Module 4:
Financial Feasibility Assessment

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Addressing Housing Needs: Context, Roles and Issues

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SYDNEY, 2019

This edition of

The Local Government Housing Kit

has been prepared for

The Department of Communities and Justice

by

Urbanista
Unit 66 / 89–97 Jones Street
Ultimo, NSW, 2007
www.urbanista.com.au

Urbanista writing and research team:	Rebecca Richardson Linda Blinkhorn Richard Carter Jema Samonte Patricia Sim Jaime McNamara Rachel Davies
Expert review:	Stacey Miers and Prof Peter Phibbs
Editorial and publishing services:	Halstead Press, Sydney Ben Doyle, Chelsea Sutherland, Erin Gielis, Matthew Richardson
Graphic design | Typesetting:	Kylie Maxwell, ePrintDesign

Urbanista acknowledges the following agencies which supplied illustrations:
Bridge Housing, BuyAssist, City West Housing, Common Equity NSW, Compass Housing, Evolve Housing, Homes North, Link Housing, North Coast Community Housing, SEARMS Aboriginal Corporation, SGCH and Southern Cross Community Housing;

and thanks Philippa Davis, Department of Communities and Justice, for her invaluable support and for making this project possible.

For enquiries, contact Philippa Davis: CAH@FACS.nsw.gov.au

> "It does not do to leave a live dragon out of your calculations, if you live near him."
>
> J.R.R. Tolkien, *The Hobbit*

4.1 Outline

This module explains financial feasibility assessment and highlights how it can be used. The aim is to empower council officers and others, and to take some of the mystery out of the process. The module leads readers through the basic formula and what to look for in reviewing outputs and avoiding pitfalls so readers can evaluate and challenge assessments provided by others.

4.2 Why Financial Feasibility Assessment is Important

Evaluating the feasibility of existing and proposed planning controls is important to ensure that the planning framework can produce viable development and does not unnecessarily impede appropriate development.

Feasibility assessment is a vital tool for:

- Establishing a planning framework that enables the desired form and mix of development
- Formulating strategies to meet gaps in housing supply
- Determining whether contributions for affordable housing under the EP&A Act 1979 are viable.

Feasibility assessment can go a step further to ensure that local controls not only enable but encourage desired uses, relative to other forms of development. For example, feasibility assessment can test whether small dwellings are an attractive form of development in a regional centre compared with alternative permissible uses, or whether incentives aimed at encouraging affordable rental housing are sufficient to have any effect.

If planners are not confident undertaking or reviewing feasibility analysis, modelling provided by a development proponent may be accepted too readily and the best outcomes for local communities may not be achieved.

The purpose of urban planning is to guide growth and to provide for development that supports the social and economic wellbeing of communities, creates healthy and liveable places and protects the environment and natural resources. However desired development will not occur if it is not feasible

under the applicable planning controls. Poorly scoped planning controls can cause stagnation and impede growth, prosperity and vitality. If development is not happening at the pace desired or if areas are experiencing stagnation, one reason could be that the area or region is in decline, another may be that it is simply not feasible to develop in forms permissible under the planning controls that apply.

> Feasibility modelling can tell councils whether their planning controls support the kinds of development being sought and assist councils to develop planning controls which promote undersupplied forms of housing, by testing the feasibility impact of potential changes to the planning framework.

Feasibility assessment also assists in fine tuning the planning framework to maximise public benefits without impeding development. This may be relevant in determining contribution levels, setting height, floor space ratio (FSR) or other planning standards, identifying permissible land uses, and setting inclusionary zoning and other requirements.

For example, there is no benefit in introducing requirements for shop-top housing if it is not a viable building form or land use in the local area. It could impede the provision of both retail and residential space and stagnate development in areas zoned exclusively for such a use.

Likewise, if section 7.11 contributions or inclusionary zoning requirements are set too high or if height, FSR or other planning standards are too restrictive, desired development may simply not occur, or occur only very gradually as existing buildings reach the end of their economic life. There is also a risk that a divergence of views between local land owners and the market as to the value of their land following an upzoning will be so considerable as to constrain the sale of land and consequently the pace of development.

Finally and importantly, if councils seek to promote affordable housing, it is not enough that affordable housing development be feasible in a particular area. It must also be attractive relative to other forms of permissible development. If not, affordable housing will only be produced by community housing or government providers.

