The Minister, Planning NSW

Submission on;
The Draft Medium Density Design Guideline for NSW[1]

The Missing Middle – in NSW's physical housing supply

'A new code addressing NSW's future supply of low-rise, medium sized homes like terraces, dual occupancies, manor homes and townhomes is a very important and timely initiative. Small scale multi-units should be added.'

'How the code is implemented and how the NSW house building industry makes the necessary adaptions to its traditional business models will determine the impact this initiative has on addressing many of today's housing challenges.'

Submission by:

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[1] **Guide**: http://planspolicies.planning.nsw.gov.au/index.pl?action=view_job&job_id=8016

To the Minister for Planning NSW

C/- Director, Codes and Approval Pathways
NSW Department of Planning and Environment
GPO Box 39, Sydney, NSW 2001

Dear Minister Stokes,

This submission will provide invited comments on the Medium Density Design Guide and recommends the inclusion of small scaled multi-unit development class of up to 10 dwellings be added. These dwellings would be limited to 3 levels, require below ground car parking provision and be limited to 12 meters in height. It is argued that these options will encourage the residential building sector to look beyond their traditional construction constraints. It is argued that this extension will help achieve the government's housing supply objectives and diversity while enabling modern housing constructors to achieve more sustainable businesses. The submission points to the residential housing industry as the critical *'first specifiers'*.

The background and interests of the person making this submission

David Chandler OAM, is a Fellow of the Australian Institute of Building and has over 40 years of industry experience gained on residential and construction projects and through managing residential construction organizations in Australia and internationally. He is an Adjunct Fellow, in Construction at Western Sydney University. He has managed the master planning of small and large residential developments across all the housing categories defined in the draft Medium Density Guidelines. These have included;

- Delivery of over 1200 dwellings pa in NSW, Victoria, South Australia and Queensland of first home, trade-up and investor; detached and attached housing for private and public purchasers as the Managing Director of Pioneers Homes Australia,
- The 1000 dwelling Kensington Banks urban renewal project in Melbourne as part of the Better Cities program in the mid 1990's as the master developer in co-venture with the Victorian Government. This project involved master planning, project enabling works, subdivision of supper lots, preparation and management of construction design guidelines, builder and individual purchaser sales, the construction of demonstration housing which exhibited most of the dwellings identified in the NSW Medium Density guidelines, and public space management. This project was recognised by a range of state, national and international awards.
- The 500 dwelling Spring Hill Village residential development precinct at Narellen NSW, where all of the housing types outlined in the Draft Guideline were demonstrated in the early 2000's, including the first of the Big-Houses (now Manor House) can be seen. This development tested the +25 dwellings/hectare consent process and market at the time. The project received several state and national housing and urban planning awards which recognised the diversity of housing types (including two, one bedroom homes on a 125m2 torrens title lots). The quality of the street patterning, public open space and vegetation that can be observed in the neighborhood today is testimony to the delivery management and attention to detail.

These experiences were not limited to the delivery of smaller scaled residential and urban development projects. As the Principal of The Urban Partnership I led a private and public

consortium to achieve the Wolli Creek (now Discovery Point) 1500 high density dwelling and mixed use integration of the 7.8-hectare land holdings around the new station. This involved the master planning and development consent achievement, a heritage precinct revitalization strategy, re-organisation of major infrastructure and pre-sale site remediation.

My interests are in the enabling and delivery of new residential development projects and buildings. My experience has underlined the challenges of translating great urban design and planning into the built market place. There have been very few examples where the '*grand scheme or idea'* behind a new planning policy is realized. The challenges are three-fold. Firstly, there is a disconnect between the policy or professional planner and the housing and development industry. Secondly, there is the disconnect between the expectation of housing customers and the capability or culture of the housing builder and development industry. And thirdly, there is a disconnect between the policy/planner insights into the delivered cost of the total dwelling package and the way those costs are explained by builders and developers.

The implementation of the new Medium Density Design can potentially deliver the most important and publicly supported additive to NSW housing supplies over the next 20 years. Bridging between planning intent and the reality of on the ground delivery is the challenge. My interests in this area include;

- Capability building in the domestic housing supply chain to enable those builders interested in these new market opportunities to adapt and succeed in this space,
- Client side advocacy that helps bridge the current dissatisfactions with housing and developer projects by deploying modern performance and quality responsiveness,
- Working through industry and academic collaborations to widen understanding of the building technologies and methods driving today's construction transformation.

A particular concern, is the lagging role that the NSW construction and housing industry displays in embracing the modern construction industry practices taking shape to some degree in Victoria, and at a more sophisticated level internationally. Modern construction in its simplest form can be described by measurably '*Better Construction for Less'*. 'Better Construction' may be viewed through the construction customer lens and involve more resilient, better quality buildings. For 'Less' involves the processes of construction which aspires to less waste (80%), less time (50%), less unproductive labour inputs (50%), fewer injuries (80%), fewer non-conformances and less rework (80%) and lower cost by +20%.

These factors could have a profound and positive impact on the success of delivering the medium density housing stock that the current call for submissions invites. The viability and long term appreciation of tomorrows medium density housing supplies will depend on the degree to which the NSW and wider Australian housing markets recalibrate their practices.

