance to public transport • Local crime levels • Distance to training or further education institutions • Local broadband accessibility and reliability • Distance to recreational areas and parks • Distance to places of worship • Planning overlays • Other overlays that could inhibit development potential • Existing concentration rate
Household attributes	• Number in household • Ages • Type and level of disability • Ethnicity • Overcrowding • Underutilisation
Financial	• Rent • Vacancy rate • Rates • Insurance • Debt repayment amounts • Management overheads • Backlog maintenance • Routine maintenance • Reactive maintenance estimate • Renewal or redecoration requirements • Depreciation reserve • Grants and other alternate revenue • Cost and benefits of non-economic and indirect outcomes (social/environmental/cultural) • Cost of any new capital programs e.g. Healthy Homes • Valuation data
Demand	• Future household demand • Spatial or location demand • Asset configuration demand

Source: Authors.

Information technology systems

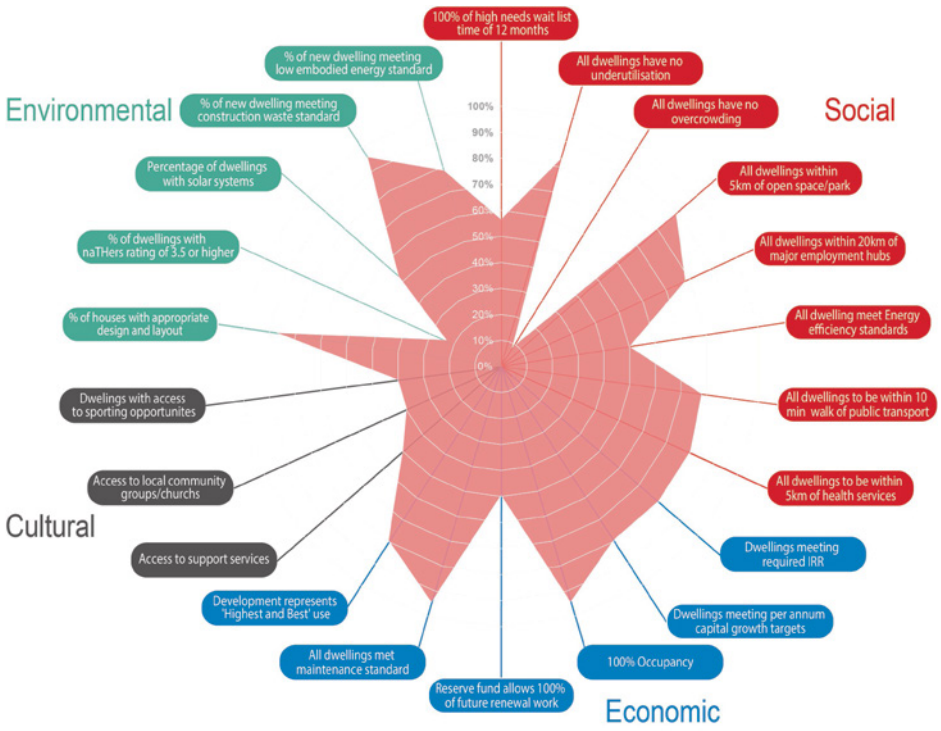
Information technology (IT) systems are important for the delivery of an best practice AMP (BPAMP). It is possible to analyse data for a small portfolio using Excel spreadsheets without using specialised asset management software. However, once component-level data is introduced, this would be tedious and time-consuming to maintain beyond 30–50 properties, depending on the number of components.

