

## SUBURBAN ADAPTATION:

An investigation into the potential of adapting existing dwellings to improve affordability, increase occupancy rates and address the needs of the new demographic

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Our cities have historically expanded like a ripple from a drop of water hitting a pond, but this is about to change.  
Our cities now have edges and the ripple is about to rebound, creating a new layer of complexity.

Steve and Lucy bought this Marrickville property for \$820,000 when they were first married 5 years ago. The price was hefty but achievable at the time with their double income.

Since that time life circumstances have changed; Steve and Lucy are parents to 2 boisterous children and Steve's father has died, leaving his mother living alone in a large house in the outer suburbs.

Steve and Lucy have adjusted their work schedules to take time to care for their children and they are starting to struggle with their mortgage payments. They would love to renovate the house to improve the connection between the living spaces and the north facing garden, and they would also like to make room for Steve's mother to move in but the cost of these works is beyond what they can afford.

Steve's mother is lonely and would be very keen to sell her large house and live with one of her children but doesn't want to be a charity case.

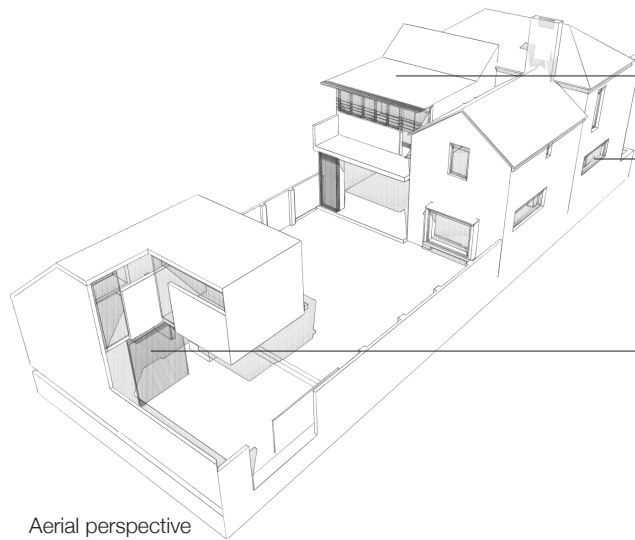
The solution arrives in a discussion with a close friend Janice, who has been looking for years for a small house she can afford to buy on her single income.

They decide that Janice will buy into the property and Steve, Lucy and Janice will become co-owners of the property with three equal shares and a tenants in common agreement.

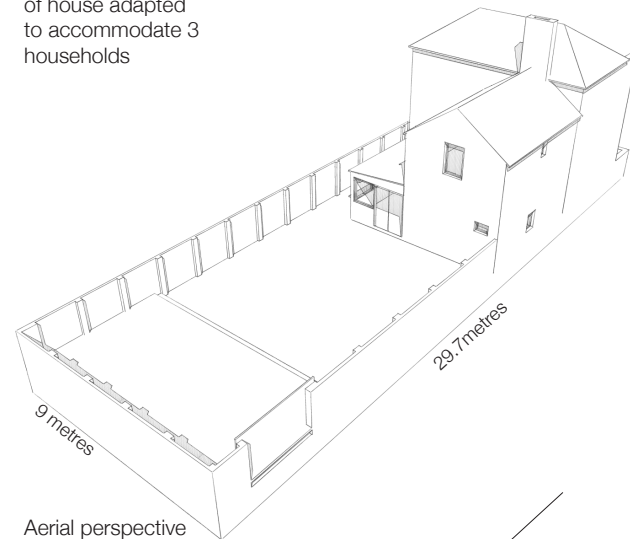
They work out an estimated value of the property with the addition of an attached granny flat and a back yard studio to be approximately 1.2 million dollars. The final agreement becomes 30% each for Janice, Steve and Lucy and 10% for Steve's mother.

To become a 30% owner of a 1.2 million dollar property, Janice pays \$360,000. Half of this money goes toward building a studio for herself to live in and the other half goes toward Steve and Lucy's mortgage.

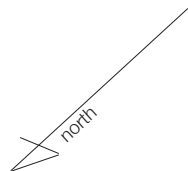
Steve's mother's payment of \$120,000 for 10% ownership goes toward the renovation of the main house with an attached granny flat. There is money spare for solar panels, solar hot water and rainwater tanks.



Aerial perspective of house adapted to accommodate 3 households



Aerial perspective of original single occupancy house



The front street facing rooms of the original house become an attached granny flat for Steve's elderly mother.

This apartment can be closed off completely from the main house, or can open up to share the ground floor living areas and back yard.

Steve's mother tends to open up her apartment to the main house for the 2 days a week she helps care for the children, and she is happy to close out the family at other times for some peace.

The garden at the street front becomes exclusive to this apartment, and the postman learns to deliver letters for the other tenants around the side in Short Street.

Janice builds her studio in the on site parking space. The existing vehicle gate becomes her primary entry. She works from home, so she tends to leave this gate open all day so she can interact with the world. There is a sliding screen between her Studio garden and the garden of the main house, so she can control the extent to which she participates in the social life of the main house.

The studio is 2 storey with the footprint on ground of just 24sq. The sleeping area is cantilevered over the garden. All the windows face north and east to catch maximum light and to benefit from passive heating. These windows face away from the main house which maintains privacy between the dwellings.

The roof of the studio is steeply sloped toward the southern boundary to limit overshadowing of the neighbour's garden.

Lucy and Steve re-model the existing house to improve the connection between the living spaces and the north facing garden.

The sleeping areas are all located upstairs. The children share the existing street facing balcony and the adults enjoy a new deck which looks over the rear north facing garden.

A new pedestrian entry is installed into the side boundary wall for an exclusive entry for the family.

The 3 households decide to get by with one car, parked in the street and one joint membership of a car share network.

## INTRODUCTION

The Metropolitan Plan for Sydney 2036 published by the NSW Government in December 2010 has identified a demand for 770,000 additional dwellings to accommodate the population of Sydney as it heads toward 2036. This figure is based on an expected population increase of 1.7 million over the next 25 years, and is predicated on the assumptions of 2.2 people per household and a 1:1 equation between households and dwellings.

The Metropolitan Plan outlines two strategies for the provision of these additional dwellings. 70% of new housing is proposed as medium and high density infill development located within existing urban areas and 30% of new housing is proposed as detached single family housing in new release areas on the outskirts of the city.

Both of these strategies rely on new development to solve the problem of increased demand, and have overlooked the fact that the vast majority of our city is already built. Rob Adams has estimated that 80% of the houses that exist today will still be standing in 50 years<sup>1</sup> and yet the proposed solutions treat the existing condition as a lost cause and limit the sites of intervention either to small areas squeezed between existing houses or pushed beyond the furthest extremes of the city boundary.

Environmentally, the cost of building 770,000 new dwellings is disastrous. The squandering of arable land close to the city, the sourcing and transport of the vast amounts of construction materials required for buildings, roads and services and the increased car dependency of outer suburban development make a mockery of any effort to control the carbon footprint of our city. The most appropriate site of intervention for increasing the number of dwellings is the vast expanse of existing suburban development. Better to work toward improving what we have before increasing the scale of the problem.

A closer analysis of the demand for more dwellings in Sydney reveals that the largest demand for additional dwellings comes not from population growth but from changes in household structure.<sup>2</sup> The traditional household model of a nuclear family, on which the form of existing suburbs has been based, is no longer the prevalent household type of Australian cities. The composition of the 770,000 additional households predicted by 2036 will be 35% sole person households, 28% couples without children or without children at home and 12% single parent households. Only 21% of the additional households will be a nuclear family typology.<sup>3</sup>

This paper presents an alternative strategy to accommodating increased population, not through building more dwellings on empty sites, but by investigating the possibility of adapting existing houses to increase occupation rates by accommodating multiple households. This relatively simple approach has been overlooked as a solution for Sydney's demand for new dwellings and as an answer for affordable housing.

Our households are becoming smaller, older and increasingly diverse, and it is well time that the form of our dwellings, our development policies and our models of ownership evolve to meet this change.

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1 Essay, Future Infrastructure in Architecture Australia Jan/Feb 2009

2 Shane Murray, Housing, Architecture Australia May/June 2007

3 Australian Bureau of Statistics, Household and Family Projections, Australia, 2006 - 2031

## THE POTENTIAL OF THE MIDDLE RING SUBURBS

The history of Sydney can be read in concentric rings from the city centre to the outskirts. The housing of the inner city is the oldest; compact terraces and rows of cottages for workers built from the late 1800's. In the early 1900's the affluent class moved out of the city to escape the poverty and pollution, and were followed by the middle classes who built their dwellings in strips along the train lines and the waterways. In the years after the wars when the population boomed and became mobile, the land between these lines was filled in.<sup>1</sup> The ocean to the east and national parks to the north and south have limited suburban expansion in these directions, so the last 2 decades of development have been west right up to the foothills of the mountains. The area proposed for further greenfield development follows the line of the foothills north and south.

In the years immediately after WW2, post war restrictions on building materials and the dearth of skilled labour meant that houses were small and built of simple materials, but after 1960 when banks entered the home loan market and when the post war migrants led the charge for home ownership, the size and features of the houses dramatically increased. Project home builders entered the market during the 1950's and 1960's, and as they refined the economy of their construction methods the houses grew bigger and bigger. The design and layout of the typical project home was refined in these years and this typology of suburban home has not substantially changed in 60 years.<sup>2</sup>

The wealth and demographic composition of the city is evident in the concentric rings of the city. The inner city once built for workers has been gentrified and now is accessible only to the wealthy. The percentage of children and migrant families are lowest in these areas. At the other extreme the new outer western suburban rings are the most homogenous in terms of building type and demographic. The houses here are new and large, and they offer very little diversity from the single family home. There is a low percentage of single person households in these new outer suburbs, mostly because there are few dwellings to suit them.

The middle ring suburbs, sandwiched between the gentrified inner suburbs and the homogenous outer suburbs have the most potential for suburban adaptation. These are the suburbs where the middle to lower income households can afford to live; families as well as migrants, single parent families, sole person households.<sup>3</sup> Many of the original houses in these areas were built between 1930's and 1970's, when construction techniques were robust and when subdivisions were relatively large. Many of the houses in these suburbs have the potential to be adapted for multiple households but instead, because of the restrictions of local government planning policy and because of our attachment to the mid-century model of the suburban family home, these middle suburbs are being incrementally demolished and re-made in the image of the outer suburban detached single family home.

We are looking at an opportunity lost. These middle ring suburbs are the perfect site for incremental densification through adaptation of the existing houses to accommodate multiple households.

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1 The Big House Phenomenon, Dr Charles Pickett, D\*Hub, Powerhouse Museum.