My work as Adjunct Fellow, Construction in the School of Computing, Engineering and Mathematics embraces the interests described above. This submission is made in my individual capacity and does not speak on behalf of Western Sydney University (WSU).

The Western Sydney University sits at the epicentre of NSW's housing, general construction and infrastructure engineering economy. This will be the situation for at least the next 10-15

years as the new Greater Sydney Commission strategies[2] are implemented and the new Badgerys Creek airport project gets underway. It is likely that construction GDP in Western Sydney will have a larger and disproportionate presence in the economy than realised. The construction, transport, real estate and manufacturing industries account for almost 50 percent of the businesses in the Greater Western Sydney Economy (GWS). Small and Medium Sized Enterprises (SME's) make up 90 percent of the GWS business community.
Western Sydney University has recently completed a GWS Business Innovation Mapping Study (Fallon, Sloane and Munro 2016). In 2012 there were 133,783 businesses in GWS.

The WSU Construction Management and Building Design program provides undergraduate and post graduate studies in Construction, Project Management, Building Surveying, Fire Safety Engineering and Bushfire Protection and offers PhD candidates research opportunities in areas covering Built Environment Sustainability, Workplace Health and Safety, Bushfire and Forest Management. Over 1200 undergraduates and post graduates are enrolled in the program. Related studies are offered at the University in Urban Planning, Industrial Design, Business, Law, Social Sciences, Computing, Mathematics, Engineering and Infrastructure.

The capability building that will be needed to optimise implementation of the NSW Medium Density housing strategies could be centered around the WSU construction program.
The majority of housing construction companies who will be most effective in delivering new medium density and small scale multi-unit housing will be SME's. This possibility could form the basis for an enduring partnership between NSW Planning, the NSW Department of Industry, Western Sydney University and the SME housing and construction industry.

1. General response to the draft code and the problem that needs solving

The Minister's context for the medium Density Guidelines sets a backdrop where 725,000 new dwellings will be required in NSW over the next 20 years to accommodate a forecast 2.1 additional residents. The introduction indicates that this challenge will be influenced by the growth in over 60-year old residents to 2.6 million and 0-19-year-old residents to 2.4 million. The Greater Sydney Commission points to the Sydney region's economy expanding to $655 bn (+75%) by 2036, a need for 817,000 new workers and sets the importance of '*affordable and achievable'* housing supplies as a central theme to enable these projections.

What is the size of the challenge to house NSW and Sydney residents?

The Minister will have better data insights into what share that additions to NSW housing stock should result from the new medium density and small scaled multi-unit (under 4 storeys) Design Guidelines, and where the best locations to facilitate production may occur. For this submission, I have adopted several assumptions with the intent of suggesting metrics that will be fundamental to informing the organisation and delivery of this new stock. The 2010 National Housing Supply Council forecast that by 2014 there would be 9.33 million dwellings in Australia (Table 2.5). The Council forecast that residential flats would need to increase from 694,000 in 2009 to 1,001,000 by 2029 or 44% (Table 2.4) as part of a 11.8 million national housing mix. There is little easily accessible data about the Greater Sydney built housing stock. There is likely to be approximately 2.6 million dwellings in NSW.

[2] **GSC**: http://gsc-public.s3-ap-southeast-2.amazonaws.com/s3fs-public/towards_our_greater_sydney_2056.pdf?x6WAV8GT8h51mtA5dWliCB6SlCvJuyhw

The ABS[3] reports that approximately 4.8 million people live in the Sydney region or 64% of NSW's population. Based on a household size of 2.59 persons per dwelling, this may roughly equate to 1.85 million dwellings. Separate houses make up more than 80% of all existing dwellings. In 1999, 18% of Australia's housing stock was less than 10 years old, and over half (55%) was less than 30 years old. Around 12% of all dwelling occupiers were aged 60 years and over. This data would be worth updating, but it would be reasonable to expect that dwellings over 40 years old may have increased some. Assuming this may have risen to circa 20%, that may mean over 370,000 dwellings are in this category. Alternatively, if only 12% of total stock (1.85m dwellings) was suitable for conversion to medium density and low scale multi-unit, the number would be over 220,000. Somewhere between the two may be the answer. Assuming an average yield of 4 dwellings each, more than 880,000 may be possible.

Very little work has been done around developing these metrics, because they run the risk of becoming targets. That is not the purpose here. There are however clear trends towards a winding back of traditional detached and attached dwellings as the mix changes to embrace higher density imperatives. I will assume that the mix by 2025 could be 40% traditional attached and attached dwellings, 30% medium density and small scale multi-unit and, 30% higher density multi-unit. Adopting 725,000 NSW dwellings indicated in the draft guideline this may mean 290,000 (14,500 pa) dwellings in the 12 to 25 per hectare segment, 217,500 (10,887 pa) in the 25 to 45 dwellings per hectare market and the same for the + 45 balance. This could mean over 2700 medium density and small scale multi-unit projects needed pa.

Who owns these sites and what would motivate them to be involved?

