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A negotiator's tool: An Affordable Housing Calculator for voluntary agreements

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Abstract:

Rapid increases in housing costs, stagnant wage growth and limited government funding have created a housing affordability crisis in many cities, in particular in capital cities in Australia. Unlike elsewhere in the world where affordable housing contributions are secured through inclusionary zoning or other planning processes, the Australian context is largely devoid of any mandatory requirements for affordable housing provision in new development. Recent changes to legislation in Victoria have enabled planners to negotiate with developers to secure voluntary affordable housing contributions by offering alternative incentives. However, the lack of financial literacy and understanding of development feasibility and the effects of affordable housing provision on development viability and profit is likely to limit the success of this change. This paper reports on the conceptual framework and development of an *Affordable Housing Negotiation Calculator* to assist in educating local and state government representatives, community housing providers and developers about affordable housing provision and its effects on development feasibility. It is hoped this tool will enable those decision-makers to better negotiate positive outcomes for an increase in affordable housing while communicating the factors that impact on development feasibility.

Introduction

The housing boom in Australia has led to a housing affordability crisis. This trend is particularly apparent in Australian capital cities, many of which have been defined as 'severely unaffordable' (Demographia, 2019). Further, social housing constitutes only a small percentage of total housing stock. The paucity of social and subsidised housing in Melbourne means that many low income households live in unsubsidised private rental, often paying large proportions of their income on rent and/or living in poorly-serviced areas on the city periphery. Mechanisms for the provision of affordable and social housing have changed substantially in the last century. Across many countries, the roll-out of neo-liberalism has seen governments devolving responsibility for affordable and social housing provision to cross-sectoral partnerships that involve non-profit organisations, the private sector, local and state governments and philanthropy working in collaboration (Beer, Kearins, & Pieters, 2007). In Australia, public housing has declined from a peak of 8% of housing in 1966 (Hayward, 1996) to constituting just 4.3% of all housing stock in 2016 (Productivity Commission, 2017). Rather than providing social housing, governments promote demand-side subsidies, market-led supply and voluntary agreements tied to planning permissions as the appropriate mechanism for delivering housing affordable to low-income households (Gurran & Whitehead, 2011). In Melbourne, these approaches have not resulted in large amounts of subsidised housing and the proportion of housing affordable to very low to moderate income households is at historic lows.

Recent changes in Victorian legislation implemented in 2018 empower planners to negotiate affordable housing contributions in exchange for incentives for developers (Department of Environment, Land, Water and Planning, 2018). However, the financial literacy of planners from a development perspective is often limited, creating challenges in negotiating affordable housing contributions and fears that incentives and housing contributions won't be fairly aligned. This situation leads to developer disengagement and reluctance to enter negotiations on this basis as often even small contributions have significant implications for the developer's feasibility. Similarly, state and local governments fear they will be exploited by developers who will accrue disproportionate benefits from the negotiation process. Although there are also incentive options for planners to offer, understanding the effect of incentives on the feasibility in response to contributions is complex. An incentive that works for one type or size of development will not necessarily work for other projects. Consequently, there is a need to assist planners and community housing providers (currently key providers of affordable housing in the market) to better understand the financial feasibility used by developers and the implications of contributions and incentives on the overall financial viability of the project. In this context, the researchers proposed an *Affordable Housing Negotiations Calculator* for educational purposes to improve knowledge of development feasibility among planners and community housing providers. This tool is also intended to be dynamic enough for them to model and understand the effects of different levels of contributions and incentives. This paper reports on the conceptual model and development of the calculator.

The paper begins with a brief literature review covering housing affordability in Australia followed by recent changes designed to encourage affordable housing and the barriers and need for financial literacy for decision-makers. Next, the study's methodology is outlined, including the key assumptions and development of the Affordable Housing Negotiation Calculator. The results provide a view of the workings of the calculator and discusses the limitations of the calculator. We conclude with a discussion of the ability of this tool to assist decision-makers in councils, state government and the housing sector in developing their financial literacy and understanding the implications of voluntary housing negotiations. It is hoped this may provide

a way forward for discussion and negotiation between developers and decision-makers and the provision of more affordable housing for our cities.