2 Shane Murray, Housing, Architecture Australia May/June 2007

3 Problems and Prospects for Suburban Renewal: An Australian Perspective; Professor Bill Randolph & Professor Robert Freestone, September 2008, City Futures UNSW

## DEMOGRAPHIC CHANGE IN SYDNEY

As documented in the New South Wales Household and Dwelling Projections 2006 - 2036 published by the Department of Planning in 2008, the demographic composition of Sydney is undergoing significant change. The following figures indicate the composition of the additional 770,000 households projected for Sydney by 2036.

Lone person households	259,700 households
Couples without children	203,400 households
Couples with children	157,100 households
Single parent households	85,100 households
Other	64,700 households

Demographers have also identified a trend of declining household sizes. In 1911, there was an average of 4.5 people per household. In 1986 the number of people per households had decreased to 2.88. In 2001 the number of people per household was down to 2.57. By 2036 the estimate for the occupancy rate of people per household is estimated to be 2.49.<sup>1</sup>

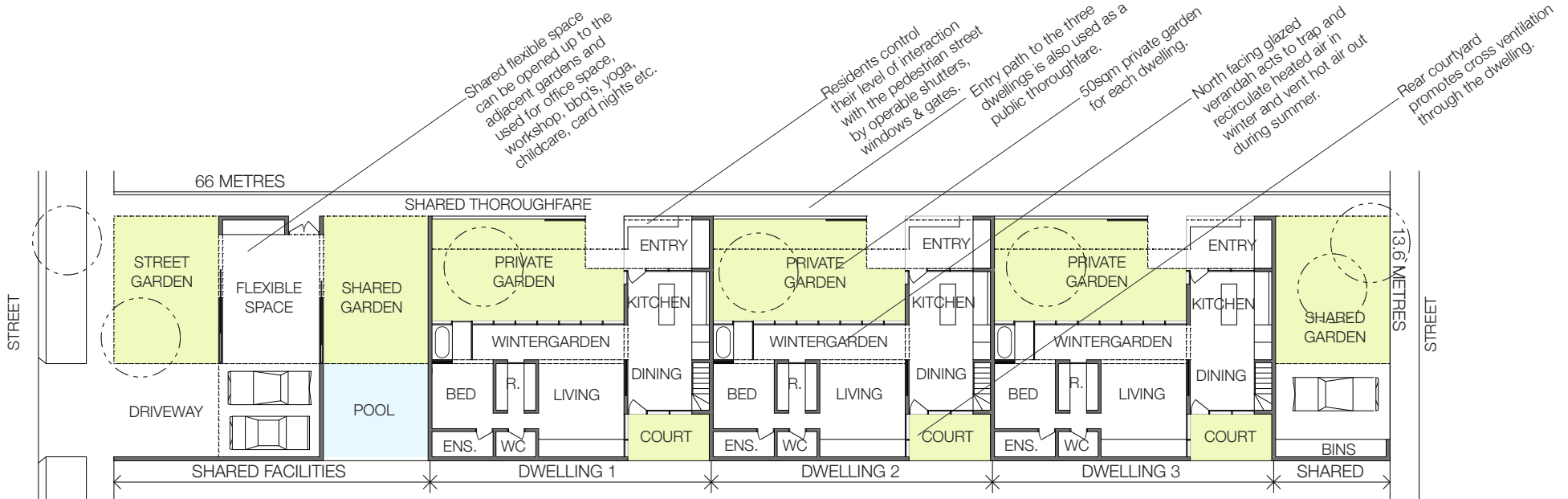
These trends spell out the primary causes of the dearth of affordable housing in Sydney. Population growth, declining household size and changing demographics are increasing the demand for housing in Sydney. Add to this the undersupply of diverse dwelling types to suit the soon to be majority of small households and this means people are struggling financially because they are competing for large houses that have been designed to accommodate a different sort of household.

There are two relatively simple solutions. Decrease the size of houses to make them cheaper and/or increase the occupancy rate of households per dwelling thus sharing housing costs between more incomes.

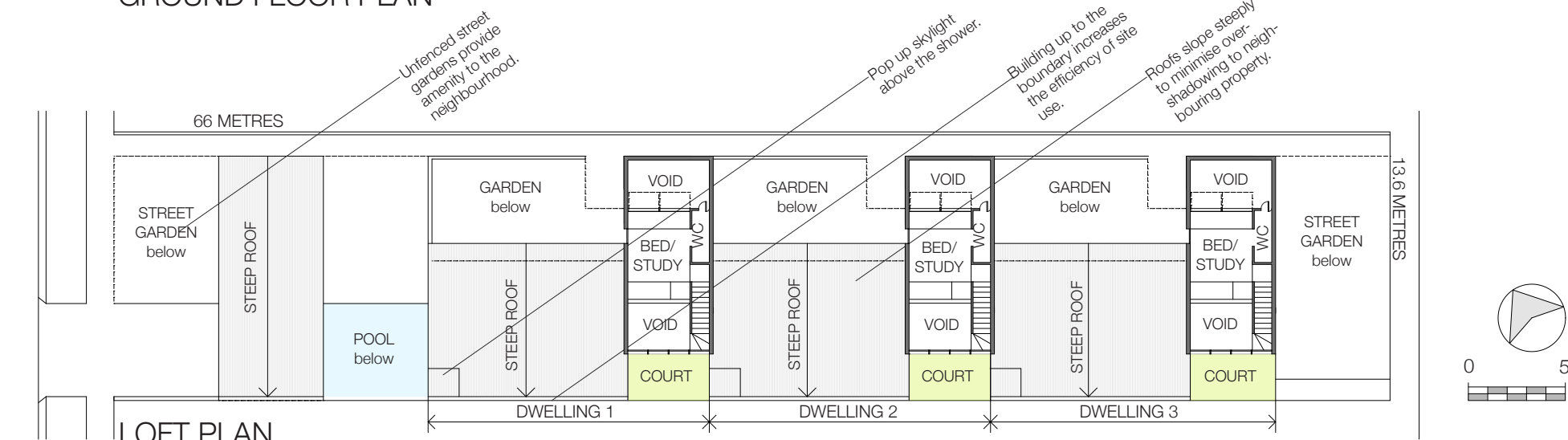
The following pages investigate architectural precedents for small dwellings and for multiple occupancy on low density sites. The argument then proceeds to outline impediments to these solution in the form of planning regulations which perpetuate the monopoly of the large single family home.

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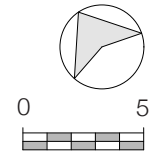
<sup>1</sup> Australian Bureau of Statistics quoted in Take 7 Housing Australia: How Architects can Make a Difference edited by Geoffrey London and Simon Anderson, published by the Australian Institute of Architects, 2008, page 11



GROUND FLOOR PLAN



LOFT PLAN



Site Area: 900sqm  
 Site dimensions: 13.6m x 66m  
 Proposed accommodation: 3/150sqm dwellings plus shared spaces  
 0.6:1 FSR: Does not comply - allowable FSR is 0.5:1  
 Boundary setbacks: Does not comply on any boundary  
 51% Landscaped area: Complies - recommended 45%

Council Area: Canada Bay Council  
 Zoning: R2 Low Density Residential  
 3 residences would not be permitted on this site. Dual occupancy would be permitted, but not with the residences located one behind the other. These residences are too large to be classified as granny flats under the NSW Government Affordable Housing SEPP.



## PRECEDENTS FOR INCREASED OCCUPANCY DWELLINGS

### Project: Suburban Lineal Park

Architect: Neeson Murcutt Architects

Location: Five Dock, Sydney

Status: Hypothetical - published 2008 in Take 7 Housing Australia

### Description:

This hypothetical scheme proposes the replacement of one existing detached dwelling on a quarter acre block with 3 small dwellings each with a private garden as well as some shared space. This scheme is specifically targeted at new-nesters and empty-nesters, and triples the density of dwellings on the site.

### Analysis:

Urban context:

The design of these dwellings investigates the potential of zero lot alignment to improve site efficiency. The typical 900mm side setback that is required by most councils for lots over 8m is deleted in this scheme, and the issues of overshadowing and privacy are addressed through architectural form - sharply sloped roofs and solid masonry walls on the southern boundary. This solution maximises the efficiency of the available land, eliminating the narrow passage on the south side of the site and celebrating the setback on the north side of the dwellings as a public thoroughfare passing by gardens and porches.

Public / Privacy:

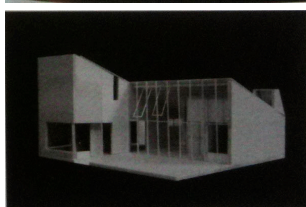
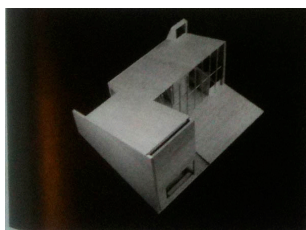
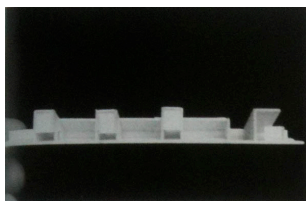
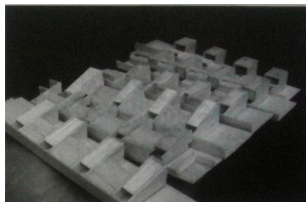
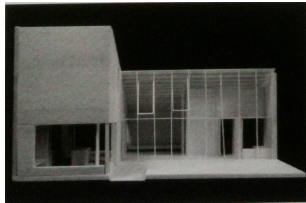
The scheme provides 3 small dwellings with separate entries and private garden areas. Shared facilities include parking areas, a flexible room adjacent the garage, a pool, 3 gardens and an entry path along one side of the site - which also provides a public thoroughfare between 2 parallel streets. Residents can choose the level of interaction between their private dwellings and the shared path by controlling shutters, windows, gates and the density of planting at the thresholds.

Environmental amenity:

Each dwelling has 4 types of outdoor/garden space; a 50sqm outdoor north facing private garden, a glazed winter garden attached to the main living areas, an indoor/outdoor entry porch adjacent the shared path and a tiny courtyard garden adjacent the dining area. Every habitable room has cross ventilation and the high windows in the wintergarden act to vent out hot air in summer and to heat, trap and recirculate warm air during winter.

### Conclusion:

This hypothetical scheme exposes the poverty of local council planning regulations in regards to numbers of dwellings permitted on a typical low density residential site. The scheme includes significant landscaped areas, complies with height restrictions, minimises overshadowing to the neighbouring property and yet accommodates 3 households rather than the single family permitted by the planning regulations. Allowing multiple occupancy on low density residential sites has the potential to provide a significant number of the dwellings required to meet increased demand due to demographic change.