Over 60% of Australia's dwelling stock is either owned by occupiers or is being acquired. For many of these properties there will be substantial equity. The increasing over 60 years' owner profile will mean that residents will potentially be interested in trade-down and or value liberation options. There has been considerable material published on the aspirations and dissatisfactions of existing property owners who are in this situation. Some include;

- Desire to convert from older high maintenance properties into smaller, newer stock,
- Difficulty finding suitable alternates in the location or the type of dwelling sought,
- Preference not to move into large scale developments and the process involved,
- The challenge of making the trade-down economics work,

The new Medium Density options described can make a significant contribution to resolving these issues. Motivating the owners of properties that may be suitable for medium density and small scale multi-unit development is the key to unlocking this established land bank. Developers will make their choices as to development attractiveness as sites become available and economic cycles permit. Owners will be more circumspect. They first need resolution of the factors outlined above. And planners will need to be mindful of this.

Table 1, presents a nominal value summary (retail price) for land that may be suitable for medium density and small scale multi-unit developments today. These values are relatively new to the housing market and have largely arrived at this unprecedented level over the last 7 to 10 years. Similar land between 1995 and 2000 may have been only $150 to $250 per m2.

[3] **ABS**:http://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/3235.0Main%20Features152014?opendocument&tabname=Summary&prodno=3235.0&issue=2014&num=&view=

The historically low prices for retail land has underpinned a housing industry construction capability that centers on the '*slab on grade'* edict. Make flat easy blocks for builders to build traditional stick-housing on, was the key to success for land developers. Sloping blocks were harder to market and house builders priced the site costs associated with creating a level slab on grade starting point quite heavily. The same argument was made to consume as much as 20% of these lots for driveways and above ground garages. Above ground garage structures were cheaper and less complicated for relatively unsophisticated home builders to construct.

TABLE 1: LAND PRICE/VALUE SUMMARY – NOMINAL 2016

Lot size m2	Retail prices $1000/m2	$1250/m2	$1500/m2	$1750/m2
900	$ 900,000	$1,125,000	$1.350,000	$1,575,000
750	$ 750,000	$ 937,500	$ 1.125,000	$1,312,500
600	$ 600,000	$ 750,000	$ 900,000	$1,050,000
450	$ 450,000	$ 562,500	$ 675,000	$ 787,500

SOURCE: D CHANDLER SHADOW SHOPPING

Based on observations of medium density developments under construction in Sydney the predominant configuration is attached terrace styled housing with surface parking provision. There are fewer small scaled multi-unit developments (including manor Houses). Three and four bedroom dwellings dominate the small lot housing market, which includes attached. Developers of this stock do not incorporate much in the way of diversity in the mix of housing they build. Dwelling size and type are more diverse in higher density multi-unit where developers look to optimise the price points and market acceptance of their offerings. Some medium density developments include rear lane's which avoid main street parking structures (garages) and offer intermittent garage top studios. Mostly this is poorly done. The images in Tables 2a and 2b show the usual results beyond builder display villages.

Table 2a: Examples of medium density garaging

Source: David Chandler

These medium density outcomes do little to contribute to improving or sustaining the urban outcome. The situation is worsened when this results in new master planned developments.

Table 2b: Examples of Medium density Car parking

Source: David Chandler

More will be needed to avoid these outcomes in Medium Density intensification of the Inner Middle. While cars will remain a central part of mobility options in Australia, the heavy investment currently being made to intensify public transport should be leveraged to make the dominance of car parking structures less of the future, than the past. Encouraging below ground parking arrangements as shown in fig 2-25 and page 190 of the Guide would be preferable. The examples on pages 182, 186, 193 and 196 will not ensure quality outcomes.

Greater attention should be given to the potential of small scaled multi-unit development to 3 Levels. This would seem to be a practical amendment to the Guide. There are others. Motivating land owners to sell or to participate in the realization of small land holdings will require recognition of their perceived land values. The notional land values used in this submission have been observed on projects which are 20 to 50 kms from the Sydney CBD. These projects are mostly over 2 kms from the nearest rail or transit head. They are assumed to be the 'Missing Middle Ring' locations the subject of the Guide.

While the amalgamation of blocks will be desirable for larger scale developments, many developments may involve only one or two sites. The Minister may consider a 2-lot amalgamation incentive. Smaller multi-unit developments will provide land owners with potential to either stay-in and/or fully organise their own smaller developments. Smaller scaled multi-unit may overcome some of the resistance land owners have to larger schemes.

Tables 3a – 3b attempt to explain the implementation challenges to good planning ideas that may not have been fully evaluated for the Draft Guideline.

Table 3a makes assumptions about the possible mix of small 2 and 3- storey schemes. The proposed strata mix incorporates a 2br plus studio product (otherwise known as a dual key) dwelling. These dwelling types offer their prospective owners a range of use and financing options. One bedroom dwellings have not been used in the table, but could be used to balance potential development optimization. A wide variety of options are available. As can be seen in the exemplar Table 3a, many of these options are ruled out. These dis-incentivize vendors and potentially defeats the Guide, if the intention is to make small scale medium density and small scale multi-unit housing part of Sydney's and other Regional Centre's future. This would be a pity if a meaningful inclusion of the possible 880,000 dwellings were supported.