Affordability Issues in the Australian Context:

The Australian development industry has traditionally not been attracted to projects with affordable housing contributions. There are several reasons for this including; lack of a consistent system to either mandate or incentivise such affordability contributions; reluctance on the part of developers to add additional risk factors to developments in inner city locations already typified by higher construction costs and market risks (Hutchison & Disberry, 2015; Rowley & Phibbs, 2012) and; lower returns relative to other market based opportunities (Sheko, A Martel & Spencer, 2015). Further, the Australian market does not have a multifamily or established 'build to rent' sector in a market characterised by 'mum and dad' rental investors (Hulse, Martin, James, & Stone, 2018). Consequently, affordable rental projects are largely limited to government or community housing provider management. Apart from a brief period in which a centre-left federal government implemented a National Rental Affordability Scheme (NRAS) that conferred tax rebates to property owners in return for charging rents at or below 80% of market rents (Rowley et al., 2016), there has been little discussion about ways private investors or private developers could contribute to affordable rental housing.

To offset and reduce uncertainty and risk for developers and increase the financial feasibility of a project when affordable housing contributions are provided, a range of incentive initiatives have been identified for Melbourne (Whitzman, 2015). These are further discussed in "Homes for Victorians," the first integrated housing strategy in Victoria (State of Victoria, 2017). The incentives include increasing development density or yield, reducing car parking requirements, direct cash contributions for the unit or development and land subsidies. Whitzman et al. (2012) examines how these initiatives could be applied to a project and how these could be enacted, although there is limited analysis from a feasibility perspective. Sheko, Martel and Spencer (2015) attempt to examine how the incentives may be applied in different project structures to increase project feasibility. In this analysis, using interviews with industry representatives, the research formulated five different scenarios that examined private or public ownership of the land, development size and the effect of the proportion of affordable housing to be included. Although this research discussed the probable impact of the incentives and contributions on the financial viability of the project, Sheko, Martel and Spencer (2015) do not explicitly quantify the effect on a financial feasibility level.

Rowley and Phibbs (2012) used a series of hypothetical situations to examine the implications for financial feasibility using financial modelling; specifically focused on planning timeframes and density bonuses. McRae et al (Forthcoming) use three case study properties in the Brunswick area, a northern inner suburb of Melbourne, to examine the implications of size and the application of affordable housing contributions and incentives. Utilising Estate Master and market data inputs, they modelled the contributions and application of different incentives at different levels across the different case studies. They found that a one-incentive/contribution fits all situation, does not provide satisfactory results from a financial feasibility perspective, and the project size and yield had a significant role in the success and failure of affordable housing contributions and incentives (McRae et al, forthcoming). This was expected, as Sheko et al (2015) had suggested that the success of incentives was likely dependent on the size of the project, but highlights the complexity of understanding the financial implications of affordable housing contributions and incentives.

The lack of affordable housing requirements in new development has lead to the scarcity of product in the market in Melbourne. However, recent changes have enabled the encouragement of affordable housing contributions in market-based developments, yet this has not led to many successful projects. The Victorian Government made changes to the Planning and Environment Act (1987) in July 2018. This change created the opportunity for local councils to negotiate for affordable housing contributions from developers through the planning process (DELWP, 2018). This is a significant change in Victorian planning policy as such negotiations were previously impossible as they were not supported by State legislation.

While this is an excellent outcome for affordable housing provision in Victoria, the roll-out of this change is constrained by a lack of local council understanding of property economics and development feasibility. Often the officer that manages housing has a background in social planning or social work, with very little understanding of the dynamics of development feasibilities and the implications of policies on the financial position for developers. This puts these officers in a poor negotiation position with developers. Conversely, a lack of understanding hinders communication between industry participants as this emerging industry has little shared vocabulary between council, not-for-profit and private industry sectors. The State Government has acknowledged the challenge of educating local councils to negotiate these arrangements by announcing a $500,000 package to up-skill council officers responsible for negotiating housing agreements (Department of Environment, Land, Water and Planning, 2019). Consequently, given the sudden responsibility and negotiating powers of local council planning officers; there is an urgent need to develop their financial literacy and understanding of development feasibility and the implications of affordable housing initiatives. We propose an *Affordable Housing Negotiations Calculator* to model the feasibility of development projects and integrate the affordable housing initiatives to demonstrate the effects these have on the viability of residential developments.