**Suburban Lineal Park by Neeson Murcutt Architects**  
Published in Take 7 Housing Australia: How Architects can Make a Difference  
Photographs and model by Neeson Murcutt Architects

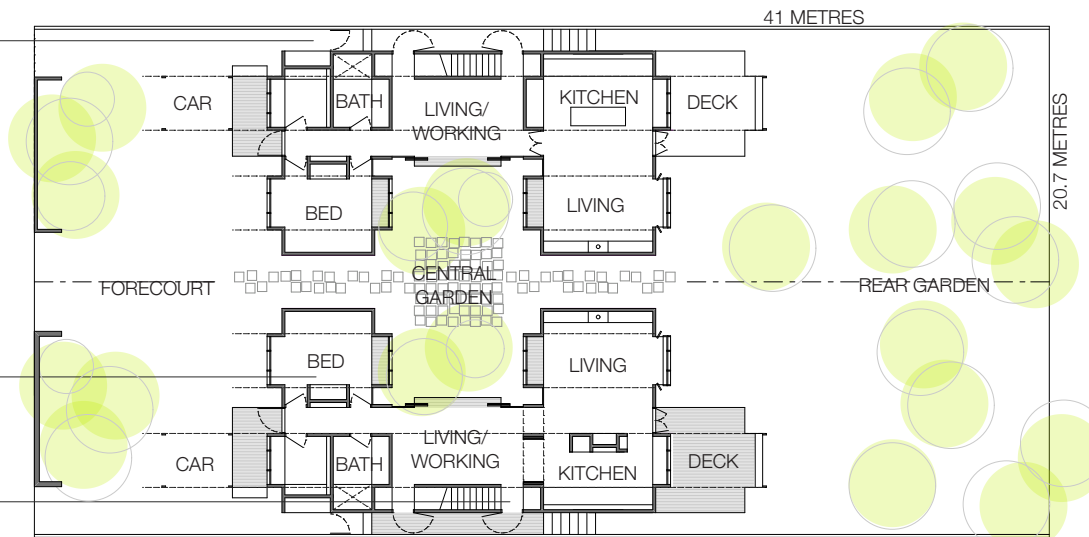
Entrances for the Upper Level apartments are located on the edges of the site - separate entrances provide more autonomy.

Single driveway for combined lots prioritises gardens over cars on the street elevation.

Non didactic programming of rooms allows flexibility.

Stairs are positioned so they can be easily closed off from the ground level apartment at a later stage.

STREET

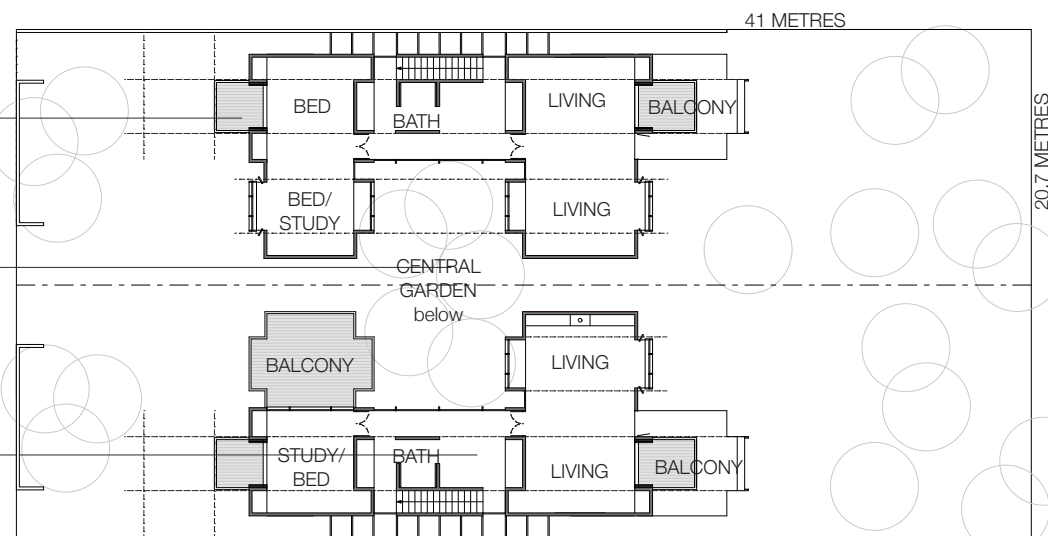


GROUND FLOOR PLAN

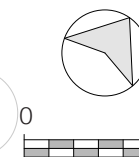
Every dwelling has private decks and balconies, as well as access to the three shared courtyard spaces.

Central courtyard garden allows for cross-ventilation through every room.

Space allocated for 'illegal' kitchens to allow the upper level to be used as a separate residence.



UPPER FLOOR PLAN



Site Area: 850sqm (adjacent sites of 425sqm each)  
 Site dimensions: 20.7m x 41m  
 Proposed accommodation: 4/110sqm dwellings on 2 adjacent sites  
 Building height: Complies - 7.5m at top of walls, 8.5 to ridge  
 Boundary setbacks: Complies - maximum length of house 25m  
 63.5% Landscaped Area: Complies - 50% maximum site coverage

Council Area: Brisbane City Council  
 Zoning: Single house - Small Lot Code

Brisbane City Council permits one dwelling on a low density residential site. These sites are considered small lots (under 450sqm) which increases the building envelope restrictions.



## Project: Moreton Bay Houses

Architect: Andresen O'Gorman Architects

Location: Wynnum, Queensland

Status: Completed in 2001 as 2 residences instead of 4 - published in 2008 in Take 7 Housing Australia

## Description:

The clients for this project were a group of single women who's design brief was for 4 individually owned apartments with some shared facilities, where they could live independently but offer each other support during their retirement years. The site was 2 adjacent narrow lots in a suburban area, surrounded by large queensland houses. Because of the zoning regulations which only allowed 1 dwelling per site, the brief was amended to 2 single occupancy houses (4 bathrooms, 2 kitchens), but the houses were designed with the flexibility to use the upper levels of the houses as separate apartments at a later stage.

## Analysis:

Urban context:

The apartments are designed around a series of courtyards strung along the length of the site following a street to water axis. The street courtyard occupies the full width of both lots and the central entry, the single car driveway and open carports present the scale of a large queensland home. The central courtyard is designed as a sheltered outdoor garden room and is shared between the 4 apartments. The dense planting in this garden provides visual privacy between the dwellings, and offers a lush background to the courtyard facing windows.

Public / Privacy:

The entrance to the two ground level apartments is from the forecourt. The upper level apartments have separate entrances located at the outer edges of the site. The 3 major garden spaces are shared, but each dwelling also has 2 or 3 private decks and balconies.

Environmental amenity:

Gardens and outdoor spaces are prioritised over internal spaces, both in the progression of gardens at ground level and the expressed timber trelliss frames which provide vertical gardens. The gardens provide privacy, views and help cool the air. Every habitable room has cross ventilation and the primary living areas are located at the rear of the development facing east and north toward the view.

## Conclusion:

Because planning regulations do not allow alternative housing arrangements, architects and clients are forced, at times, to be shifty in order to achieve the desired result of smaller dwellings for smaller households. Doubling the occupancy rate from 2 large households to 4 small households has no detrimental effect in regards to street amenity, FSR, landscaped open space, building height etc. Allowing multiple occupancy on low density residential sites has the potential to reduce housing demand caused by demographic change, and has the potential to improve housing affordability because building and living costs are shared between multiple households.

**Project: Adaptable House**

Architects: Diego Ramirez-Lovering, Shane Murray and Graham Crist

Location: Project home design for various sites

Status: Hypothetical - published 2008 in re-Housing: 24 Housing Projects by RMIT University Press

**Description:**

This hypothetical scheme for a sustainable affordable adaptable project home is a result of a Victorian State Government housing initiative seeking architectural involvement in volume housing design. The architects were required to work within the limitations of construction, marketing and delivery production of typical volume home projects. The architectural contribution was to incur no increase to the \$1000/sqm construction cost.

**Analysis:**

Urban context:

Due to affordability and alignment with mainstream tastes, residences built by volume builders on greenfield sites have been and will continue to be the predominant model of new housing in Australia. During this project the architects quickly realised that within the limits imposed by the project, their contribution was limited to basic planning arrangements. The design team chose to concentrate on improving the social sustainability (flexible planning) of the layout of the house, realising that this would directly contribute to environmental sustainability. The result of their design was a house layout that could be adapted to improve occupation rates by accommodating extended family members.

Public / Privacy:

The adaptable house can be used as a 4 bedroom home, a 2 bedroom home with separate granny flat/work-space or a 3 bedroom home with granny flat. The double garage, an essential feature of any project home, has been designed as a flexible space, with skylights and operable walls.

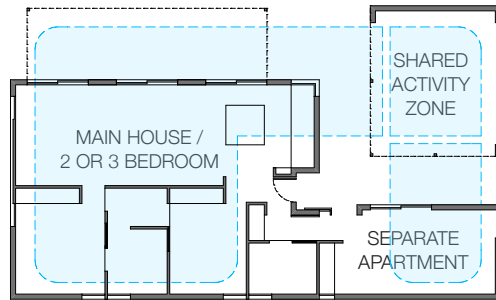
Environmental amenity:

The house has been orientated so that the living areas face north, and there are three distinct well located outdoor areas adjacent to living areas and flexible rooms. The final plan includes rainwater tanks, a greywater treatment system and retractable pergolas, but these would be optional cost items for the client.

**Conclusion:**

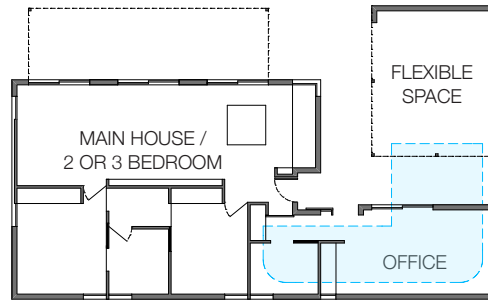
The value of this project is it's acknowledgement that to have any strategic impact on the direction of general housing in Australia, architects need to be involved in the volume housing market. This scheme offers a layout that could double the occupancy rate of a house. If this strategy were adopted, the impact of this incremental change could have a profound effect to reduce the demand for new houses throughout Australia.

A review of the house plans offered on the websites of Stockland, Clarendon homes and Masterton Homes shows no reference to any house designs which include flexible planning, multi family homes or granny flats.



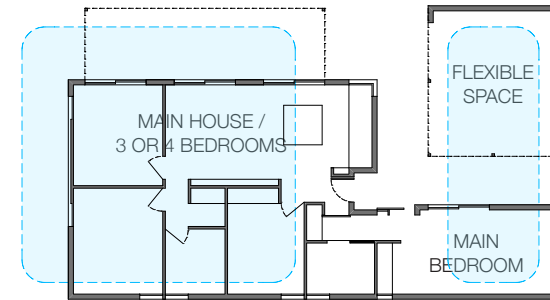
**ADAPTABILITY 1**

Two households - the spatial distribution allows for the independence of two occupant groups, each with an outdoor recreation space. The carport becomes a shared activity zone.