> ... it is not enough that affordable housing development be feasible in a particular area. It must also be attractive relative to other forms of permissible development

4.3 Development Feasibility Models

Most feasibility models are built on the following basic formula or some variation of it:

Revenue i.e. proceeds of development
− **Costs** of development (plus allowance for risk and unknowns)
= **Return** on Development

This formula may be rearranged depending on whether it is residual land value, developer's profit, or viability after allowing for a specified developer's margin that is being assessed. The same basic components are still used in the assessment. Of course, models vary in complexity but variations are mostly related to fine tuning of inputs, assumptions and the timing of costs and revenue.

In most feasibility assessment, revenue projections will be based on the anticipated development yield under current or proposed planning controls. In addition to estimated project costs, an allowance for contingencies will be added to cover unknown factors or items which may add to total project costs.

Generally, allowances for contingencies will be greater where less detail is available on a project (for example at an early concept stage) or it is anticipated that the project will not commence for some time. Care should be taken not to allow too much for contingencies as this may unrealistically mask the project's viability.

4.3.1 Residual Land Value

The most common form of financial model used for assessing the financial feasibility of development proposals is the residual land value model. The anticipated revenue from the completed development is calculated, usually based on projected sale values. The projected costs of the development, other than land, are added together with the required developer's margin (the profit required by a developer expressed as a percentage of total project costs—typically 15%–20% but higher in times of rapid growth in housing prices) and the combined figure is subtracted from projected revenue to give an estimated value of the undeveloped land, referred to as the **residual land value**. This value represents the amount a developer would be able to pay for a parcel of land based on returns from the development scenario being modelled.

This model allows an assessment of viability and a comparison of options without needing an actual land value.

4.3.2 Development Profit

Where the price paid or the assessed value of the land is known or can be estimated, instead of specifying a required developer's margin as is done when calculating residual land value, the basic model can be configured to predict the developer's profit.

Under this model, once again the anticipated revenue from the completed development is calculated based on projected sale values. The projected costs of the development including land, but excluding developer's margin, are subtracted from the projected revenue to give the estimated profit from development.

If profitability calculated using the formula is less than the threshold sought by a developer, the project will be unlikely to proceed without adjustment. The profit threshold calculated in this way can be expected to be broadly equivalent to the developer's margin used in residual land value modelling but expressed as a dollar value.

... allowing too much for contingencies may mask a project's viability

4.3.3 Return on Development

An alternative approach, where the price paid or the assessed value of the land is known or can be estimated, is to deduct a developer's profit margin (again typically 15%-20%), together with land and development costs, from total projected revenue, to provide an anticipated net return on development. If the return is positive, a project will be viable as its projected revenue will exceed costs and the profit margin required by the developer. Any extra return on top of this is a bonus for the developer.

4.3.4 More Complex Models

The simple models outlined above can be improved in accuracy by including information on the timing of sales and costs. These factors affect financing costs and other holding costs such as council rates and insurance.

Where sufficiently detailed design information is available, more precise and detailed estimates can be made of construction costs. Likewise, firms which have undertaken similar development in the past will be able to estimate costs more precisely and in greater detail.

Construction costs are generally not evenly distributed across the development period. They tend to increase gradually in the early stages, before ramping up and then increasingly gradually tapering off in the later stages. In a typical example 60% of construction costs are expected to be expended 50% into the construction period. This pattern when graphed follows an S-curve. A typical S-curve is often used for projecting construction costs. Some other costs such as design fees, site preparation, landscaping and section 7.11 fees generally fall towards the beginning or end of a project.

Modelling may be used to project the cash flows arising from a development project to ensure that sufficient funds are available over the course of development, to fine-tune estimates for project finance or to assess project feasibility more accurately. **Cash flow modelling** can assist project planning by highlighting where shortfalls may occur so that adjustments can be made, for example by pushing back discretionary items until pre-sales reach a specified target. Of course, many items cannot be postponed without impairing project delivery, and insufficient cash flow can have adverse effects such as increasing holding and finance costs. For this reason, delays in the development approval process are usually a significant concern for developers.

Particularly for long term projects, costs and revenue may be discounted to reflect their value in today's dollars. Using this approach, **escalation rates** can be

... delays in the development approval process have significant cost impacts

Oli Dale

applied to both costs and revenues as they are incurred over the course of the project. Costs and revenues will then be discounted back to the commencement of the project using a specified **discount rate**. However, caution should be used if applying escalation factors, because being speculative they add risk to the modelling outputs. Also, escalation rates may be offset by other factors, for example when sales are largely made before or during construction (referred to as selling "off the plan") which is commonly the case. If no allowance is made for escalation, then the implicit assumption is that any increases in construction costs are offset by price rises.