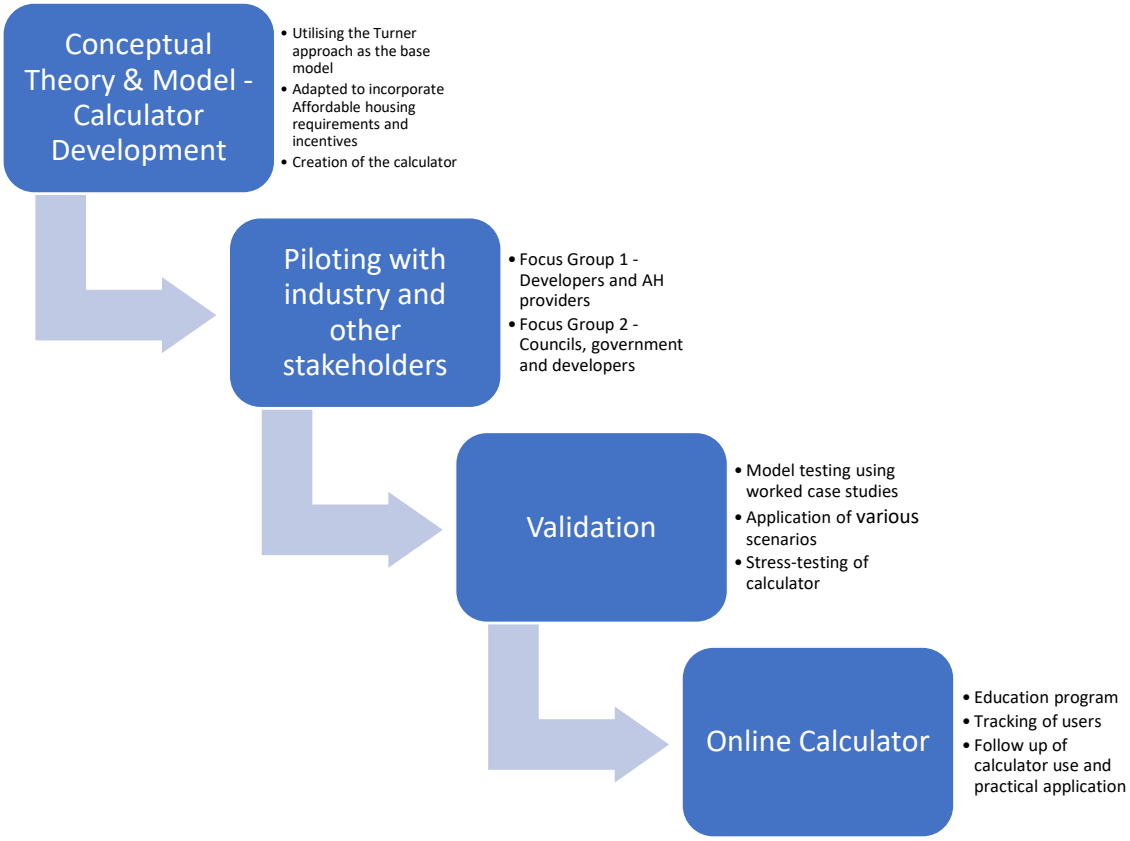
Research Approach

The aim of the research is to build an *Affordable Housing Negotiations Calculator* that will help to educate and support stakeholders to negotiate affordable housing contributions. This calculator will illustrate the feasibility implications for subsidising housing and assist in determining the level of incentives necessary to support affordable housing delivery. It will assist in demystifying the complexity of development size, location, contributions and incentives; so that potentially better negotiations between developers and planners can take place that will lead to increase supply of affordable housing in Melbourne.