Table 3a: Testing Small scale multi-unit composition options

Lot size m2	Allowable FSR m/2 .8:1	2 level scheme* L1 – 2br+studio & 3br L2 - 2br + studio and 2br	3 level scheme* L1 - 2br+studio and 3br L2 – 2br+studio and 3br L3 - 2br and 2br
900	720	605m2 - allowed	845m2 – not allowed
750	600	605 m2 - marginal	845m2 – not allowed
600	480	605m2 – not allowed	845m2 – not allowed
450	360	605m2 – not allowed	845m2 - not allowed

Author: David Chandler ***Includes 30% for circulation and balconies**

Table 3b, considers the economics of how vendor land value may be allocated across a mix of dwellings that may make up a small scaled development. The values provided exclude developer costs (finance, marketing, holding rates and taxes etc.) and margins which may add a further 25 to 30% to the base land and build costs provided. These costs would be minimized if alternate project formation and delivery arrangements became available. In this context, an older land owner may see the potential in trading down on their own site and enabling family and others to undertake a collaborative development at substantially lower cost. At the same time the land owner/vendor may be able to liberate part of their equity.

Table 3b: Testing Small scale multi-unit land + build costs (excl. developer costs)

Dwelling type (Net areas)	Car park	GFA m2	Cost of land Contribution $1500/m2 (net areas)	Cost of build Contribution $3500/m2 (gross areas)	Total excl Developer Exp. + profit
3br – 110m2	2	143m2	$165,000	$500,500	$665,500
2br + studio - 140m2	2	182 m2	$210,000	$637,000	$847,000
2br – 75m2 to 90m2 (avg)	1	107 m2	$160,500	$374,000	$534,500
1br – 60m2	1	78m2	$ 90,000	$273,000	$363,000
Carpark Visitor/disable	4	Incl	incl	incl	incl

Author: David Chandler **GFA $'s Includes 30% for circulation, balconies and cars**

Table 3c, provides a final insight into how land owners may view their economic options. As an

example, an owner may decide to trade down to a 3br apartment with a land contribution and build cost of $655,500. If it were possible to build a small scaled 3 level multi-unit development on their 750m2 lot which could generate a total land value of $975,000 it would be possible to liberate up to $320,000 to contribute to retirement savings. This would not be possible if the alternate was another dwelling which may not meet their personal needs and may cost as much as 30% more i.e. $852,150 plus transaction costs of up to $100,000.

Table 3c: Testing Small scale multi-unit land value $ analysis (estimated)

Land vendor Alternate wholesale market value $1250/m2	Allowable Gross FSR land value contribution ($1500/m2)	2 level scheme Based on NFA (per dwelling) $1500/m2	3 level scheme Based on NFA (per dwelling) $1500/m2	Viability Scheme 2 levels With NFA $'s	Viability Scheme 3 levels With NFA $'s
900m2 lot $1,125,000	720m2 $1,080,000	465m2 $697,500	650m2 $975,000	N	N
750m2 lot $937,500	600m2 $900,000	465m2 $697,500	650m2 $975,000	N	Y
600m2 lot $750,000	480m2 $720,000	465m2 $697,500	650m2 $975,000	N	y
450m2 lot $562,500	360m2 $540,000	465m2 $697,500	650m2 $975,000	Y	Y

Author: David Chandler

Table 3c, could be used to demonstrate that more work needs to be done in evaluating the potential of, and implementation attractiveness of the Guide. Motivating a larger number of potential land contributors needs to look at the challenge of '*what's in it for them'*. In its current form the Guide plays to the less desirable site optimization methods used by the least sophisticated builder developers. Expect many more outcomes like those exhibited on page 193/4 of the guide where the gun-barrel villa developments of the 1990's could be repeated. This time with two storey town houses, still slave to slab on ground construction methods.

Table 4: Gun Barrel villa developments v Medium Density Guide p.193

The medium density development examples cited in table 3b, average $6000/m2, pre-developer costs and margins. When applied, these may bring the total retail prices nearer to $8000/m2 for average developed stock. Lower cost developments will occur. At the other end of the spectrum will be boutique or up market medium density as reported in the AFR (10/12/16) '*Rash Empty Nesters left out in the Cold'*. The article reported on the average recent retail price for density apartments in Melbourne being $9400/m2, and of a small luxury block of 24 apartments selling out at $14,000/m2. In this instance the 3br apartment cited in table 3b, would cost $1,540,000 a price gap of $875,500. Without a reasonable level of intervention during the implementation of the Guide the results could be the extremes with the solid middle client group being effectively frozen out of the market.

In section 3, of this submission examples of actions that may be taken to assist achieving the intended outcomes for the Medium Density Guide are canvassed. The work of Dr Peter Newton around Precincts management will help inform this conversation. For now, the issues canvassed so far are well summarised by Dr Newton's in his opening comments to this year's HIA Housing Summit which addressed the need, to better understand brownfield sites.

2. Why leaving it to industry will not realise the potential of the guidelines

A misconception in many of the policy discussions around modern construction is that the traditional '*first specifiers'* (Designers) will remain as the main design influencers.