A commonly used measure, **net present value** (NPV), can be calculated by summing discounted cash flows. The NPV for a project is the difference between the discounted revenue stream and the corresponding discounted costs including developer's profit. If the NPV is positive, a project is considered viable.

The **internal rate of return (IRR)** is the flip-side of the NPV. It is the rate of return at which the NPV is zero. It equates to the minimum discount rate at which a project is viable.

Microsoft Excel and other programs include functions to assist in calculating NPV and IRR.

4.3.5 VPA Calculator

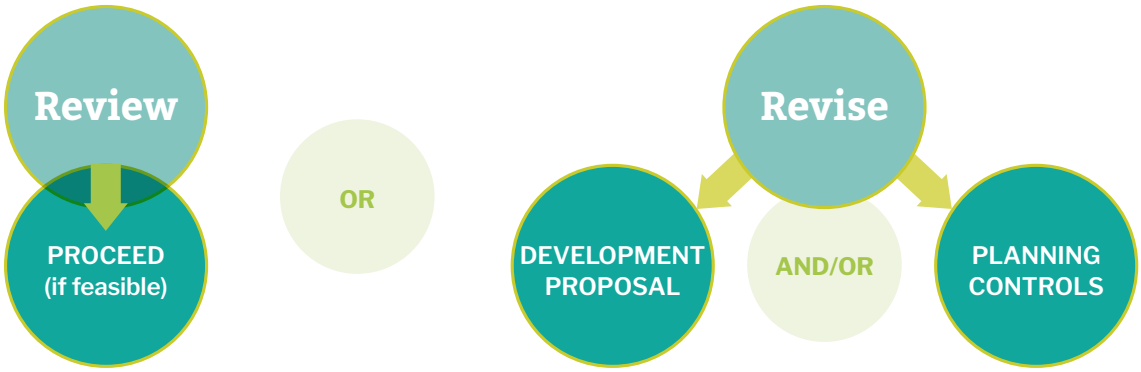
DCJ has developed a VPA Calculator to assist councils and others to make informed judgements about VPAs and how they can be used to promote affordable housing.

The VPA Calculator is designed to assess the feasibility and potential value of a change in zoning or an uplift in the development potential of a site proposed in a VPA. It can also be used in formulating planning controls to assess the value created by varying the density controls that apply to a site.

Users work through a series of steps to input details of the existing planning framework and the proposed change in zoning or increase in the FSR. The VPA Calculator quantifies the value created by the changes. It then assesses the potential benefits of directing a share of that value towards the provision of affordable housing. This knowledge will help councils to negotiate favourable outcomes for their communities, based on relevant and consistent information.

4.4 Key Steps in Assessing Development Feasibility

1	**Determine** site yield
2	**Estimate** future revenue
3	**Identify** all development **costs**, timing, other variables
4	**Identify** required development **profit** and contingency allowance
5	**Calculate** based on selected approach



Applying these steps in a simple residual land value model

Step 1	**Site potential or yield:** Determine the maximum permissible development that can be undertaken on the site under the existing planning framework and/or the nominated alternatives, expressed in terms of land use, the sizes and numbers of units, and building form.
Step 2	**Revenue:** Estimate revenue based on the site potential, e.g. the number of units by size/type multiplied by the projected sale revenue.
Step 3	**Planning, Development and Sale Costs:** Identify all planning and development costs excluding land.
Step 4	**Profit and contingencies:** Add the required developer's margin, e.g. as a percentage of total costs, and an allowance for contingencies. Examine the combined figure to ensure it is realistic and not overestimated.
Step 5	**Calculate Residual Land Value:** Subtract total costs (excluding land) from total revenue to generate residual land value.
Final	**Review** by comparing the residual land value assessed with the current land value or market price to determine if a development option is feasible. Alternative options can be compared using the resulting residual land values, with the highest value representing the option which is most attractive.

Step 1 Determine Site Potential

Site potential, or development yield as it is often called, is the number and size of units or the square meterage of floorspace that can be provided on a given parcel of land.