The calculator examines the Melbourne property environment, utilising development feasibility theory and application, information and data to create a calculator hosted in the University of Melbourne website. It uses a development feasibility model and a user-friendly interface to illustrate the impact of various incentives or regulations on development outcomes. For example, it can show the impact of a car park waiver or a 10% affordable housing contribution. The calculator incorporates several additional measures relevant to the Melbourne planning environment. Further, this calculator provides additional elements to assist councils in understanding the development potential of land and value capture mechanisms; emerging and important debates in Victoria.

The intended purpose of the calculator is threefold. First, it aims to educate council staff on project development feasibility. Second, it will provide councils with an indicative framework for negotiation with developers regarding affordable housing requirements and incentives. In achieving these first two objectives, the project aims to increase the likelihood that Victoria's new voluntary affordable scheme will increase the supply of affordable housing across Melbourne.

In order to ensure the calculator is applicable to the development environment in Melbourne, the calculator has been initially trialled with developers in a focus group to ensure robustness of the model and assumptions use, a further invitation will be sent when the calculator is fully operational. The first focus group included five private developers and a community housing developer each with significant experience in industry. A second focus group included a dozen subjects from wide stakeholder groups, including members from housing associations, councils and state government to test and discuss the usability of the calculator. Finally, the third stage will focus on validation of the model to test the calculator. Once the calculator is fully validated and placed online it is anticipated that an associated education program will be developed and rolled out to engage with councils and developers and to explain the calculator and how to use it.



Conceptual Model

'A 'feasibility study' is defined as the process of undertaking an assessment to identify the opportunities and risks of a property development project and to estimate the projected costs, revenues and profit potential of the project'

(Australian Property Institute, 2018, sec. 11.5)

The objective of modelling the feasibility of a development project, is to fundamentally determine whether the scheme will be a success (viable) and if the financial position is a profit

or loss. Havard (2014, p. 17) states the basic equations for development analysis are simple, being:

Value of the building on completion
Less: the development costs (construction, all fees, all ancillary costs and all the costs of finance, etc.)
Less: Land cost (including fees)
Equals: Development Profitability

The conceptual model utilised in the Australian context, is commonly referred to as the Developers' feasibility, Developer's equation (Robinson, 1989; Whipple, 2006) or the 'Turner' Approach (Australian Property Institute, 2007). These approaches utlise the formalised approach of considering all the private costs and benefits costs involved in the proposed venture (Robinson, 1989). Both the Developer's equation and 'Turner' approach comprise almost the same method. The 'Turner Approach' is more commonly referred to as it arose out of a prominent court case *Turner &Anon v. Minister of Public Instruction [1956] 95 C.L.R.*

The Turner Approach is a recognised approach by valuers and developers to ascertain the residual land value; consequently it has a 'front door' or 'back door' approach depending on the object, to identify the residual land value or ascertain the profit from a development (1956). Robinson (1989) and Whipple (2006) provide a simplified understanding noting the developers' equation:

$$V = L + B + F + P$$

Where: V is for the value of the project on completion, L is the land costs and expenses associated with acquiring the land, B is the total costs and expenses related to the construction of the project, F is the financing costs of the project (divided into land finance and construction finance) and finally P is the developers' profit and risk. In simple terms, rearranging this formula provides the ability to solve for whatever factor one desires; consequently it is well used as an approach to calculate the residual land value for valuation purpose, but also useful in the context of reforming to ascertain the resulting profit and risk margin, where:

$$P = V – (L + B + F)$$

The point of utilising both the Turner and Robinsons approaches, apart from their common use in practice in Australia, is that the model is a static fully funded model and assumes a 100% external borrowed funds. Similarly, there is no time value or money considerations or indexations. The static approach is suitable for preliminary feasibility studies and the calculation of the profit and risk (Australian Property Institute, 2012). The inputs into this equation are generally derived from the market and as such the market comparison approach is implied, but also has relevance to methods of both the income and cost approaches, and the validity of a feasibility is highly dependent on the justification of the inputs used and assumptions made. An example of a typical feasibility is shown in Figure 1.