Component-level data is required to generate maintenance programs, capital renewal programs and new capital investment programs. Ideally, to collect dynamic data that allows for BPAMP, the following systems and tools are needed:

- Field data collection device (e.g. a tablet with SIM card), component-level condition assessment (CA) and asset amenity.
- A system that records component-level CA data and utilises predictive modelling for maintenance and renewal work specific to each asset.
- GIS systems that enable collection and monitoring of spatial data for each asset, such as distance to health services, public transport, etc.—these can also aid spatial demand modelling and overlaying zoning maps to determine highest and best use.[3]
- A system that captures current rental income and expenses, including maintenance and renewal work, and forecasts this over a long life span (90 years) for future profile analysis.
- Consideration of non-economic costs and benefits of the social and environmental aspects of social housing provision in cashflow analysis.
- A system that captures attribute data, such as bedroom numbers and accessibility for tenant matching, overcrowding and underutilisation metrics.
- A system that is capable of connecting all data mentioned in the previous six points for the purposes of creating an ODM tool that can be used at any point of the asset's life cycle from acquisition to disposal.
- A system capable of aggregating data to portfolio level and filtering at all levels down to an individual asset.
- A system capable of reporting performance against target benchmarks.
- Data that is continually updated and as live as possible for asset specificity, not averaged across the portfolio.
- Project management and contract management software.
- A shared system that provides an interface between asset teams and tenancy teams, and that details asset programs, asset rate of return, asset amenity, asset condition, suitability for disability, maintenance, distance to healthcare, schools, future use determinations, demand for location, and so on. This could be provided by way of dashboard data, as illustrated in Figure 3.

3 The concept of 'highest and best use' is a valuation principle that considers the maximum utility of a site, assuming planning and related consents can be obtained, and looks past the present use or utility.

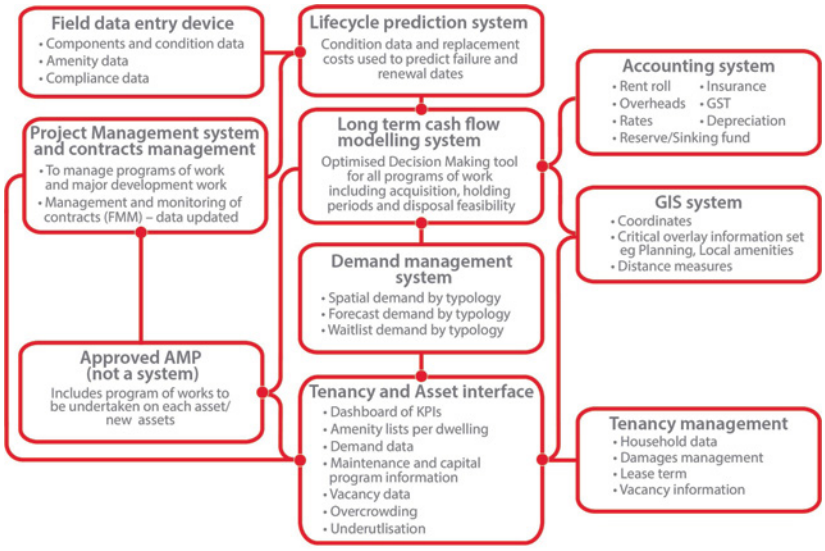
Figure 3: Sustainability dashboard wheel



Source: Logan 2020.

Figure 4 outlines the mapping of tools that operate individually but are connected. Part or fully optioned systems —should they exist—will consolidate parts of this diagram.

Figure 4: Connectivity mapping



Source: Authors.

1.5.4 Levels of service

Levels of service (LOS) are statements and measures that link an organisation's objectives and policies with asset outcomes, including associated asset programs of work and budgets. They represent a set of service levels provided to the customer. Internal and external stakeholder engagement is critical to their development. They also represent a set of KPIs. They consist of:

- objectives
- statements
- measures
- targets
- current performance.

LOS statements must include strategic, tactical, operational and implementation measures. Current performance data will change as programs of work are rolled out, and the monitoring of this data is important for reporting achievements towards LOS targets. These will ultimately illustrate the contribution of asset programs to the organisation's objectives. Ideally, a system is needed that allows reporting of achievements at any point in time using actual data returned by contractors and audit inspections.