Site potential may be determined with reference to:

- The existing planning framework
- Proposed changes to the planning framework
- Alternative scenarios such as variations to FSRs or height controls or land use mix being considered by Council or being put forward by a proponent under a proposed VPA or rezoning.

Often there will be benefits in comparing a number of different scenarios. When assessing alternative scenarios (such as increased FSR and/or height controls), it is desirable for comparison purposes to use same dwelling size/type configurations. Of course this will not always be possible. Indeed, the purpose of the evaluation may be to assess the relative performance of different types of development.

When determining site potential, bear in mind that:

- Projections which are based on land area, FSR and number of bedrooms alone will have a lower level of accuracy than if site planning has been fully resolved, because site constraints, environmental factors, setbacks from neighbouring development and a range of other factors may diminish actual yields.
- For apartments, an allowance of 15%–20% of gross floor area should be included for common areas and circulation.
- Application of SEPP 65 and the *Apartment Design Guide* may also limit maximum yields permissible under height and FSR controls (refer to http://bit.ly/2SVGi8x).
- There may be a misalignment between height and FSR limits or other controls, such as boundary setbacks, which makes it impossible to achieve the maximum permissible density for example.

Step 2 Estimate Future Revenue

Revenues can be estimated using projections about the value and timing of sales of completed projects e.g. by totalling the unit value by the number and type of units.

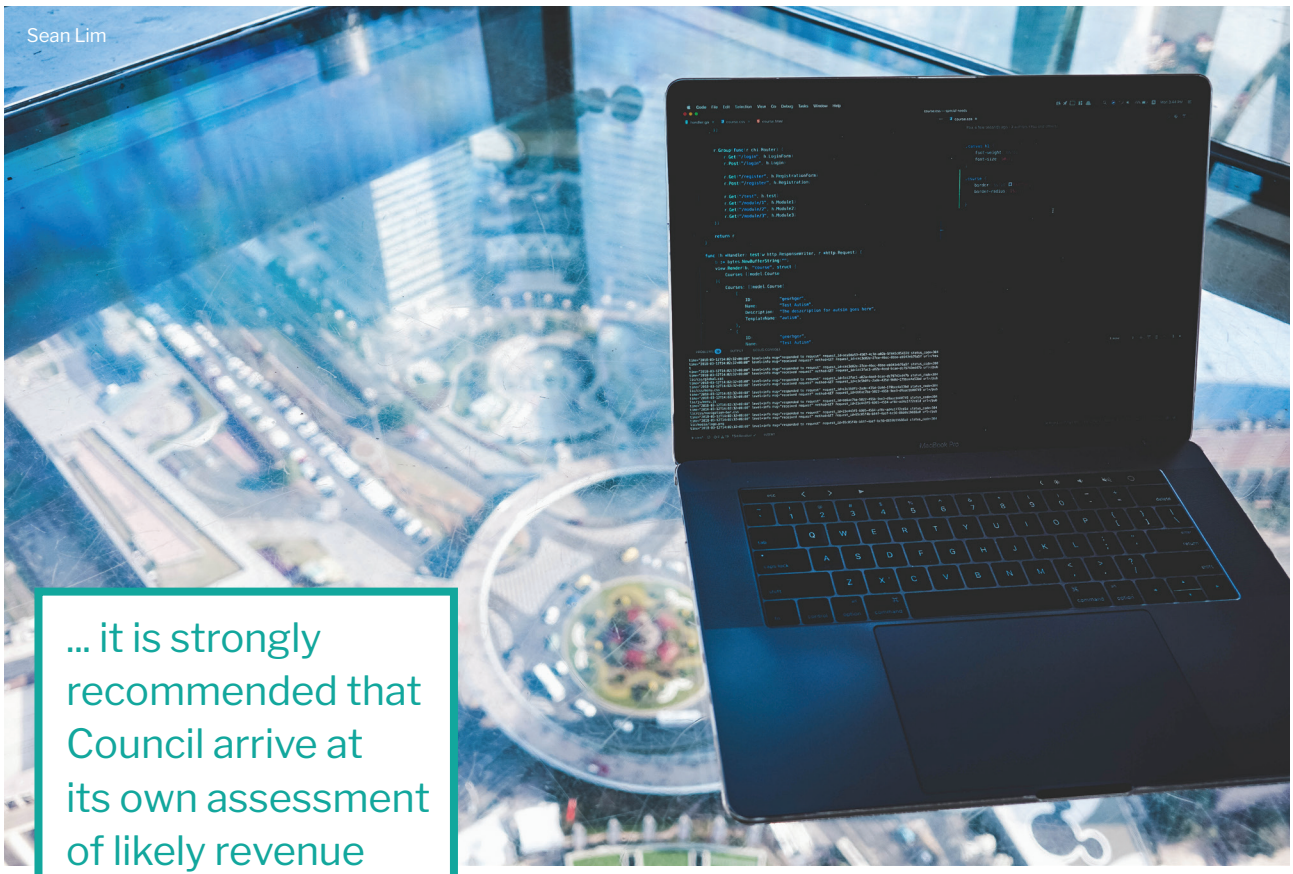
For long term or phased projects, the anticipated timing of sales will also be important. Where this is the case, more precise modelling will take into account the expected escalation in sales prices over the relevant period and the proportion of units to be sold before, during and after construction.