Figure 1. Analysis of Profit and Risk - Turner Approach

Gross Realisation	**24 Apartments @ $500,000**		**$12,000,000**
Less	Agents commission	$360,000	
	Legal on sales	$120,000	$480,000

Net Realisation			**$11,520,000**
Less			
Project Costs			
	Construction costs	$6,000,000	
	Consultants	$300,000	
	Contingency	$180,000	
		$6,480,000	
	Interest on Construction @ 9 %	$437,400	
	Total Construction costs	$6,917,400	
	Land purchase	$2,000,000	
	Transfer costs	$100,000	
	Interest on Land @9%	$378,000	
	Total Land costs	$2,478,000	
Total Project costs			**$9,395,400**
Indicated Profit			**$2,124,600**
Allowance for Profit and Risk (on costs)			**23%**

Adapted from: Australian Property Institute (2007) Annexure #1, pg 197.

To build the calculator, the understanding of how the different affordable housing requirements and possible incentives affected the different inputs needed to be ascertained. McRae et. al (forthcoming) undertook an analysis of three case study projects and tested the various 'sticks' and 'carrots' related to affordable housing. The findings of this study assisted in developing the framework and interaction of the different affordable housing attributes in the development feasibility. A simplified and summarised version is found in Table 1.

The affordable housing dwelling contributions are generally based on a percentage of gross floor area or number of units; the percentage of contribution will reduce the overall value of the project. The level of impact will depend on whether the dwellings/area are then gifted or sold in bulk at a discounted rate to a community housing provider. This affects the project value negatively, increases the building costs and consequently more finance is required to fund the project and this will likely reduce the profit. What can be offered to offset the costs of providing affordable dwellings are density bonuses, expeditated planning, car parking reductions, government land incentives, and cash contributions from authorities, government or philanthropic contributors. These have a mixture of effects: density bonuses allow the increase of the number of dwellings, but this will subsequently then cost more and require more finance, which then may have a mixed effect on the profit achieved. Expedited planning, reducing the time in planning reduces the holding costs for the developer. Consequently, finance costs are reduced and this has a positive effect on the profit. Car parking reduction can have a mixed effect; often developers utilise the 'carpark' as a selling point and they lose the income associated with the reduction, yet at the same time this reduces the potential costs associated with car parking and may increase space for additional apartments, then having a positive effect

overall. Government land incentives reduce the cost of the land or provide it free of cost. Consequently, this has a positive effect on the land costs and reduces finance expenses and has a subsequent positive effect on profit. Whilst the cash contributions from government or a philanthropic donor can be utilised as an offset for costs reducing the need for finance and having a positive effect on the profit. These impacts are summarised in Table 1 below.

Table 1. Interaction of feasibility variables and affordable housing initiatives

	Type	Value	Land	Building	Finance	**Profit**
Affordable housing dwelling contribution	Planning / State Government	⇓		⇓	⇓	⇓
Discounted dwelling price	Agreement	⇓		⇓	⇓	⇓
Density bonus	Planning (LGA)	⇑		⇓	⇓	⇓⇑
Expediated planning	Planning (LGA)				⇑	⇑
Car parking reduction	Planning (LGA)	⇓		⇑	⇑	⇓⇑
Cash contributions	Government or Philanthropic				⇑	⇑
Government land incentive	LGA/State/ Federal authority		⇑		⇑	⇑

⇓ negative effect
⇑ positive effect
⇑⇓ effect could be either positive or negative

The complexity of modelling these affordable housing contributions with multiple incentive options can have a variety of effects on the overall feasibility when integrated together. This can cause much confusion in understanding the overall viability of a project if there is more than one aspect applied at the time. This research in its development of the calculator has enabled the layering of housing affordability initiatives in order to assist in the development of financial literacy of those who will be required to negotiate many of these terms.

The model

The changes to the traditional feasibility model (API, 2007), and how the affordable housing contribution and incentives affect it, are both shown in the conceptual model in Figure 2.