**ADAPTABILITY 2**

Home office - the separation of spaces allows for home office with separate entrance.



**ADAPTABILITY 3**

Large family - the master bedroom occupies the front of the house, occupants are able to use the carport as an entertainment area with three other bedrooms to the rear with access to patio and rear garden.

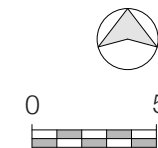
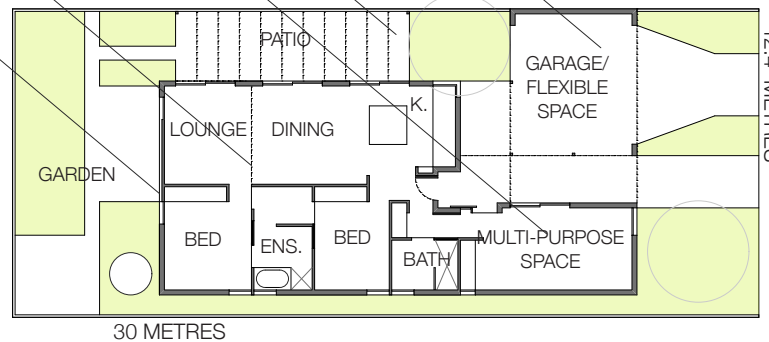
Other than the multi purpose space, the plan shape conforms to a simple rectangle for economical construction.

A lightweight wall can be added at a future stage to create an additional bedroom.

A multi purpose room with separate entry, bathroom and kitchen is located at the front of the building and can become a self contained dwelling or workspace.

Retractable pergola over north facing patio.

The garage becomes an informal outdoor entertainment space. The structure incorporates skylights and operable walls.



Site Area: 372sqm  
 Site dimensions: 12.4m x 30m  
 Proposed accommodation: 1 or 2 dwellings  
 0.43:1 FSR: Complies - allowable FSR is 0.5:1  
 Boundary setbacks: Complies  
 57% Landscaped area: Complies - recommended 40%

Council Area: Baulkham Hills Council (proposed)  
 Zoning: R2 Low Density Residential

The NSW Government's Affordable Rental Housing SEPP would permit this design as an attached granny flat of less than 60sqm.

## COLLABORATIVE CONSUMPTION & THE DESIRE FOR COMMUNITY

In recent years there has been a remarkable trend toward shared lifestyles and shared commodities. Instigated by people realising the economic advantages of pooling resources and facilitated by the extraordinary ease of communicating with strangers through the internet, a collective approach to consumption is becoming mainstream. There are many examples of shared commodity and lifestyle networks that have relevance to housing and could lead to more efficient use of space within existing neighbourhoods. For example, if all the people in a street participated in a peer-to-peer carshare network, half of the cars in the street could be sold and the carports and garages adapted for small dwellings or collective facilities.

The primary driving force behind this thriving urban share culture is financial, but people are swiftly latching on to the non-financial benefits of collaborative networks. The catch cry of the movement is 'access is more important than ownership'. Some of the arguments used by a leading proponent of the movement, Rachel Botsman, is that on average an electric drill is used for approximately 8 minutes in its lifetime, a typical car lies idle for 22 hours a day and storage takes up a quarter of the average house.<sup>1</sup>

Some share networks that have relevance to this research include:

[www.space4.com.au](http://www.space4.com.au)

Space4 is an Australian website which connects single parents looking to share accommodation and childcare. A quick search of the Sydney users shows 580 single parent households (520 female, 60 male) looking either to find another household to rent a house with, or to find a house that has room for a second family to share. The website is set up very much like a dating site where you can search for compatible families via a profile before making contact. The website offers stories of successful matchings, provides advice as to how to find compatible households, suggests what sort of houses suit sharing, provides samples of legal contracts and has a forum for discussion amongst members.

[www.landshareaustralia.com.au](http://www.landshareaustralia.com.au)

Landshare is an agricultural matchmaking service launched in the UK in 2009, with already 57,000 growers and labourers in that country and has started in Australia just this year. Homeowners provide land free of charge and are matched with people who want to cultivate that land. The crop is shared between both. Some of the opportunities currently advertised in Sydney include the back yard of a long site in Summer Hill, an unused flat roof above a warehouse in Waterloo, a restaurant looking for arable land near to their restaurant and a couple wanting to set up an apiary in Strathfield.

[www.goget.com.au](http://www.goget.com.au)

Go-get is a very successful carshare company. Councils designate parking spaces throughout the city, people book these cars through the internet and use personal keycards to unlock the cars they have booked. Users pay a minimal monthly fee and pay for car use per time and per kilometre.

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<sup>1</sup> What's mine is yours: The rise of collaborative consumption by Rachel Botsman and Roo Rogers, Harper Collins, 2010

[www.relayrides.com](http://www.relayrides.com)

Relayrides is a neighbour to neighbour carsharing service. Some people rent out their cars to earn money, and other people rent cars from people in their neighbourhood.

[www.1bog.org](http://www.1bog.org)

One Block off the Grid recognises that people want to support green energy but that the systems are very expensive to set up. This network allows people in the same neighbourhood to pool their resources to negotiate group discounts on solar installations for their homes.

[www.eatwithme.net](http://www.eatwithme.net)

Eatwithme offers new ways to connect with people through sharing food and eating together. Wonton-making workshops, bread workshops, curry recipe swaps, pot-luck dinners, brunches, restaurant outings, picnics and more.

[www.co-worka.com.au](http://www.co-worka.com.au)

Co-worka is a local website which allows you to hire a deskpace or workstation by the hour, day or month. The advantages include not working in isolation, networking with other small business owners, being able to work in a lovely workspace, sharing the costs of equipment such as photocopiers and internet access, having access to seminar rooms and meeting rooms and freeing up a room in your house.

[www.airbnb.com](http://www.airbnb.com)

AirBnB is an alternative to hotels whilst travelling. People rent out a spare room of their house for short term travellers. Part of the attraction is about having and giving an authentic experience while travelling.

[www.spaceout.com.au](http://www.spaceout.com.au)

Spaceout is an alternative for self storage, that matches people who are looking for reasonably priced local storage space with people who have spare space around their home or business.

## **Conclusion:**

The relevance of collaborative consumption is that it illustrates that there is an existing and growing demand for shared facilities and lifestyles. Certain parts of a house will always be private; sleeping areas, living areas, private gardens but there is a growing demand for more collaborative approach to other aspects of home life. For a growing number of people; cars, sheds, workspaces, playspaces for children, bbq areas, productive gardens and guest rooms are better shared. These new trends in consumption will have an affect on how we use our houses, streets and neighbourhood spaces.

## THE POTENTIAL OF SURPLUS SPACE

It is acknowledged that the typical layout of a detached house sitting centre front of a large rectangular block of land is inefficient and there are many architects that have challenged this, but as the alternatives all tend to contravene current planning legislation they are almost completely overlooked by the authors of local government policy.

One such sketch of efficient site layout is Richard LePlastrier's 2008 sketch of Compound House.<sup>1</sup> This sketch explores the potential of courtyard living; the building mass is configured as 4 small houses located on each corner of the block rather than one detached building sitting centre front. This courtyard form prioritises outdoor open space by providing a large central garden, and maximises the efficiency of the site by using the full depth of the land and eliminating skinny side passages. The 4 small structures could accommodate 4 small households or one large family, or any permutation in between. This configuration also has the potential to improve privacy between neighbours by creating blank walls on the boundaries rather than windows that face each other – yet retains the thermal advantages of using shared party walls to moderate temperature.

Richard LePlasterier's Compound House highlights three important obstacles to increasing density in our suburbs; 1) the traditional suburban layout of a detached house located in the front centre of a site is an inefficient use of land, 2) our emotional attachment to this suburban layout prevents us from considering alternatives and 3) current planning regulations regarding boundary setbacks and building envelope are designed to perpetuate the traditional detached house layout and therefore promote inefficient site use.

The premise of this paper is to make the best of what we have by adapting existing houses rather than demolishing them, so rather than focussing on the courtyard form of the above example, the efficient site use strategy has been used to analyse inefficiencies in our current suburban houses. Once these inefficient areas have been identified and planning regulations are reviewed to promote efficient land use then these inefficient spaces become the possible sites of intervention and adaptation.

Internally, storage areas are one of the primary causes of wasted space in a house. Many houses devote an entire room to infrequently use items; guest bed, gym equipment, winter clothes, dvd collection, sewing machines; and this is often in addition to a shed used for storing camping equipment, car maintenance supplies, gardening equipment, tools, spare furniture and sporting equipment. People convert their attics just for storage of school memorabilia, old clothes and obscure kitchen appliances, much of which is never seen again.

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<sup>1</sup> Richard LePlastrier sketch in Take 7 Housing Australia: How Architects can Make a Difference edited by Geoffrey London and Simon Anderson, published by the Australian Institute of Architects, 2008, Page 6.



Due to the typical centre front position of a detached house much of the outside space of a house is inefficiently used. In particular, the 900mm side boundary setback for detached dwellings makes little sense when space is a premium. These thin strips of space do little for privacy as windows of neighbouring houses often face each other, the windows in these walls rarely provide direct light because the fences are too close, the passages don't tend to be wide enough for any greenery, and the passages are often littered with an accumulation of services making access difficult. These spaces could be used for external stairs to an upper level, or for add-on storage units, or built out to accommodate bathrooms, desks, daybeds or kitchen units. If the fences between sites too were done away with and the gaps between houses were conceived as the full 1800mm the use of this space could be coordinated between neighbouring houses.

Rear yards are rarely used to their full potential. Often the garden areas immediately outside the house are used for eating and lounging, but in a suburban block where the house is located toward the front of the site, the back of the back yard is often a foreign country. Even on smaller blocks, many back yards could easily accommodate a small structure on the rear boundary without compromising the privacy of the main house.

Rooftops have huge potential. In dense urban areas, rooftops are the best places to be because of the views and the access to sunlight. Tone Wheeler has suggested that living arrangements in terrace houses could be turned upside down, with the living areas on the top level where the sunlight can reach.<sup>1</sup> The roofs of terrace houses could be used for elevated gardens. In many single story detached houses the roofs are pitched steeply enough to allow for habitation without significantly affecting the sunlight access to neighbours. Houses on the north sides of the streets could easily stretch up to 3 stories as the shadows would only affect the street.

Without the cars, garages are small dwellings just waiting to happen. With minor modifications a single garage could become a studio apartment, office, manshed, pop-up bar, coffee house, laundromat or shared guest-house.