Estimating sales values realistically relies on:

- Knowledge of the market—recent and current prices, current and future supply and demand;
- Assessment of macroeconomic factors affecting the economic outlook, such as interest rates.

Thus, determining sales values requires both local knowledge and an exercise of judgement, or advice from an expert.

Sometimes developers will provide projections of anticipated sales values to support their case. It is crucial to verify such information if it will have an


Sean Lim

> ... it is strongly recommended that Council arrive at its own assessment of likely revenue

impact on how Council treats a proposal. This can be done by referring to information on the local real estate market, such as:

- Rent and Sales Report published by DCJ (http://bit.ly/2S8UoUa)
- Digital real estate sites
- Local newspapers
- Other advertising
- Discussions with local agents.

If sales figures provided by a development proponent do not align with Council's expectations based on a review of these sources, a typical range identified by Council as applicable can be applied instead.

If feasibility modelling is being used to assist Council in fine tuning its planning framework, for example to test incentives for affordable housing, or to assess a VPA or other planning proposal, it is strongly recommended that Council arrive at its own assessment of likely revenue. Independent databases or expert advice should be used to inform such estimates and they will need to be reviewed regularly in response to changing conditions.

Step 3 Assess Planning, Development and Sale Costs

This step involves:

- Identifying all planning, design, approval and development costs
- Determining the timing of those costs
- Adopting values for other variables and assumptions that affect total costs.

There can be a great many different costs involved in a development project and a range of variables which affect those costs. It is important not to place undue emphasis on separately identifying and projecting all detailed costs. It is more important that the overall estimates are reasonable and based on good sources.

The level of resolution of a proposal will affect how precisely these costs can be estimated. At an early or a theoretical stage estimates of typical costs will usually be all that is available.

For some more standard forms of development such as a two or three bedroom detached house, a per dwelling rate can be used for feasibility assessment. However, in order to estimate costs for most development, information will be needed on costs per square metre or per unit. To determine these, information will be required on:

- General location (which affects construction costs)
- Any significant known site constraints and issues
- Proposed use e.g. the breakup of commercial, residential etc.
- Building form, number of stories and inclusion of lift access
- Quality of finishes
- Gross floor area
- Ratio of floor area of units to circulation and common areas
- Additional facilities and common areas
- Vehicular access and parking—the style and number of spaces per unit
- Provision of balconies—size and number
- Landscaped area.

With this information, the following cost items can be estimated using a construction cost guide, industry and market knowledge, and reference to government fees and charges:

- Land acquisition costs including stamp duty and legal costs
- Professional fees—planning, engineering, architectural, landscape architecture
- Project management costs
- Development application and construction certificate fees
- Holding costs including council rates and insurance
- Finance costs for land acquisition and construction
- Site preparation costs including demolition, excavation and decontamination
- Vehicular access and car parking
- Building construction
- Landscaping
- Section 7.11 and other contributions
- Marketing and selling costs.

Where a specific site has been identified, information on its configuration, grade, current improvements and subsoil conditions may be available to inform estimates of site preparation costs and required construction techniques. Similarly, where a specific proposal has been worked up, more precise information on floor areas, landscaping and parking is usually available.

Whether rough or detailed information is available, per square metre rates will usually be the basis for assessing construction costs. Standard rates are available through construction cost guides such as Ryder Bucknall Levett *Riders Digest* (http://bit.ly/2UToRqN) and *Rawlinsons Australian Construction Handbook* (http://bit.ly/2UQ4quV). These rates are the starting point. While guides such as Rawlinsons include very detailed costs for specific items, this level of detail is not generally required to assess the feasibility of planning controls or the impact of developer contributions towards affordable housing or other public benefits.