The transformation of construction now reshaping the industry worldwide is described in Dean Strombom's book, The Commercial Real Estate Revolution. He cites a momentous shift challenging old industrial models that have served construction well for centuries, and now face calamitous post-industrial stresses. Strombom says that, "*construction firms are adding architects, architects are expanding into construction services, brokers are adding project and facility management services, and still others are creating one-stop-shop capabilities, when the lines blur like this, it is a sure sign of more fundamental shifts taking*

place". These trends can already be cited in Australia, and it will be the '*first-movers'* who will become the new mainstay of a modern construction industry. Modern construction is defined by an era where the traditional industry measurably lifts its performance. This will result in '*Better Construction for Less'*. The Commercial Real Estate Revolution does not leave a lot to the imagination for those who want to continue resisting change and or fail to see the future through a customer lens. Planners may still see '*first specifiers'* traditionally.

Except for project housing, the industry's '*first specifiers'* have traditionally been architects. Architects have a bias for bespoke design. They have traditionally shunned project housing. Project housing uses repeat designs and specifications. Avoidable design effort is reduced. Table 5, provides a view of the '*first specifier'* influences relevant to this submission. Residential Housing (Project Home Builders) are consistently the housing industry specifier.

Table 5: Understanding the First Specifiers

Function	Designer	Project Home Builder	Developer	General Contractor
Client Interface	Mostly Direct	Direct	Direct	Indirect
Design	Bespoke	Mostly Standard	Opportunity driven	Project driven
Product and Build Method	Limited influence	Full influence	Market influenced	Tender influenced
Potential for industry standards	Little ability - does not accept risk	High regulated by consumer obligations	Little interest keen to allocate risk	Limited if just tendering, higher for D&C
Ability to leverage volume	Limited from project to project	High for repeat of standard inputs	Low except if major builder/ developer	Low as volume purchasing is not standard

The 'residential housing' and 'general construction' industry operate differently. The residential housing industry has been the main stay of owner built housing in green field subdivisions for over 60 years. The typical business model for residential house builders is based on selling standard design project homes, for which they have finely tuned measurements and prices. Variations to those standard designs other than superficially, to deal with site specific costs or to up-sell on inclusions or finishes has often frustrated their customers. While the project home building sector is held out to be efficient, this is not the case. See Table 6. Projects involve a nomadic sequence of self-supervising and mostly self-certifying trades. The Australian Housing and Urban Research Institute[4] published an instructive insight into the practices, constraints and slowness to adapt nature of the sector.

While there are pockets of deemed to be innovative construction transformation there are no measurable improvements directed towards '*Better Construction for Less'*. The industry suffers from producing variable quality buildings mostly determined by the availability and quality of trades. The industry has an unenviable track record of insolvent builders and a

[4] **The nature of the Australian Housing Industry:** https://www.ahuri.edu.au/__data/assets/pdf_file/0020/2198/AHURI_Final_Report_No213_Australian-suburban-house-building-industry-organisation,-practices-and-constraints.pdf

Home Owner Warranty Insurance scheme that leaves many customers compromised. The industry is chaotic, wasteful, unsafe work practices are frequent and possibly under reported. The industry's capabilities are based on craft skills which rely on most fabrication being performed on site. The industry is resistant of change and accountability. Australia's house building sector is unprepared for the capabilities they will need for the next generation of housing. The sector remains dependent on new flat, green field land supplies, low interest rates and publicly funded infrastructure. Non-the-less the sector must adapt sooner than later.

Table 6: Housing Construction Chaos

Source: D Chandler

Despite all of this, there are in their midst the potential modern constructors who will be the *'first movers'* to adapt and built better. The housing sector is capable of better. The key is identifying those who want to be, and building from a modest base outward. Trying to lift all players to a new level at the same time is an impossible task. These challenges are more fully discussed in a recent submission to the Senate Economic Committee's enquiry into Non-Conforming Building Materials[5] prepared with Dr. Mary Hardie, DAP-Construction WSU. The submission discusses the transformations now reshaping the construction industry in Australia and internationally. Emphasis is made about the impact of construction digitization and how this will affect the performance and effectiveness of construction sooner than later.

The '*first movers'* will be the most able to help demonstrate and deliver the 2700 medium density and small scale multi-unit developments that will be needed in NSW every year to 2036. For a modest investment, the NSW Planning, the NSW Department of Industry could leverage the opportunities that the new Medium Density Guide offers. These builders will need up-skilling from a traditional project home builder undertaking stick-build housing from slabs on grade. They will need to be assisted to adapt the traditional project home design and build model to a new multi-unit construction capability by deploying digital design and modern supply chain organisation methods to build better, smarter, safer, faster and cheaper.

[5] **Non-Conforming Building materials Enquiry – Submission 85:** http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Non-conforming45th/Submissions

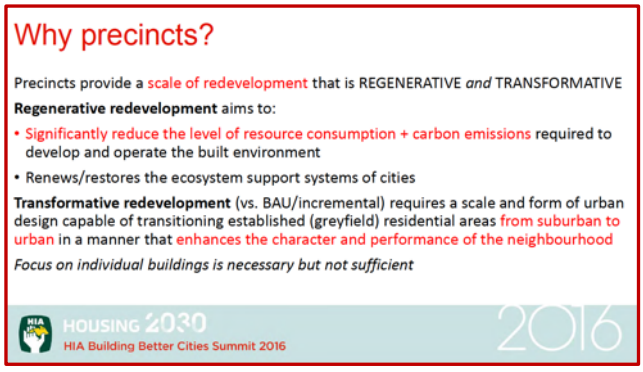
It will be possible for designers to transform their service business model into a 'product and service' mode as described by Dean Strombom. There are examples of designers already doing this. And in the past, the design led Pettit and Sevitt model displayed these qualities.