LOS should reflect the requirements of Residential Tenancies Acts (RTAs), OHS laws and regulations, the Building Code of Australia and other relevant statutes or regulations where relevant. Community housing needs to comply with the asset-performance requirements of the National Regulatory System for Community Housing (NRSCH), and any state-based variations. These performance standards inform LOS, but do not in themselves constitute the breadth and depth of LOS required for BPAM. The National Community Housing Standards Manual provides more detailed guidance.

Setting standards is easiest when reflecting regulations, although regulations may not include sufficient details —for example, the various RTAs. SHOs need to address such gaps. Further, beyond mandated standards, SHOs should consider additional or higher standards—for example, universal accessibility or eight-star energy ratings. The establishment of standards beyond mandated minimums will depend on the organisational mission and affordability. Affordability is determined through cost–benefit analysis and scenario modelling.

Setting standards beyond compliance is complex; it is an iterative process based on assessment of affordability. Adjustments to LOS statements, timeframes and program budgets is one way that programs can fit within budget constraints over time.

LOS become key discussion points with internal and external stakeholders in the planning process. The financial assessment of LOS needs to be accurate, transparent and able to show clear outcomes and contribution to the organisation's objectives.

Once the AMP is approved, the LOS statements and measures become the KPIs against which performance is measured. These should be periodically reviewed throughout the year and reported annually.

A critical component of this process is the continual and live updating of data as programs of work are completed during the financial year. This includes updates to the maintenance condition as work is completed, and updates to amenity data as amenity shortfalls are addressed and 'nice to have' programs are carried out. For larger organisations, this work is often packaged and contracted out via a Facilities Maintenance contract. Where this is the case, an audit of works should be carried out.

LOS statements may relate to many things. For example:

- new build standards
- overcrowding standards
- concentration standards
- underutilisation standards
- condition standards
- maintenance standards
- demand management standards
- vacancy turnover standards
- management contract standards (for CHPs).

Table 2 shows an example of a corporate objective and related asset strategy, LOS statements, target and budget allocation. This plan will be reviewed periodically to determine if targets have been met. Over-spend or under-provision need to be addressed in the next iteration of the AMP.

Table 2: Example of level of service alignment to corporate plan

Corporate business plan objectives	Asset management strategy statement	Tactical statement	Operational statement	Implementation statement	Measures	Target	Current performance
Objective 1: ABC Corporation will provide appropriate housing for those in greatest need	All tenants will have access to healthy, energy-efficient homes	All dwellings must be insulated within 2 years	For older dwellings, retrofitting ceiling and wall insulation only. All new dwellings insulated to new build standards	Tenants will be inconvenienced during installation. Minimum 2-week notice and reminder 24-hour notice to be provided	All ceilings in cool-climate zones are insulated to R5.0. Warmer climates to R2.5. Walls to R2.5 and floors to R2 unless on slab	100% of houses to comply within 2 years (2023)	50%
		Maximise renewable energy opportunities	All homes with roof aspects suitable for solar should have solar energy systems	Tenants will be inconvenienced during installation. Minimum 2-week notice and reminder 24-hour notice to be provided	All solar systems sized to meet 100% of household demand	80% of current portfolio to have solar systems in 5 years	25%
						100% of new homes	10%
	All high-needs waitlist clients to have access to an affordable dwelling	Use new supply to target smaller homes to better match waitlist demand profile	Growing demand for housing to be satisfied though new housing provision	Work with developers to acquire new stock. Redevelop Shady Acres site	Acquire 10 × 2-bed units each year for the next five years	Maintain waitlist demand at no more than 500 high-needs households, and a wait time of less than 6 months	600 on waitlist with a 12-month wait time
				Work with investor groups to develop ongoing lease contracts	Lease 30 × 1-bed apartments each year for the next 5 years		

Source: Authors.