Costs of various kinds other than construction costs are commonly computed as percentages of total construction costs. This is frequently the case for professional fees, project management, and marketing and selling costs for example.

Likewise, finance costs are usually linked to both land acquisition and total development costs, after allowing for revenue from sales. Different finance cost rates may apply for land acquisition and for construction, to reflect the level of risk to the financier.

As discussed, more sophisticated models may include allowances for expected escalation in cost and sales revenues.

The following sample gives an outline of typical inputs.

Residential Feasibility Model: Sample Development Specifications

Form of development	E.g. Units – 5 storey with lift

Accessible dwellings		% of units

Size of individual units (internal area)		bedsit	1 bed	2 bed	3 bed	etc
	Standard	m^2	m^2	m^2	m^2	m^2
	Accessible	m^2	m^2	m^2	m^2	m^2

Number of units		bedsit	1 bed	2 bed	3 bed	Total
	Standard					
	Accessible					
	Total					

Balconies		m^2/balcony: 1–2 bed units
		m^2/balcony: 3–4 bed units

Efficiency Rate		%

Gross up factor		%

Total built area		m^2

Standard of finishes	Medium	

Facilities and special requirements			
Specify	Common room		m^2
			$ or m^2
			$ or m^2

Landscaping, outdoor facilities and storage		
Specify		$ or m^2
		$ or m^2
		$ or m^2

Car parking			
Spaces per dwelling		spaces	
Location & type	Underground		select
Wheel chair accessible		% of units	

Projected Sales Revenue			bedsit	1 bed	2 bed	3 bed
Including GST	Standard	$	$	$	$	$
	Accessible	$	$	$	$	$
Car space	$	$				

Residential Feasibility Model: Typical Input and Assumption Fields

PROJECT DURATION		
Development application preparation & approval		months
Construction period		months

LAND ACQUISITION COSTS		
Site area		m^2
Land acquisition cost		$ or $/m^2$
Acquisition costs		% of land purchase price
Stamp duty		% of land purchase price

DEVELOPMENT COSTS		
Construction $/m^2$		
Balconies $/m^2$		
Landscaping $/m^2$		
Parking per space		$/space
On-grade - uncovered		$/space
On-grade - car port		$/space
On-grade - garage		$/space
Underground		$/m^2$
Vehicular access		$/m^2$
Demolition & site preparation		$/m^2$
Decontamination		$
Site works		$/m^2$
Environmentally Sustainable Development works		$/m^2$
Professional fees		
Design		% of construction cost
Planning		% of construction cost
Engineering		% of construction cost
Other		% of construction cost
Development Application / Construction Certificate fees		% of construction cost
Project management		% of construction, marketing & fees

HOLDING COSTS		
Interest rate		%
Council rates		% of land value
Insurance		% or $
Loan establishment costs		$ or %

COST OF SALES		
Marketing		% of cost or value
Selling costs including legal costs		% of sales price

DEVELOPMENT CONTRIBUTIONS		$ or %
CONTINGENCIES		% of all costs
DEVELOPMENT MARGIN		% of all costs
GST - effective rate		%

Step 4 Add Required Profit and Allowance for Contingencies

This step involves applying a suitable rate for the profit margin sought by the developer and an appropriate allowance for contingencies to cover unforeseeable impacts on project costs such as delays, shortages of required materials or labour and extraordinary price fluctuations.

Required development profit is usually expressed as a percentage of total project costs. Generally developers seek a 15%–20% margin on total costs. It is relevant to note that the rate of profit they realise on invested funds will be considerably higher (upwards of 60%), as funds invested in a project are usually only a small portion of total costs.

Conservative analysis will frequently adopt a 20% developer's margin. See "Making Apartments Affordable" (Sharam, Bryant and Alves, 2015). It is prudent to assess the allowance for contingencies alongside the required developer's margin. If a high developer's margin is required in combination with a plentiful allowance for contingencies, viable projects may too readily be ruled out. The appropriate contingency allowance will depend on how advanced a project is. The usual rule is that the less resolved and certain or more distant a project is, the greater the allowance should be.