The important lesson to be drawn from the Pettit and Sevitt business was the design and construction collaboration established between its principles. They took standard design components and proven assembly arrangements to their customers in what seemed like a bespoke response to their personal and site specific needs. Those dwellings have stood the test of time and have been highly prized in the market for over 30 years after they were built. They were economical to build and demonstrated that mass production + mass customisation were compatible partners. There is a strong case for the transformation of this housing model to apply to the making of their contemporary medium density +multi-unit counterparts today.

3. Examples of what could be done to enhance implementation

Implementation of the Medium Density and Multi-Unit buildings of the quality and mix aspired to in the Guideline will not occur without fostering every aspect of their delivery. This submission has addressed in part the physical nature of the buildings, the economics that will influence community engagement and the need for new housing industry capabilities. There will be countervailing argument about the nature and justification of these views. The important take away from this, is that the answer will not be one of '*one size fits all'* but of diversity and inclusion. What is clear, is that new approaches will be needed to making tomorrows housing, and that unless some of those approaches make that housing more '*achievable and desirable'* the inevitable resistance at community level will defeat them.

The Property Council of Australia's[6] (PCA-JBA) report titled '*Councils Zone out on New Housing*' provided detailed evidence that private developers led up to 64 percent of Sydney land rezoning applications while Councils only led fewer than 29 percent. The Medium Density and Small Scale Multi-Unit Design Guidelines could help rebalance the predicament described by the PCA and ameliorate some of the associated community disquiet. The current Council amalgamations and the District Planning work of the GSC could set up positive momentum in this area. Dr Peter Newton's work on Precincts would seem to add a helpful line of thinking in this quest. Newton correctly asserts that,*"a focus on individual buildings is important but not sufficient."* His work goes beyond a pepper and salt approach.



Newton has published several well-considered publications on the development of housing in greyfields residential precincts[7]. He canvasses a mix of consolidated, hybrid and dispersed regeneration integrated housing models. Newton points to the potential for Sydney to provide 640,000 additional medium density dwellings. Newton and Glackin (2014) add further insight into '*Understanding Infill'* in their more recent publications.

[6] **PCA**:http://www.propertycouncil.com.au/Web/News/Articles/News_listing/Web/Content/Media_Release/NSW/2016/Councils_zone_out_on_new_housing.aspx
[7] **Newton**: https://mail.google.com/mail/u/1/#search/pnewton%40swin.edu.au/158197cd8ccfc45e?projector=1

Professor Geoffrey London is the former Victorian Government Architect. He is developing an urban infill study through his current work with Monash University in Western Australia for the WA Housing Authority. London is co-initiating a demonstration residential and owner occupied development project to build suitable homes in well-designed neighborhoods. This work builds on the German Baugruppen[8] collaborative housing model with WA's LandCorp. Collaborative housing development models amongst private land owners and not-for-profit Community Housing Providers add to the mix of medium density and small scale development opportunities in the Missing Middle of Sydney's housing supply challenges.

Sydney, and other major NSW urban centers are now dictated to, by the high cost of the land component and other barriers described in this submission that constrain owners of greyfields holdings in unlocking the Missing Middle. Table 1, shows that suitable land for medium density and small scale multi-unit developments will range from $1000 to $1750/m2. Land prices at this level is a recent phenomenon. These prices alone should dictate a different approach to construction typographies than those dependent upon traditional project home, slab on grade building methods. They make the need to upskill home builders' imperative.

Even the more sophisticated developer builders constrain the potential of their new green field land set aside for medium density and small scale multi-unit, and in the current regeneration of existing greyfields sites for medium density. This is despite the degree to which those sites need to be worked to produce traditional flat builder lots, suitable for slab on grade construction methods. Mirvac, Lend Lease, Stockland and Urban Growth all seem reluctant to venture from this model. Table 7 shows examples of extreme typography rework.

Table 7: Flat Block Suburbia

Images: David Chandler

Mirvac and Lend Lease (via Delfin) have been some leaders in developing innovative small lot housing. They have each produced subdivided land for their own developments, for wholesale to project home builders (builder lots) and retail lots for home purchasers who wish to engage their own project builder. Mirvac have been amongst the most innovative. It is surprising therefore to see them spending so much to create flat blocks for their own green field and brown field medium density developments around Sydney.

[8] London- Baugruppen: https://www.theurbanist.org/2014/05/20/baugruppen-to-form-a-more-affordable-urbanism/

Mirvac and others essentially sterilize the potential of sites developed for flat land by at least 20 percent. This would seem at odds with NSW Planning objectives to ensure that a once in 50-year opportunity to harvest scarce land which contribute as much to new stock formation while achieving better outcomes. Larger developers these days are more into large volumes of what they know sells, rather than some of the finer grain alternates that may be possible.