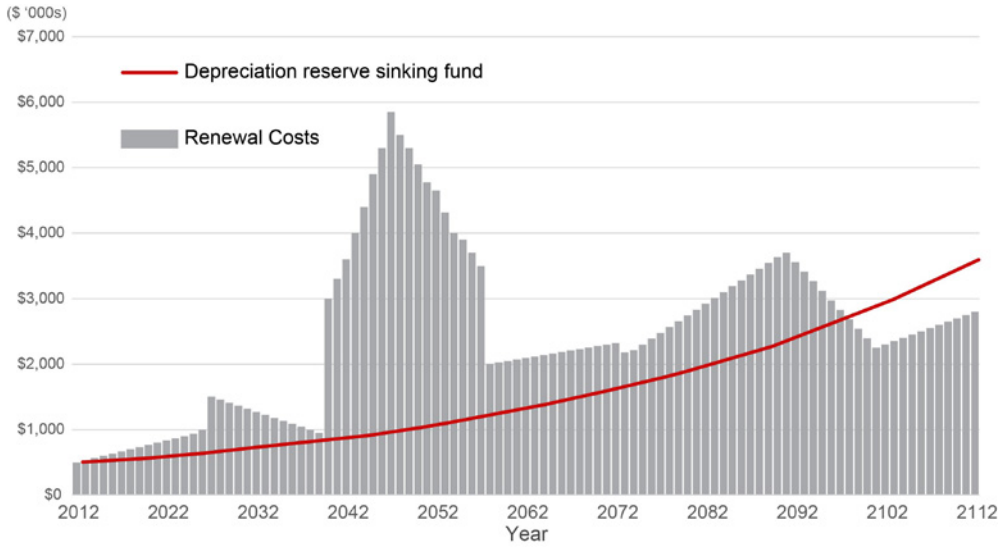
1.5.5 Life-cycle management strategies

BPAM involves the ability to make the best asset-related decisions from an individual component level—for example, repair or replace—through to the highest portfolio level. This capacity to make decisions based on immediate and long-term objectives is known as optimised decision-making (ODM). IPWEA describe ODM as the best asset strategy or project to minimise long-term costs and maximise outcomes for the organisation and its customers (IPWEA 2020a).

In practice, ODM is a tool that considers net present value (NPV) and risk assessment of operations and maintenance, renewals and capital projects for growth. It is based on the premise that social, cultural, environmental and financial benefits are included in cost–benefit analysis and multi-criteria analysis, and that ODM is used throughout an asset's life cycle. Specialised asset management software provides the tools for ODM. Aggregation of these ODM metrics is also critical to examine groups of assets for strategy, tactical and operational planning and reporting.

Life-cycle management require requires forecasting of capital needs and financial provision. Figure 5 provides a hypothetical capital renewal profile for a portfolio of housing assets forecast over a 100-year period compared to the depreciation reserve. A critical issue for SHOs—unlike corporate real estate—is that the accounting method called 'straight-line depreciation' is a not an appropriate basis for determining the quantum of funds that should be set aside for capital works. A depreciation reserve should be established, but this too should not simply be an annualised amount. Financial provision for future capital expenditure should reflect actual future need. A depreciation reserve is like a sinking fund, where a certain amount of capital funding is set aside annually for future capital renewals, but allocation into the fund must ensure capital is available when required.

Figure 5: Example of portfolio renewal profile



Source: Logan (2021).

Figure 5 shows the period 2042–2057 as one where renewal costs are significantly greater than available funds. There are several choices, including the following:

1. Increasing rent and increasing the depreciation reserve.
2. Selling properties that fit within that renewal period.
3. Redeveloping properties to change the profile.
4. Deferring renewals and hoping for the best.
5. Increasing the depreciation reserve without increasing rent.

A consequence of deferring expenditure is intergenerational inequity, as tenants in the future suffer the increased burden of costs attributable to provision for tenants in the past. Or alternatively, future tenants miss out on housing altogether.