A 2009 report by the Victorian Department of Transport used the 2006 census figures to estimate a surplus of 1.3 million bedrooms in Melbourne homes. The figures for Sydney are no doubt similar. If these spaces above, within and outside existing houses were used to their full potential this could result in a new layer of accommodation woven into the fabric of our existing suburbs. As well as increasing the number of dwellings per street and providing affordable accommodation, this fine grained layer of incremental growth could introduce a welcome liveliness to our suburban streets.

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<sup>1</sup> Tone Wheeler / The Future Green House / Australian Design Review, February 2010

## BOUNDARIES OF PUBLIC AND PRIVATE SPACE

The challenge of multiple occupancy living is to provide the correct balance between private spaces and public areas. Below is an analysis of four examples of existing or proposed models of different scales of collective living to determine this boundary between hermit and herd.

**Project: Apartments for Life**

Residents: Bondi residents older than 65.

Organisation: Benevolent Society

Architect: PTW Architects

Location: Ocean Street, Bondi

How many: 128 households. 10% rented to people on low incomes, 30% at subsidised prices.

Status: Approved. Construction to begin 2012.

**Description:** A medium density development of self contained apartments for Bondi residents over 65 as an alternative housing solution to retirement homes or aged care. There are three blocks of apartments, ranging from 4 to 10 levels on a 11,000sqm site in Bondi. There is a heritage listed Victorian mansion on the site that will be refurbished as part of the works. Half of the site will be publicly accessible green space.

**Hermit/Herd:** The apartments are all self-contained and include space for a visitor to sleep and either a courtyard or a garden. The shared areas include a communal meeting area on each floor of the apartments, community meeting rooms in the heritage building, craft rooms, mens shed, fitness rooms, dementia day care and a cafe. There will be a number of Go-Get share cars for community use on site.

**Project: Urban Coup**

Residents: Melbournians: Most members are between 25 – 50 years of age and are working professionals.

Organisation: Urban Coup Housing Co-operative

Architect: Undecided but looking at Modscape pre-fabricated houses.

Location: Within 8km of Melbourne CBD

How many: 30 households. Some rental accommodation is to be included.

Status: Stage 2 - in search of a site

**Description:** Urban Coup is a self organised housing project for Melbournians including couples, families with children, and singles. The group share an environmental goals of reducing household impact on natural resources and a social goal of creating a strongly knit community. The estimated cost for the residents is estimated to be more than an apartment, less than a freestanding house.

**Hermit/Herd:** Each household will own their own small house with garden, balcony or courtyard, and each will own shares in the common facilities. The development will include a central common house; intended for shared meals, childcare and meetings and social events. There will also be a shared vegetable garden, chicken coop, rainwater tanks, garden tools, a common play area and open space.

**Project: Kapit Bahayan**

Residents: Filipino Immigrants  
Organisation: Kapit-Bahayan Housing Co-operative in partnership with Common Equity NSW.  
Architect: Hugo Moline - People's Architecture Workshop  
Location: Canley Vale, Sydney  
How many: 6 households  
Status: Completed in 2011

**Description:** The goal of this project was to make more out of less, to take a 1470sqm site that would normally fit 2 or 3 houses and to design a collective of dwellings that would accommodate 6 households. Many features of a traditional Filipino neighbourhood have been incorporated.

**Hermit/Herd:** Communal spaces of this development include a Communal room/ library, large deck for meetings and social gatherings, a productive garden and a common 'street' with entry steps to each dwelling doubling as informal, sunny seating.

**Project: Wesley Home Share**

Residents: Older and/or disabled householder matched with a younger person  
Organisation: Wesley Mission  
Location: South Melbourne  
How many: more than 100 households  
Status: 30 currently active

**Description:** Older and/or disabled householder matched with a younger person who provides companionship and help in return for free accommodation. The goal is to help older people stay in their homes for as long as possible.

**Hermit/Herd:** To be suitable for the programme, there needs to be a separate sleeping area for the younger person and ideally a separate bathroom. Typically the 2 households share meals and often watch TV together, but the level of interaction can be negotiated by the people involved.

**Conclusion:**

From these examples, it can be concluded that a self contained living area and a private outdoor space is essential to satisfy a need for autonomy and privacy. Facilities that can be shared include gardens, cars, laundries, spaces for social events, guest accommodation, offices, garden sheds, workshops, storage spaces, rainwater tanks and play areas.

## COMPATIBLE HOUSEHOLDS

Many planning documents have identified that the increase in housing demand is driven by household transformation rather than population growth, but the authors of these documents rarely question the architectural preconceptions of a home. As Shane Murray has identified in his studies of the ageing baby boomer generation, the layout of a market delivered house has changed little over the last 60 years.<sup>1</sup>

Mid century houses were designed to fit families of 4 or 5, but because of inflexible layouts, demographic change and inflated expectations of how much space a person needs, they now typically accommodate only 2 or 3 people. If planning laws and housing layouts were adapted to allow flexibility, and the idea of multi dwelling houses were presented as a viable option then these same houses could house the originally intended numbers of people but in multiple households rather than one. This would reverse the trend toward decreasing household size and reduce the demand for new houses.

The most likely adopters of this type of living are exactly the demographic that is in most need, small households of low to middle income. Within this demographic, the most likely early adopter groups are also the fastest growing, single women, ageing households and sole parent families.

### Older Australians:

Older people tend to spend a lot of time at home, so being part of community centred in the house makes a lot of sense. Many older people recognise that they need some support as they get older and are searching for alternatives to a retirement village or a nursing home.

### Single person households:

Single person households are the fastest growing demographic group, and also the group that is the worst fit for a traditional nuclear family house. Many single people do buy a house though, because they want a garden. Singles are likely to appreciate the benefits of bunching up - they could have all the benefits of a house, but are likely to enjoy some communal facilities and would definitely see the benefits of sharing household costs.

### Couple families with children:

Traditional nuclear families are the least likely to be interested in any sort of shared housing network. This is partly because traditional suburban houses were made to suit this family group and therefore the typical layout works well, but also because nuclear families are already a tightly knit unit and they have less need for additional members to make a community.

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<sup>1</sup> Shane Murray, The Ageing of Aquarius, Architecture Australia May/June 2007

Couple families without children:

Many couple families enjoy living with just two, but some also enjoy the stimulation of adding an extra person to the mix. Adding the finances on one extra person when buying a house also provides an opportunity to afford a property with more space or in a better location.

Empty nesters:

Many couples want to downsize their houses when children move out, and many move within a few streets of their family homes so they can maintain their friendship and community networks. The idea of adapting their house may appeal to this group, because they can remain in their homes.

Single parent families:

This demographic group is a prime candidate for multi-family homes due to the financial strain of raising a family on one income, the emotional support offered by another adult and also the practicality of sharing the supervision of children. Two or more single parent families could benefit from shared kitchens, garden space, living rooms and maybe even shared sleeping areas for children.

Extended Families:

This demographic group is likely to be interested in multi-family homes, whether it is adult children staying in the family home, older parents moving in when they need someone nearby or siblings sharing a house. Privacy is very important in extended family groups and each household is very likely to want their own bathrooms, kitchens and private outdoor areas.

Migrant groups:

Many migrant families are very likely to appreciate multi-family homes partly because of the benefits of pooling finances but also because many non-western cultures are not so strictly bound to the nuclear family unit. Kapit Bahayan is a Filipino housing collective who are currently building 6 houses on a site that typically would hold 2.

The following interviews are with people who either currently live in multi-family households or are soon planning to. The interviewees have been chosen to represent the new 'family' demographic groups. These interviews highlight the specific issues that are important to the different types of household.

Interview: Janice – Sole person household

Interview: Nerida – Ageing household and extended family

Interview: Bernie – Couple without children

## INTERVIEW: JANICE

AGE: 49  
JANICE'S PROFESSION: Environmental Consultant  
CURRENTLY LIVING WITH: 2 friends in a shared house

Janice has been looking to buy a house for about 4 years, but at her salary the options are limited. Janice has decided that it makes more sense to buy a property collectively, and is currently looking for people with similar lifestyle and environmental concerns to purchase a property together with.

### *Why have you decided to purchase property in Sydney?*

I have been living in Sydney for 17 years, and have decided I don't want to live anywhere else – my career, my friends, my networks are all here.

### *What are you looking for in a home?*

Home for me is a place I can settle and put down roots. Having a garden is incredibly important for me, I have been living in this rental house for 6 years now and all the trees are in pots and waiting for a permanent garden. Some of them are 8 foot tall.

Home is also, or I would like it to be, a sense of family. A few years ago I looked at all my friends and realised they had made a family with kids, pets, a house. I missed out on that, but I still want to be surrounded by people who I care about.

### *Why do you want to purchase property with other people rather than alone?*

With my finances, my options are limited. I can either buy a small apartment in the city or a decent size house out of the city – somewhere like Woy Woy. Neither option really fits the lifestyle I want. A small apartment by myself with little or no garden, or moving to a town where I know no-one and have to commute.

So primarily it is a financial decision, shared capital costs and shared living expenses. But I am also keen to create this sense of family. I have a fear of growing old alone, and I want to live in a place where everyone is involved in each other's life and people work in the garden together and help out.

I am also excited by the potential environmental benefits of a group of people living together. Shared capital costs could include solar panels, large rainwater storage tanks, compost, fruit trees, large vegetable garden etc.

### *How many people living at the property would be ideal?*

I think a group of between 3 - 5 households would be ideal. 2 households seems too intense, and I think more than 5 households would be a bit unwieldy.



*Would you choose to live with best friends or would you prefer a more acquaintance relationship?*

I would worry that I would fall out with best friends and lose the relationship. This happened in share houses when I was younger. I would prefer to live with people who have similar interests and lifestyle as me, but who have separate lives. I want to keep my friends as friends, and meet up for dinners and sport and drinks like we do now.

*Would everyone living in the property be owners or would people rent?*

Long term renters would be fine. But the people I co-own the property with have to be very involved, especially at the beginning when all the decisions about finances, capital costs and legal arrangements are being made.

*What facilities would be shared?*

Mostly the outside areas. All the gardens and a bbq space and maybe a 'rumpus' space – for table tennis, or movies, or for harvesting produce, or for kids sleepovers etc. The laundry and washing line could definitely be shared. A guest studio. Maybe an outdoor bath. I would consider a carshare arrangement, but maybe we would start off with separate cars and then assess after a year or so.

*Would it be compulsory that people engage in community activities?*

I am not keen on too many rules, or forcing anyone to do anything. But I would imagine there would be monthly meetings to discuss administrative issues, and sort out any conflicts. There would be a regular communal dinner and drinks but these would be spontaneous rather than compulsory. I would prefer to live with people who want to be involved with the garden, but this would not be enforced.

*Are pets allowed?*

Definitely. I would want to take my cat and chicken, and would want others to bring their pets too. It may be a problem if someone had an aggressive dog, but this could be worked out on a case by case basis.