Larger developers will find it difficult to justify their efforts to trail blaze in 'Precinct' urban intensification discussed by Newton and London. Facilitating these outcomes will need to be driven at the local level. Local government will need to step up and be the prime envisioner and communicator of what's possible if the highest extraction of housing from existing urban areas is to occur. Large developers want control of large parcels, typically involving more than 50 dwellings. In this submission, a balanced approach is proposed which enables refreshed neighborhoods by deploying a mix of 4 to 10 dwellings delivered using a smaller scaled development model. Traditionally, project home builders constructed the original single dwellings in these neighborhoods using their proven '*build standard designs'* to order model. This model could work again in small scale multi-unit, but facilitation is needed.

The Pettit and Sevitt model provides some guidance as to how these products may be developed and offered to the market. There is a unique opportunity to envision the potential for modern construction methods to be incorporated into these buildings. The first movers will by necessity need to be SME home builders who understand that their traditional market is changing, forever. These could be collaborative business models that reflect the notions discussed by Dean Strombom of designers becoming builders and builders engaging designers as products become services and services become products. It is these business models that have the potential to create the long-term momentum to transform old neighborhoods and enlist local owner and communities to proactively be engaged. These delivery models will need to find a less complex approval process that that which traditional planners and designers may write for themselves, somewhat immune to getting outcomes. An alternate model should not need these defenses (see fig 1.2 below).

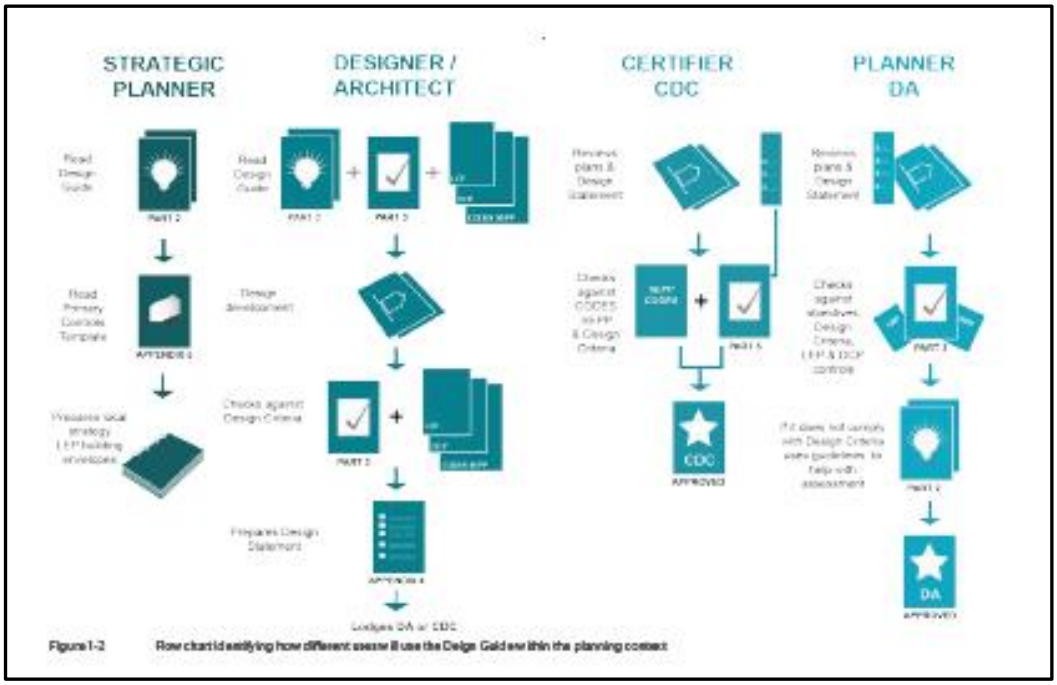


Figure 1-2 Flow chart identifying how different users will use the Design Guidelines within the planning context

The identification of the Consolidated, Hybrid and Dispersed precincts identified by Newton does not seem like a difficult task. Similar criteria may be used to those that enable more intensified developments along major transportation corridors and activity centers. Clearly this intensity is not for everyone. The following criteria may be suitable for identifying Precincts in Sydney and other major centers (e.g. Central Coast and Newcastle etc).

- Has an existing small scaled neighborhood centre of no more than 10 shops,
- Offers some or all local medical, kindergarden, accounting and human services,
- Is serviced during business hours by a local bus service and no more than 10km to a major transport corridor,
- Includes older housing of more than 40 years old that is suitable for renewal,
- Requires relatively simple infrastructure enhancement – which could be funded by the prospective developments (and have up-front low interest public initial investment),
- The precinct could provide 250 to 500 new dwellings within a 500m radius of the neighborhood center.

There are hundreds of Precinct suitable locations in the Greater Sydney area, but many more in in other centers. Table 8, provides some examples where larger developers will have less interest and communities would feel more comfortable working with their local governments if they knew that opening these possibilities to wholesale destruction of their neighborhoods was not a risk. Government and councils could provide initial incentives as described by Newton and London. These may include streetscape renewal, shared infrastructure such as storm water retention systems in the street to supply both private and public landscapes. The outstanding new characteristic of these neighborhoods would be a subtler provision for cars in below surface parking structures. Owners in these precincts could look forward to the value and community building and enjoyment that this new approach to development brings.