Intergenerational equity is a key element of sustainability of services. Organisational revenues today must reflect the true cost of running the service. The cost today can be represented as the NPV of future revenue less forecast expenditure over a period of time, as in Figure 5. The period needs to reflect the life of the assets. If rent levels are lower than the NPV rent required, then the portfolio must evolve to reduce costs, rents must increase, or both.

Another option would be to refinance or seek alternate funding support—for example, capital grants for renewal. This is an example of ODM at the portfolio level. The same analysis at individual asset level allows the SHO to know which assets are performing well and which ones are not—that is, which assets may be slated for upgrade, redevelopment or disposal. A simple NPV cashflow example of an individual asset is provided in Table 3.

Table 3 shows the cashflow forecast for the first nine years of a 100-year forecast. An amount of $12,000 is forecast to be spent on capital renewal (for a new kitchen) in Year 6. Renewal of the kitchen will occur several times over the remaining 91-year life of the dwelling. The NPV of that renewal kitchen work is $16,320, assuming an appropriate discount rate. This compares to the current depreciation reserve of just $10,000 for the property. A shortfall of $6,320 has to be financed partly through allocating the properties net cashflow to the reserve fund and partly through charging more rent (another $45 per week).

Of course, there are other alternatives—and rent increases are typically not an option in the Australian social housing context. Other options include:

- adjustments to a lower maintenance standard
- reducing management overheads
- refinancing or getting grants
- changing the frequency that kitchens and other capital items are replaced.

In this example, the true cost in rent per week of the dwelling is $245 per week compared to $200 per week being charged (including rent assistance). At $245, the management of the asset would be sustainable. At the current rent, future generations will need to pick up the tab for the shortfall in the reserve fund.

Other important considerations to note are that NPV figures in cashflow analysis tend to smooth cashflow, and variances occur beyond 10–15 years. Therefore, it is recommended that annual NPVs are calculated for each year and reviewed regularly as part of the AMP process. There are two key components from this simple cashflow that fulfil two elements of the AMP roadmap. The first is ODM, and the second is LOS. The cashflow is an example of ODM, as the asset manager can adjust elements of the assumptions to determine the best course of action for the asset. In addition, alternate configurations—or redevelopment scenarios—can also be assessed. LOS can be adjusted to suit at asset and portfolio level. Clearly the analysis of the asset in Table 3 does not allow for a LOS that aims to grow the portfolio when the analysis indicates a risk of not being able to maintain it.

Behind each cashflow line item, except rates and other fixed costs, sits a LOS statement that will include target maintenance standards and component-level renewal cycles—for example, how often to renew a kitchen. Each of these is adjustable—subject to constraints such as upper and lower base life. Costs are estimated and have measurable outcomes—good and bad. There may also be capital programs to address amenity shortfalls such as heating, and insulation upgrades aligned to a Healthy Homes objective. Each of these is a LOS that forms part of a basket of LOS, which can be traded for one another, given affordability constraints. These LOS, working in conjunction with a sustainable rent model, provide the transparency needed for robust asset management planning and budgeting.

Table 3: Example of simple cashflow of an individual housing asset

Year	1	2	3	4	5	6	7	8	9
Rent	$15,000	$15,300	$15,606	$15,918	$16,236	$16,561	$16,892	$17,230	$17,575
Expenses									
Vacancy	$300	$ 306	$312	$318	$325	$331	$ 338	$345	$351
Maintenance backlog	$1,200	$1,224	$1,248	$1,273	$1,299	$1,325	$1,351	$1,378	$1,406
Scheduled maintenance	$800	$816	$832	$849	$866	$883	$ 901	$919	$937
Reactive maintenance	$500	$510	$520	$531	$541	$552	$ 563	$574	$586
Management overheads	$728	$743	$757	$773	$788	$804	$ 820	$836	$853
Debt-servicing costs									
Rates	$1,500	$1,530	$1,561	$1,592	$1,624	$1,656	$1,689	$1,723	$1,757
Insurance	$1,200	$1,224	$1,248	$1,273	$1,299	$1,325	$1,351	$1,378	$1,406
Other	$300	$306	$312	$318	$ 325	$ 331	$ 338	$345	$351
Expenses subtotal	$6,528	$6,659	$6,792	$ 6,928	$7,066	$7,207	$7,352	$7,499	$7,649
Net cashflow before any capital renewals or new capital investment	$8,472	$8,641	$8,814	$8,991	$9,170	$9,354	$9,541	$9,732	$9,926
Capital renewal requirements	$ -	$ -	$ -	$ -	$ -	$12,000	$ -	$ -	$ -
Capital renewal NPV	$14,940								
Current depreciation reserve/sinking fund	$5,000								
Depreciation reserve shortfall	$9,940								
Shortfall to be funded from net cashflow	$8,472								
Additional rent required to break even	$1,468	$28	per week						