*Children?*

It would be great if children lived in the group. And I imagine it would be great for them and their parents to have extra people around for company and childminding. I wouldn't mind if all the other households had children.

*As you are intending this to be your long term home, does the design need to cater for less mobile people?*

Good to consider this – but I love levels. I would love a loft bedroom, and split levels in the living areas. Maybe there could be one or two apartments on ground, and it could be possible to move into one of them if my legs stopped working. Or maybe having stairs would keep me motivated to stay fit. Maybe the apartment could have an upper level, and when I become old this could be divided somehow to rent out.

*Does an apartment for a future live-in carer appeal?*

Maybe, but I imagine we could hire someone at an hourly rate for a few hours a day.

## INTERVIEW: NERIDA

AGE: 54  
NERIDA'S PROFESSION: Librarian  
CURRENTLY LIVING WITH: Philip and Elliot (youngest son)

Nerida and her husband Philip, Nerida's sister Aisla and her partner Cath, and a friend Mary Anne have decided to sell their 3 individual houses and buy a property where they can build 4 apartments with shared gardens and other facilities.

### *Why give up your family home in Leichardt to live in a development with other people?*

The idea started in a conversation with my sister Aisla and our friend Mary Anne. We realized that as we grow older it might become difficult for us to see each other as often. Also, none of us are interested in living in a nursing home.

### *What are you looking for in your future home?*

We are worried that as we grow older, we might become isolated if we continue to live separately. Older people can become a little crazy if they spend too much time alone. It is important to talk to someone that loves you every single day.

### *What accommodation options have you considered?*

We looked at a number of Ageing in Place developments, but we didn't like how younger people were excluded from buying in. We also looked at community based retirement villages, but in larger groups there is always one person who is a complete pain to deal with. We decided that living with family and friends would suit us better because it is a small group and negotiation will be easier with less people. If there is someone who gives grief within our group then at least there is already a strong relationship, and the negotiation will be done with respect and consideration because of the connection that already exists.

### *Is 3 households the ideal group size?*

When we started talking about this idea with friends some of them expressed interest, but we decided we didn't want the project to become unwieldy, and we are already planning to build an extra apartment for a future live-in carer. Of course, the final number of households will depend on the property that we find, but at the moment 4 apartments seems to be the right size.

### *What facilities are to be shared?*

We all want separate apartments so that we can retreat when we need. The apartments can be quite small; one bedroom, one open plan living area, a study area for each of us, and a big bathroom or maybe 2 smaller ones. I have read that older people need one toilet each. And wide doorways for if we ever need wheelchairs.





Aisla, Mary Anne and I are all keen gardeners, so the landscaped areas are extremely important. We expect to be able to grow all the fruit and vegetables that we need. Aisla is in charge of the productive gardens, my area of care will be the native garden.

Where we live now in Leichardt we use our backyard for a garden to spend time in, and we use the back half of our neighbour's yard to grow vegetables. The neighbour's house is a rental property and we first asked to use the garden for vegetables about 5 years ago. We share the crop with the tenants. There have been 3 lots of tenants through that house and the system has worked for all of them.

We all need space for work and hobbies. Mary Anne sews and will need a space for that, and I do patchwork. My husband Philip is a woodworker and needs a shed not only for tools and equipment but to house his hoard of timber. Aisla's partner Cath is a builder and Philip and she will share the shed.



Ever since we were students Philip and I have always cooked meat outside the house. We do this all year round, though it is often a very quick process in winter. We want an outdoor kitchen, shared between all of us with enough area for large all-weather social gatherings. When we are cooking in the outdoor kitchen anyone is welcome to come and join us. When we cook inside it is a private meal.

We will have a shared guest studio, and again it doesn't need to be large. There will need to be some strategy of kicking the kids out of this when they have overstayed their welcome.

We have decided to have one car between all of us. And some shared bicycles. Also a shared laundry and washing line.

***What do you see as the most important design considerations for your development.***

The design will need very careful attention to perceived territory. For example, if I am on the footpath outside my house and a neighbour walks by I will make eye contact, smile, voice a greeting and be prepared to stop and chat. If I am on my front porch then eye contact and a friendly greeting is enough. If I am sitting in the sun just inside my front door with a newspaper, if I don't make eye contact first then I don't expect anyone to disturb me. The design needs to preserve these layers of privacy.

Also if I get a disease like Alzheimer's I want my friends and family to be able to avoid me without guilt.



*What ownership model do you have in mind?*

We are considering community title because we all have different amounts of capital. It seems that owning a percentage of shares in the property allows more flexibility than a strata title. It doesn't bother us that we don't own an individual title to a defined section of land.

*Do you imagine the development as a very social place?*

Both Aisla and Mary Anne are the hubs of large communities. Like the old system of 'maiden aunts', they are both very generous and gregarious and look after whoever is in need.

At various times in our past we have all suffered some form of mental illness. For me it was post-natal depression. At a time like that it is very important that there is somewhere that you can just land and be still for a while, and our society doesn't provide for that very well at all. Our spare apartment can be useful at those times.

We also want for our kids to be able to stay. Our oldest son left home a while ago, and our second son is probably not far away. We will miss him. He does lead a very separate life, but even if we just see each other for 10 minutes a day it is really valuable time. There is something special about proximity.

*Is it important to own a place rather than rent?*

If renting had more surety maybe it would be an option for us, but the rental market here is too volatile. Our oldest son has been looking for a rental apartment for months and has ended up in a 2 bedroom apartment in Epping for \$460/week. It is extraordinary. He has a good job and a decent salary but he had to move that far away from the city to find anything he and his flatmate could afford. Even there the foyer has that particular smell.

In places like Holland renting is far more feasible. There are long term contracts and you can take real ownership of the place that you live, without the fear that your rent is going to rise to an unaffordable level. Here you can't rely on stable rent and in addition to that you can't even hang pictures on the wall.

*What are your priorities when you start looking at possible locations?*

Aisla wants to live close enough to the city that she can catch a cab home from the Opera house. Mary Anne plays a lot of golf, and I mean a lot. So she wants to be close to a good course. My priority is to be able to walk to all the facilities I need regularly; coffee, newspaper, chemist, doctor, supermarket etc. A place like Bowral is a lovely place to be, but without a car it just becomes a prison.



### *So where will you start looking?*

We are thinking of Alexandria. It satisfies all of the above, and also it is an area that has a lot of mixed use zoning. Maybe we could find an industrial shell of a building, even with a bit of commercial use on the street. Philip really likes the idea of traditional Japanese construction. If we could find somewhere with concrete floors and roofs, then we could use screens and movable walls to divide the space. With deep soil roof gardens of course.

Ideally we want a piece of land about 750sqm, but we realize that there aren't too many of this size available.

### *Why not join a community housing scheme or housing organized by a larger group?*

We are at the very end of the baby boomer generation, and we are very aware that by the time we are old, any available government money will be well gone. It seems safer to self-organise.

Another advantage of a self organised development is that we will be able to hire our own contractors. If and when we need to we can hire gardeners, cleaners, cooks, nurses, and if we don't like them we can hire new ones. In any larger structure we wouldn't be able to make these choices.

### *Any concerns?*

We do have concerns about the end game. What happens when we die or become so ill that not even a live-in carer is enough? Or what happens when some of us are gone, and the remaining people have to live with strangers? We haven't worked out the answers to that yet.

## INTERVIEW: BERNIE

AGE : 46  
PROFESSION: Science Writer / Presenter  
LIVING WITH: Partner Leila, and their single friend Lya

Bernie, her partner Leila and their friend Lya bought a property together about 4 years ago. The property is a 1960's block of 3 one bedroom apartments in Marrickville on 370sqm of land. The council zoning for the property is Residential 2A.

### *Why did you decide to purchase property with three people?*

It kind of just happened. I had been living in a share house with Lya for 6 months, and when my partner moved to Australia she just moved in with us. It worked surprisingly well with the three of us sharing the house for the next 4 years, so when we realised that we were all thinking about buying property at about the same time it seemed like a natural thing to do to look together.

We found that adding a third income also opened up the possibilities of the type of property we could consider. If it were just Leila and I, we would be in a small terrace or cottage, but with the three of us we could look for a property with some space. I also grew up in a large family, so I enjoy having people around me.

Originally we wanted to live closer to the city, but prices were just too high. This area in Marrickville is great, we back onto the Cook's River, we have an amazing community of neighbours; Polish, Greek, Baltic, and a bike ride into the city only takes half an hour.

### *What facilities are shared?*

The property was already divided into 3 separate apartments when we bought it. Each apartment has a separate entrance, 1 bedroom, 1 bathroom, a kitchen and living space. My partner and I live in the upper floor apartments, and we generally keep the door between our apartments open. When we have a guest, I move in with Leila and we can give the guest a whole apartment.

The only internal area shared between all of us is the laundry. There is one carport for two vehicles, but I hog this because my electric car needs to be plugged in at night.

The garden areas are all shared. There is a porch at the rear of the block and we use that for our larger social gatherings as there is no large internal space. The porch is at a lower level than Lya's ground floor apartment, so these gatherings don't affect the privacy of her apartment. A lot of our friends are mutual so these events are open to all.

Last summer we had a bath tub in the front yard, and we would cool down after work sitting in that bath in our bathers and talk to the neighbours as they walked by. They're very forgiving of us!



*Do you own the property equally?*

Lya owns a third, and Leila and I have a 55 – 45% split in the remaining two thirds. We organised our mortgage ourselves, although we did look into using PodProperty who deal specifically with co-ownership arrangements. Our ownership model is a tenants-in-common contract, and we have a gentle(wo)man's agreement that none of us will sell for 5 years from the purchase date. We have lived here now for 4 years, and none of us are interested in selling or changing the contract at this stage. Lya is convinced that this is her retirement property. Although we've all been known to change our minds! But we're so used to negotiating things now I don't see a problem down the track.

*Are you open to renting out the apartments?*

Lya has actually moved away for a while so a friend will be renting her apartment. There is no issue because the apartments are autonomous. We did have an acquaintance staying when Lya first moved away and there was a bit of an issue because she often popped in when we had friends over. I think she saw it as a share house, but we still value our privacy. It's just a matter of setting a clear etiquette from the beginning.

*What qualities do the three of you have in common?*

We all have similar ideas on social justice, and we all believe in working hard for the things you value. Lya and Leila make it very clear if they think I haven't pulled my weight in any of the shared duties - which doesn't happen often, but its good to get a nudge.

*Any conflict as of yet?*

It did take a while to get used to decision making as owners rather than renters - the decisions have a lot more weight to them as owners and Leila and I had to be careful not to vote as a bloc. But we talked our way through it over the first 6 months and haven't had any problems since.