Figure 2. Analysis of Profit and Risk - Turner Approach including Affordable Housing contributions and incentives

Gross Realisation	24 Apartments		
	10% density bonus = 27 apartments		
Less	Affordable Housing Contribution @ 20% = 6 apartments		
	Market Apartments @ $500,000		$10,500,000
	Affordable Housing Apartments (gifted)		$0
Less	Agents commission	$315,000	
	Legal on sales	$105,000	$420,000
Net Realisation			**$11,580,000**
Less			

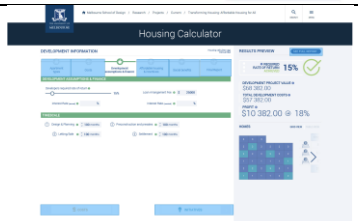
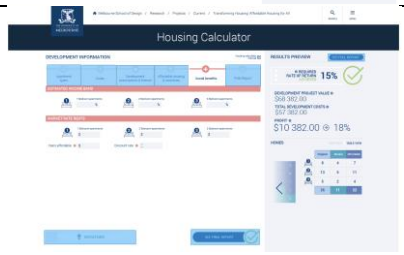
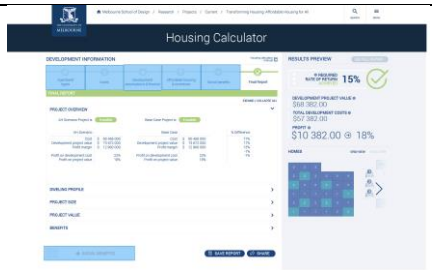
Project Costs			
	Construction costs	$6,750,000	
	Carpark reduction (50%)	$270,000	
	Consultants	$337,500	
	Contingency	$202,500	
		$7,020,000	
Expediated Planning reduced time by 4 months	Interest on Construction @ 9 %	$368,550	
	Total Construction costs	$7,338,550	
	Land purchase	$2,000,000	
	Transfer costs	$100,000	
Expeditated Planning reduced by time by 4 months	Interest on Land @9%	$315,000	
	Total Land costs	$2,415,000	
Add	Land incentive	$1,000,000	
Total Project costs			**$8,803,550**
Add	Affordable Housing subsidy $100,000/unit	$600,000	
Indicated Profit			**$1,876,450**
Allowance for Profit and Risk (on costs)			**21%**

Adapted from: Australian Property Institute (2007) Annexure #1, pg 197.

To create an interactive model and the application of both contributions and incentives, a complex set of calculations have been developed and integrated into the existing conceptual feasibility model. In the web development, we have enabled a series of input pages so that each assessment can be individually tailored to the situation being considered. Table 2 provides preliminary snapshots of the model in its development phase, showing the different input pages and what key variables are being included.

The model in its web platform steps through several pages to develop the background information necessary to assist in providing indicative project outcomes.

Description of Page	Screen shot of webpage inputs
After the login and disclaimers page, participants are asked to select the type of development – townhouses, low density apartment 2 – 5 storeys, apartments 6 – 10 stories, apartments 11-15 and apartment 16 plus stories.	
Then participants select the location, as this will have implications for the provision of sales information and costing premiums. Generally this is divided into inner city areas, middle ring suburbs and outer suburbs.	

A dwelling types tab provides inputs for the number of apartments and the type, with average sizes and price points. If there are additional 'facilities' or 'amenities' provided in the development like pools or garden areas there is a facility on this page to incorporate this.	
A costs tab focuses on the key development costs, namely land and acquisition costs; site and construction costs for apartments, common areas and car parking; contingency; sales commissions and marketing.	
A development assumptions and finance tab assumes a 100% financing arrangement, but requires an input of interest rates and loan fees and also the development timeframes for design and planning, preconstruction, presales, construction and settlement.	
An affordable housing contributions and incentives tab is the section that allows for the modelling of the affordable housing contributions and the application of one or more incentives for developers. The options range from dollar value contributions to percentage changes and planning reductions.	
A social benefits tab allows users to input three key variables to determine social benefits: 1, the estimated affordable rents of any affordable housing units, 2, the period of time they are guaranteed to remain affordable, and 3, neighbourhood market rents. This tab applies a 3% annualized discount rate to these numbers to estimate the total amount of rent saved by residents in the affordable units over the life of the affordable housing agreement. For units serving very low income households, the project adds spill over social benefits in education, healthcare and corrections based on a meta-analysis conducted for a related project (see Raynor et. al, (2018)).	
The final report page provides a succinct analysis of the base case development against the proposed affordable housing development. Providing a comparative analysis between the scenarios. This page provides clear financial feasibility attributes but also includes a range of reports regarding the affordable housing contributions and how these have been layered; the social benefit achieved from the proposed development and benefits to the developer as a result of the negotiations for contributions and incentives.	