Source: Logan 2020.

The same cashflow model can be used with the addition of other capital programs, such as energy efficiency retrofits, as well as additional line items for other social, cultural or environmental benefits and costs. For example, if allocating housing to a tenant reduces the tenant's housing costs and delivers health benefits amounting to 'savings' of $5,000 per annum, then the feasibility suddenly looks a lot more viable. However, as these are social returns on investment and do not accrue to the housing organisation itself, they should be reported separately.

1.5.6 Financial forecasts

Financial forecasting and the development of a funding strategy are critical components of asset management. It shows how the plan is affordable (or not) and that the long-term sustainability of the service is in good hands. As a general rule, borrowing to fund future programs should only be undertaken when there is sufficient equity, and when interest costs on borrowings are lower than the portfolio net return. Where this is the case, leveraging makes sense—but it is not without risk. Any debt introduces risk, and loan covenants may constrain the SHO's ability to reconfigure its portfolio. Other funding options such as grants are preferable.

Modelling is used to determine feasibility of plans to address demand. Each LOS is subject to a cost–benefit analysis of options to achieve the standards—for example, the best intervention to achieve healthy, energy-efficient homes. Behind each LOS, a long-term forecast of funding requirements forms a line item in the cashflow. The LOS standards, targets and annual budget can be adjusted to ensure the long-term viability of provision by the SHO. Cost–benefit analysis can also be used as a means of prioritising one program of work against all others, provided the costs and benefits are measured correctly.

Financial forecasting, setting LOS and life-cycle management all work together to create the most efficient, best cost–benefit programs of work. Typically, the 'ideal standard' for assets is not obtainable within budget limitations, so adjustments must be made to the LOS and programs to generate an affordable plan. If the minimum mandated standards cannot be achieved, there will be a severe funding issue, which will result in unacceptable management risk and deterioration of portfolio value over time unless alternate funding can be obtained or rental revenue can be increased—for example, through selecting households with higher incomes.

1.5.7 Improvement plan

The improvement plan starts with self-auditing to determine the confidence you have in your AMP and a plan to address the shortfalls. Consider whether there are data shortfalls in crucial areas that mean having to make decisions based on limited data. The improvement plan represents an opportunity to record improvement items (with targeted timeframes) to address shortfalls in training, resources, data, analysis or process issues.

An example of a process issue that often needs improving for new AMPs is keeping the condition data live after the initial CA or, in some cases, making broad assumptions at portfolio level to conduct analysis in the absence of individual dwelling amenity and condition data.

Other examples may relate to improving the confidence in demand models or new software to fulfil a critical gap in data storage and analysis capacity. These improvement items should be monitored and form part of the work plan for asset team members. Improvement plans need to be funded and realistic.

References

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Australian Housing and Urban Research Institute
Level 12, 460 Bourke Street
Melbourne VIC 3000
Australia
+61 3 9660 2300
information@ahuri.edu.au
ahuri.edu.au
twitter.com/AHURI_Research
facebook.com/AHURI.AUS
Australian Housing and Urban Research Institute