Table 8: Sydney and surrounds has hundreds of precinct potential locations

NSW Planning should also see this opportunity for a more diverse inclusion of housing forms and tenures. It should be envisaged that owners of properties in these precincts will see a way to stay in their neighborhoods, to downsize, to liberate some of their high equity in these properties, to consider some wealth transfer to family and open-up a more *'achievable'* source of new housing choices. The future is not about one size or model fits all. These types

of Precinct orientated developments will also appeal to self-organising shared interest or need groups who could see the scalability of smaller scaled developments which they facilitate.

And finally, industry capability building. The attributes of a modern construction housing industry should be distinctive from its traditional construction counterparts. Measurably "*Better Construction for Less'* should be the overarching theme of any investment in industry capability building. The customers of a modern construction industry should not be its *'guinea pigs'* there are simply to many digital, manufacturing and multi-jurisdictional governance issues for home buyers to be left in the '*it's industry standard'* quandary. The leaders in these changes will not be major constructors and design firms. They will be smaller more agile enterprises and start-ups. They will benefit from access to shared resources and knowledge. They will benefit from access to a '*modern professional constructor'* upgrade.

NSW is behind in the movement towards modernizing the construction industry that may be observed in some other states. There is an opportunity to examine what's working and what's not in those jurisdictions. There is an opportunity to investigate new construction enterprise and service industries that may come from a one-time investment in industry capability building and IP that could positively enable the implementation of new dwelling formation in NSW's '*Missing Middle'*. NSW has a vibrant Western Sydney economy which could justify and sustain the incubation of innovative new construction services, products and enterprises. This economy and its surrounds are likely to enjoy that vibrancy and momentum for +20-years. There is an opportunity to make a high-quality statement about the type and character of medium and small scale multi-dwelling construction as a compliment to the intensification elsewhere. There is opportunity to build these capabilities in Western Sydney and then extend them to other centers. The data will point to the demand and viability of smaller scaled residential development through the cycles, especially if it is built off sound, not thin equity.

There are modest scale examples of collaborative industry capability building and IP sharing. One was PrefabNZ's CoLab initiative in Christchurch New Zealand following the 2011 earthquake. This was a high-speed response which enabled local industry's startup and small-scaled prefabricated home builders to show their capabilities and ability to respond quickly to the re-construction effort. Since then many of those enterprises and those who have learned from them, have gone on to grow very impressive new lines of business and export pathways. An example has been in the use of engineered timber composites and earthquake resistant fixings. Around the CoLab initiative has sprung new university and design chain collaborations that are sharing their resources to help map out New Zealand's future and potential opportunities in modern construction. A special area of capability building opportunity in this area is certification and construction warranty serving into the region.

A similar initiative will be justified in NSW. The difference between the New Zealand and NSW construction industry is scale. In New Zealand businesses are normally small, much like the SME's that could be enlisted in the delivery of the 'Missing Middle' dwellings in NSW. In NSW, larger construction enterprises, design firms and manufacturers set the pace with each trying to out-compete with the others. While there are some positive modern construction innovations visible in NSW, it is unclear what their strategic direction or material sustainable advantage will be. The construction transformations that will build a more solid and sustainable base in NSW will be ones that build a sound pre-competitive foundation of shared knowledge and practices. These practices will need to be part of a modern construction eco-system which feeds across the industry with reliable outputs.

The successful refinement of the draft 'Medium Density Guide' and its successful implementation will need to be harmonized with building a modern construction housing capability. Without a collaborative transformation of the way the planners, designers, builders, supply chains, certifiers and educators work together to optimise this opportunity; a rare moment in NSW's history will pass by. While NSW no-longer sustains a Construction and Housing Ministry, there is no reason why NSW Planning and the Department of State Development could not collaborate and provide the leadership and a modest investment in enabling this important new housing supply solution for Sydney and the NSW economy.

Summary

This submission has sought to provide invited comments on the Medium Density Design Guide and has made recommendations that the inclusion of small scaled multi-unit development class of up to 10 dwellings be added. The case has been made that the addition of this dwelling typography is appropriate and addresses several potential planning and design flaws in the draft Guideline. It proposes that these dwellings would be limited to 3 levels, require below ground car parking provision and be limited to 12 meters in height. It is argued that these options will encourage the residential building sector to look beyond their traditional construction constraints. It is argued that this extension will help achieve the government's housing supply objectives and diversity while enabling modern housing constructors to achieve more sustainable businesses. This submission incorporates the housing customer and development economic considerations the Guide should embrace.

While not specifically addressed in the Guideline the role of '*first specifiers'* has been discussed. It is important to consider these functions in a modern housing context. The past success of the Pettit and Sevitt business model was offered to help explain this.

And finally, this submission proposes the creation of a Medium Density and Small Scaled Multi-Unit CoLab like facility to help fast track the capacity building the industry will need to brace for the future in this housing sector. It would be remiss to not point out that a potential site for such a facility has been identified at the Kingswood Campus of Western Sydney University, and that informal collaboration soundings between Sydney University and Wollongong University have commenced. The formal upskilling of housing constructors to qualify them to be the leaders in modern housing innovation and effectiveness is critical.

I would be pleased to speak to or expand on any elements of this submission.

Yours Sincerely,

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