A combined allowance of 25% of total costs for developer's margin and contingencies is generally a satisfactory starting point. Care is important in arriving at rates for these items as they have a significant impact on the apparent viability of a project.

Step 5 Calculate Residual Land Value

Projected revenue
minus costs (excluding land)
minus contingencies
minus developer's profit
= Residual Land Value

Once revenue and all costs are projected, the calculation of residual land value is simply a mathematical exercise based on the formula above, i.e. residual land value is assessed by deducting all costs, together with an allowance for contingencies and developer's margin, from the projected revenue.

The residual land value represents the amount that a developer would be prepared to pay for the undeveloped land. The resulting value calculated in this way can be compared with market rates and/or used to guide a purchaser in determining how much to pay for a site.

If the residual land value calculated using this method is starkly less than prevailing market prices, it is generally because the development proposal assessed is not considered the most profitable use of the land. In other words, alternative development options are likely to achieve greater revenue relative to the costs of development. On the other hand, where a residual land value is significantly higher than prevailing market rates it is usually because the market has not factored in the development option being assessed, for example because it is not currently permissible.

It is sound practice to undertake some **sensitivity testing** as well, where key factors such as the required developer's margin or financing costs are varied independently to assess their impact on feasibility.

REVIEW

What to beware of:

- Assumptions that are off the mark
- Rapid changes in market conditions
- Values that are too conservative or generous
- Calculation errors

When reviewing the results, it is important not only to look at the financial outputs of the modelling process but to scrutinise all the inputs and variables carefully. For those who are not familiar with the local market or with interpreting financial modelling, it is good practice to verify the inputs independently and/or to compare variables with accepted industry benchmarks. Whether or not expert advice is sought, always apply the common sense test. If something does not look right, explore it further or seek advice. Also, don't overlook your local knowledge—the modellers may not be as well informed as you are about local circumstances.

Small changes in values can have cumulative effects with a significant impact on the final results. This is especially the case in development modelling as many of the costs are set relative to one another e.g. as a percentage of construction costs or total costs. If values are set a little too conservatively throughout, a potentially profitable project may appear from modelling not to be feasible.

If a developer is arguing that planning requirements or specified contributions cannot be met because his or her modelling shows the project is not be feasible, it is very helpful if Council is equipped to undertake its own assessment, rather than to accept this information from a proponent.

It is better still if Council has already undertaken feasibility assessment as part of the process of developing its planning framework. If feasibility assessment is undertaken alongside the formulation of planning controls, councils will have a greater degree of confidence that the planning frameworks they adopt are capable of enabling and guiding development that is compatible with the objectives of the Council and the community.

Where feasibility is close to break even point, the appetite for development will be more subdued and the rate of development is likely to be slower than where ample return can be expected. This will especially be the case where the existing use of the site is still profitable or where the site potential is not sufficiently greater than its current use so that redevelopment will not generate sufficiently greater return to justify the costs of demolition and construction and project risk.

It is not enough that development or redevelopment of a standard site is feasible in its own right. Desired development forms need to be viable relative to other permissible purposes. Viewed in isolation, a particular proposal may be found to be feasible but it is unlikely to proceed if it may be less profitable than alternative uses. This is particularly relevant if Council is seeking to encourage particular uses such as affordable housing. Such uses must not only be feasible, they must be attractive to a developer compared with other permissible uses, unless of course the developer is a non-profit organisation with a mandate to provide benefits such as affordable housing. Even then, the level of viability will influence the selection of where a project will be undertaken and indeed whether it is undertaken at all.

4.5 key considerations

- Small changes to variables can have a cumulative effect. Selection of overly conservative variables can render a profitable project unfeasible on paper.
- Planning controls which deliver a satisfactory developer's margin on paper may not be sufficient to stimulate new development.
- A common pitfall is to assess feasibility on the basis that the land is vacant, and not to take into account the opportunity costs associated with the current development or the costs of demolition.
- For instance, if a site is occupied by town-houses but zoned to allow three storey units, redevelopment may be slow to occur. Unless the townhouses are nearing the end of their economic life, the potential of financial rewards may not be sufficient incentive to demolish the townhouses and build units.
- Planning controls have a greater chance of enabling desired outcomes if feasibility assessment is undertaken alongside the development of the planning framework. This also avoids the need for Council to negotiate with developers about project feasibility on a case by case basis.

... don't overlook your local knowledge—the modellers may not be as well informed as you about local circumstances