**Conclusion:**

These 3 interviews illustrate the desires and concerns of modern households who will inherit and populate the suburbs of Sydney. These households do not fit neatly into traditional suburban single family dwellings. The Case Studies on the next pages have been designed with these contemporary households in mind.

## CASE STUDY: MULTIPLE FAMILY HOUSE

Household composition: A couple with 2 kids, a single friend and a small dwelling rented for income  
Site description: 2 storey detached house on a 290sqm corner block  
Location: Marrickville, Sydney  
Status: Attached granny flat built in 2011, Studio not permitted

### Description:

This house was purchased by a mid-thirties couple and a friend in 2007 for \$820,000. The decision to buy a property amongst the three was a result of the them realising that by pooling resources they could find a property with a significant garden within cycling distance of the city.

The financial arrangement was an evenly split share of the property with a tenants in common legal agreement. Their self written contract included the condition that no-one would sell for three years, after which time they could negotiate for change.

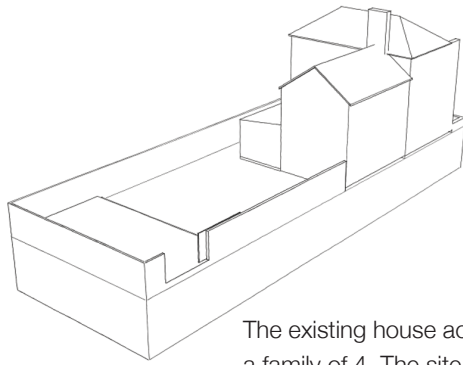
Within three years the couple had given birth to twins, and the friend, even though excited at now being an 'uncle' was keen to have some autonomy. They also found that because of the overt curiosity of the neighbours, they didn't tend to use the ground floor street facing rooms as bedrooms. They decided to renovate the house to provide a separate studio in the back yard for the single friend, to improve the connections between living area and the north facing back yard for the main dwelling and to turn the street facing 2 rooms into an attached granny flat, which they could rent out, and over time (estimate of 12 years) earn back the money they had spent on the renovation.

As the household composition evolves over the years the granny flat can be used as a separate dwelling or a home office or to provide 2 extra bedrooms and an additional bathroom for the main house. The single friend may stay in the rear yard studio forever, or if he ever moves the studio can be a separate dwelling for one of the grown children or a home office or rented out for an income.

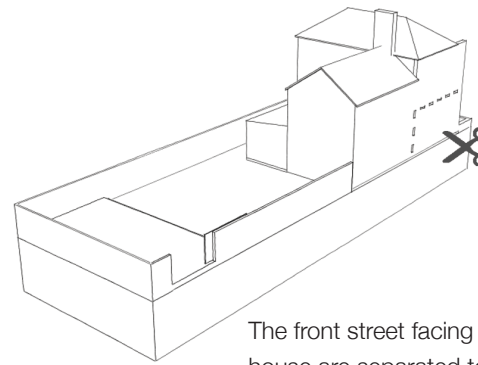
### Analysis:

Urban context: The renovation makes no significant change to the appearance of the house from either street elevation. The rear studio replaces the existing carport, and the extra height for the cantilevered sleeping area is compensated by the steeply sloping roof which maximises sun access to the neighbours garden.

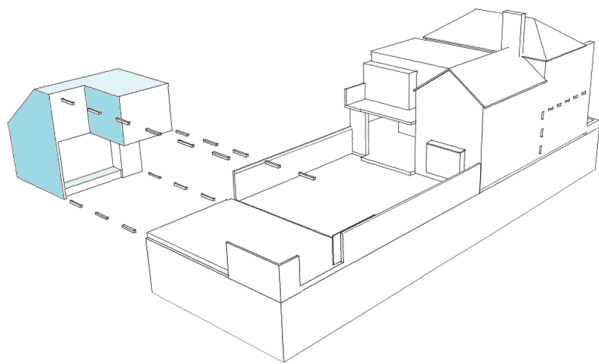
Public / Privacy: The three residences have completely separate street entries. There is a sliding gate between the gardens of the Studio and the main house so the residents can control the level of interaction. The granny flat has the potential to open up to the main house which allows for maximum flexibility as circumstances change.



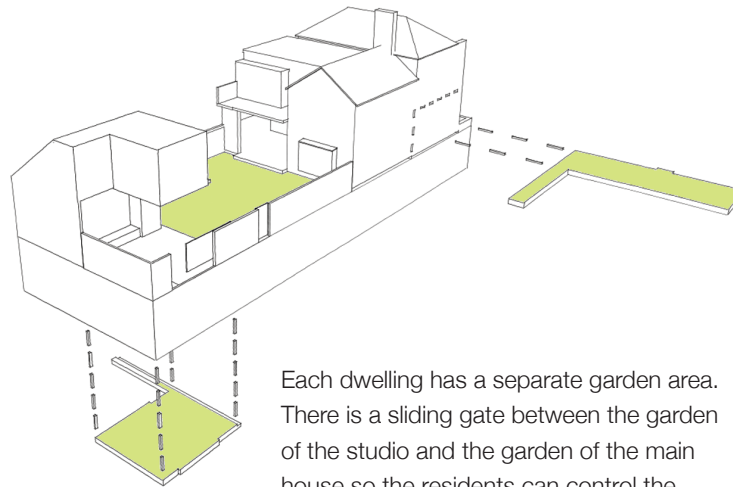
The existing house accommodates a family of 4. The site is a 290sqm corner block in Marrickville



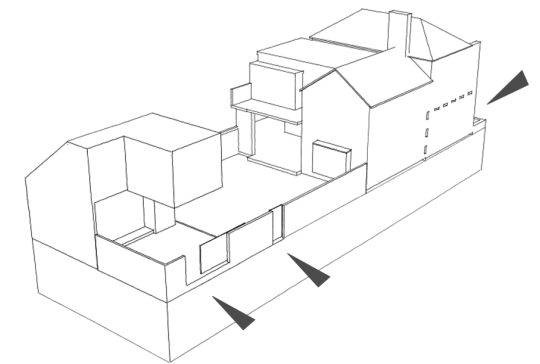
The front street facing rooms of the house are separated to create an attached granny flat of 46sqm.



A 2 storey studio is built on the on-site car space. The footprint of the studio is reduced to 24sqm to maximise the garden area for the Studio. The primary sleeping area is cantilevered above.



Each dwelling has a separate garden area. There is a sliding gate between the garden of the studio and the garden of the main house so the residents can control the level of interaction between the dwellings.



Each residence has a completely separate entry. The windows of the studio face north and east - toward the sun and away from the house to maintain privacy.

Environmental amenity: The site has a generous north facing backyard, and the renovation takes maximum advantage of this for the main house. The studio creates its own smaller north facing courtyard, and the windows of the studio face toward this courtyard giving privacy to the main residence. The attached granny flat has a less fortuitous south-west aspect, but a new high window has been added to the northern wall and the the garden here will be planted out as a rainforest, tall palms and ferns to provide views, scent and privacy.

### Conclusion:

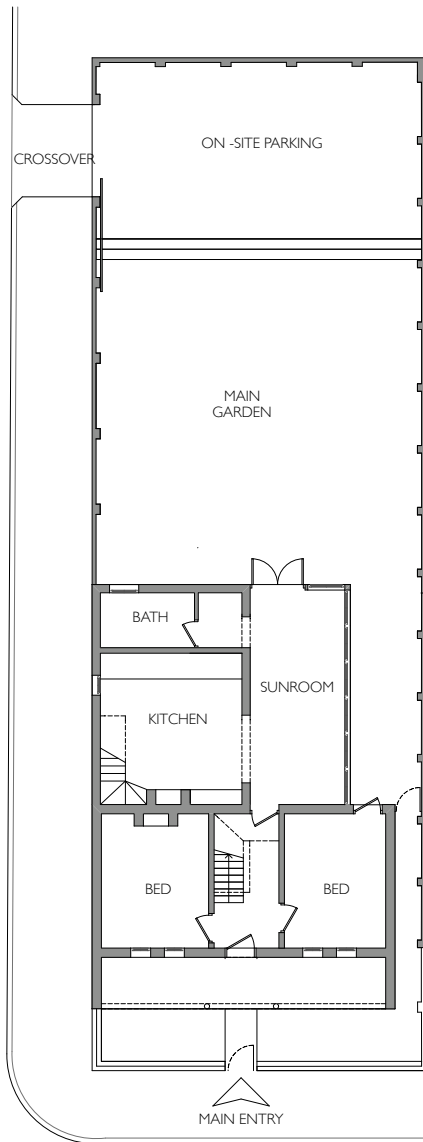
This 290sqm site in Marrickville, currently zoned as single residential, could be comfortably adapted to 3 households. This would triple the number of households on the site without exceeding the FSR & Site Coverage recommendations of Marrickville Council's Development Control Plan.

Currently under the Affordable Housing SEPP, it has been possible to reconfigure the house to include the attached 46sqm granny flat as shown. Current planning regulations do not allow for a separate dwelling in the rear yard, they do not allow for the possibility of a third residence on a low density residential site and they do not allow for the replacement of an existing on-site parking space.

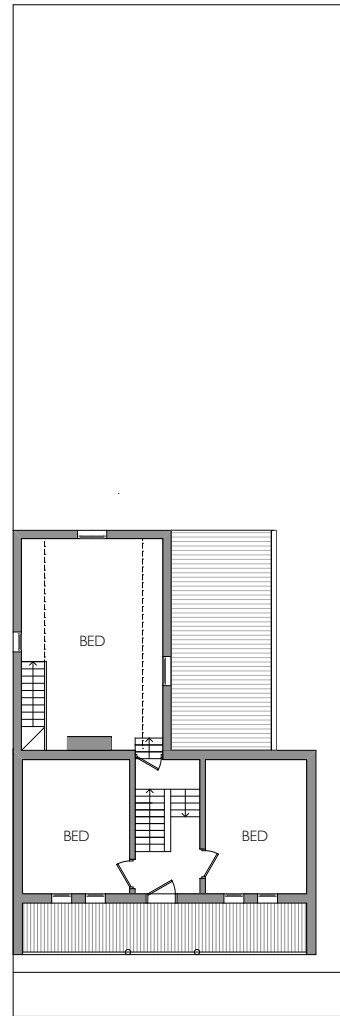
There are many people who would choose to share facilities; car, laundry, workspaces, bbq areas in order to be able to live in a house with a large garden and to live within easy distance of the city. Planning regulations need to adapt to allow multiple occupancy on low density residential sites - and still maintain the desired street character, desired open space and minimal overshadowing through maintaining merit based regulations for landscapes open area and overshadowing.