The calculator is still under web-development at the time of writing, but early testing of the excel model and piloting of the web calculator has received enthusiastic engagement by both developers, planners, community housing providers and state policy makers.

The calculator does have a number of limitations and its underlying model is highly dependent on the value of the information being input to the calculator. The key limitations of the calculator are

- The static modelling approach; although accepted in practice for initial feasibility considerations and decision-making, it does not provide definitive advice nor is this the intention of the calculator;
- There is no consideration of the time value of money;
- The current calculator can only examine single stage analysis on a short-term development basis; and
- Elements that are unique to the developer and location constraints of municipalities, like tax (GST or income based), insurance, finance negotiations, council contributions (e.g. rates or property taxes), and community housing provider resources are not included

The calculator only provides a general indication if the project is viable; it is not a fully functional feasibility model and should not be used as such modelling. The calculator is intended to be used for initial assessments and education, and can provide an initial discussion point between developer and planner.

Focus Group Outcomes

Our developer centred focus group led to a reduction of tool inputs. One developer noted that he works out the rough feasibility of a potential site based on yield, costs, sales and land prices quite quickly before deciding to move forward with a project. This feedback led the authors to collapse a wide range of consultant fees into one single line item as shown in *Figure 2*. The focus group feedback also led the authors to consult university legal teams regarding the ramifications of the tool beyond its intended use, e.g. the likelihood the host institution could be held liable for a council rejecting a deal based solely on the tool's outputs.

A second focus group of community housing providers, advocates and state and local government officers posed different challenges. Several of these stakeholders noted that density bonuses in Melbourne are allocated on a Floor-Area-Ratio (FAR) basis, and not a per-unit basis. These stakeholders also pushed back against what they perceived to be an American term, "density bonuses," which they felt contained negative connotations due to the word "density" and Melbourne's historical aversion to density. Finally, these stakeholders expressed concern about the limits of the social benefits tab. One community housing provider noted that estimating affordable rents and associated benefits is a task best left to their sector, while a state government officer expressed concerns that the social benefits methodology may underestimate the value of affordable housing.

Conclusion

The development of the Affordable Housing Negotiation Calculator has provided a dynamic tool in which the modelling of development feasibility can integrate multiple housing affordability contributions and incentives. It is an example of engaged scholarship that directly responds to industry knowledge requirements. The Calculator can improve stakeholder understanding of the profit implications and social benefits of affordable housing agreements.

Further testing and validation of the calculator is still yet to be completed, but early testing and piloting with focus groups has demonstrated keen interest and support for the project.

A further avenue of investigation for this project would focus on the potential knowledge uplift and change provided by the research training and utilisation of the tool. It is anticipated the researchers would deliver a survey before and after the training sessions to assess levels of development feasibility familiarity in the sector and assess the impact of access to training. These findings would be used in an academic publication. Levels of economic competency is an emerging topic of concern in planning scholarship. A later survey would also be undertaken to examine how the tool was being utilised in practice and whether the tool had provided a better foundation to inform negotiations and produce more affordable housing with the municipalities. Amidst a new policy environment with substantial potential to impact the affordable housing sector, the calculator is an exciting opportunity to study an emerging housing trend. It is anticipated that further improvements to the calculator will be undertaken to consider plot ratio implications and varied analysis along with cash flow implications. Another avenue of development is to develop a 'Build to Rent' based feasibility calculator to incorporate and test different affordable housing initiatives to provide direction to policy makers in the Australian market where 'Build to rent' or 'multifamily' are not an established asset class.

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