Council Area:	Marrickville Council
Zoning:	R2 Low Density Residential
Site Area:	290sqm
Current accommodation:	Single freestanding house
Current floor area:	156 sqm
Current FSR:	0.54:1
Current open space:	186sqm - 64%
Proposed accommodation:	Three dwellings
Proposed floor area:	240sqm
Proposed FSR:	0.83:1 (0.85:1 permitted in LEP)
Proposed open space:	137sqm - 47% (minimum 40% in DCP)

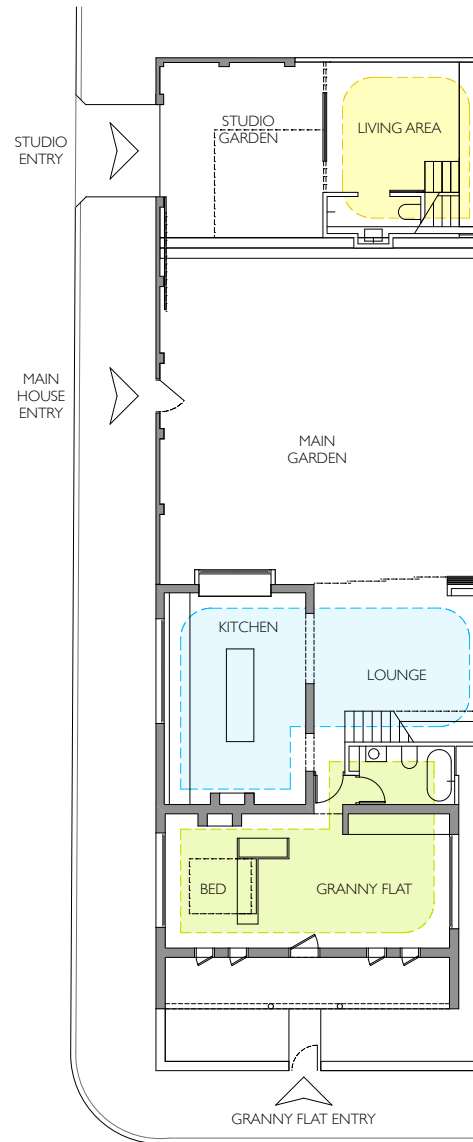




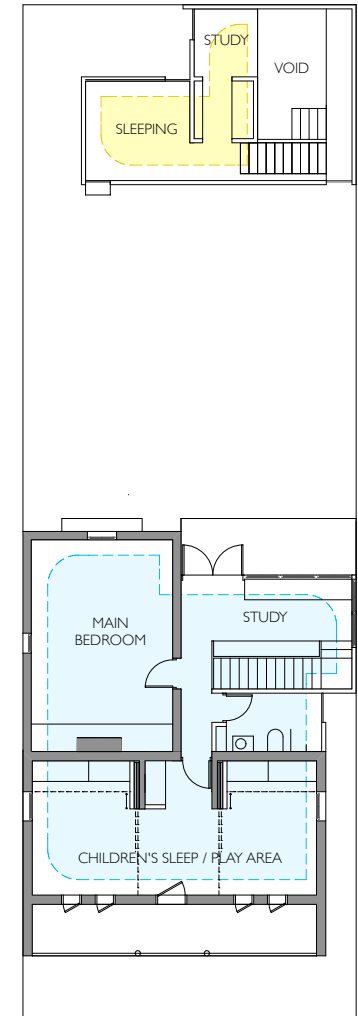
EXISTING GROUND FLOOR  
MAIN HOUSE - 87 SQM (ON GROUND)



EXISTING UPPER FLOOR  
MAIN HOUSE - 68 SQM (UPPER LEVEL)



PROPOSED GROUND FLOOR  
STREET FACING GRANNY FLAT - 46 SQM  
MAIN DWELLING - 56 SQM (ON GROUND)  
STUDIO - 26 SQM (ON GROUND)



PROPOSED UPPER LEVEL  
MAIN DWELLING - 94 SQM (UPPER FLOOR)  
STUDIO - 24 SQM (UPPER FLOOR)

## CASE STUDY: HOUSE FOR 3 SINGLES

Household composition: 3 single people  
Site description: Existing 3 storey house on a 330sqm steeply sloping corner block  
Location: Dover Heights, Sydney  
Status: Proposed

### Description:

This house is built on a corner site that slopes approximately 4m over its length from north to south. The primary pedestrian entry is located halfway along the length of the site at ground level, and the garage /storage area are a full level below accessed from the street at the lower edge of the site.

The house was originally designed for one household, but has the flexibility to be easily adapted to accommodate 3 small households by separating the dwelling horizontally. The only changes required to adapt the dwelling from one dwelling to three is the addition of 2 kitchens and an external stair.

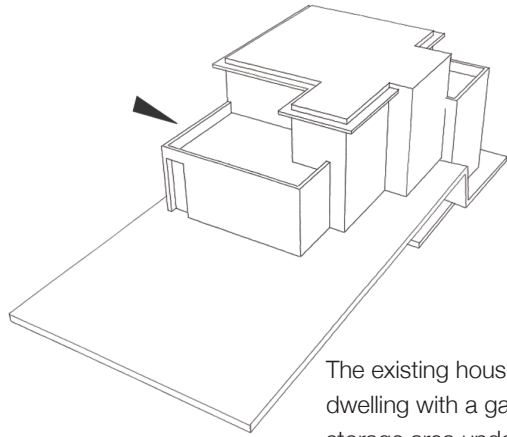
The proposed adaptation will accommodate 3 single person households. The owner of the property will reside in the largest dwelling on the ground level, a friend will live in the upper level dwelling and the basement will be rented to a niece.

### Analysis:

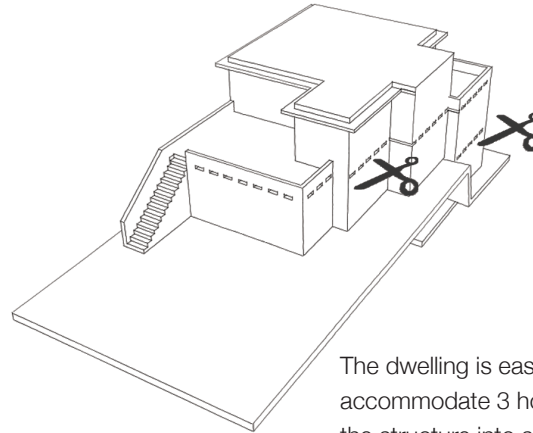
Urban context: There is minimal change required to adapt the residence from a 3 storey single family dwelling to 3 small dwellings. The ground level dwelling faces north to a terraced garden, the upper level dwelling has 2 balconies with a wide planter to the north facing balcony which preserves the privacy of the resident below. The basement dwelling is dug under the main house and faces south to the street.

Public / Privacy: The entries to the three dwellings are completely separate. The shared spaces are the laundry and washing line on the ground floor and the bin/ recycling area at the basement level.

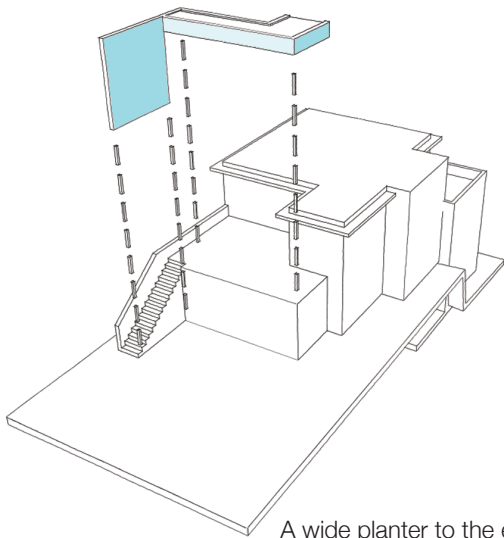
Environmental amenity: The upper level dwellings take advantage of the north facing rear yard, and every habitable room has openings on two sides or more which ensures cross ventilation and good natural lighting. The basement dwelling has fewer openings because of the partially subterranean construction. This will suit the occupant because she works and sleeps irregular hours. She especially appreciates that she can ride her motor-bike into her living area.



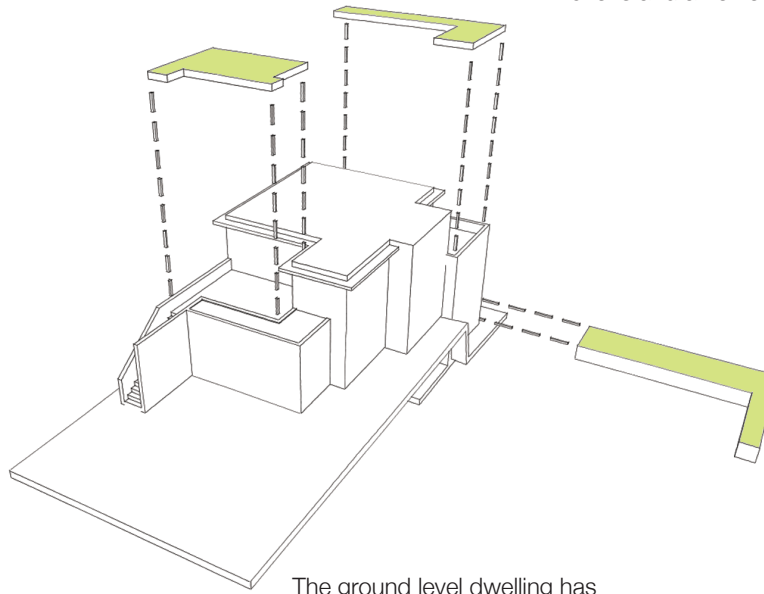
The existing house is a 2 storey dwelling with a garage and storage area underneath. The primary entry is at ground level from the side lane.



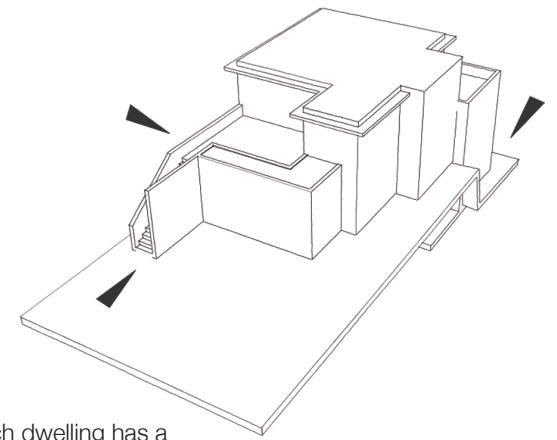
The dwelling is easily adapted to accommodate 3 households by dividing the structure into separate levels. The only changes required are 2 additional kitchens and an external stair.



A wide planter to the edge of the upper level north facing balcony ensures privacy for the outdoor area of the ground floor dwelling.



The ground level dwelling has exclusive use of the large north facing back garden. The upper level dwelling has two balconies. The lower level dwelling has a street facing garden at the lowest edge of the site.



Each dwelling has a completely separate street entry. The only part of the house shared is the laundry, washing line and bin storage area.

## Conclusion:

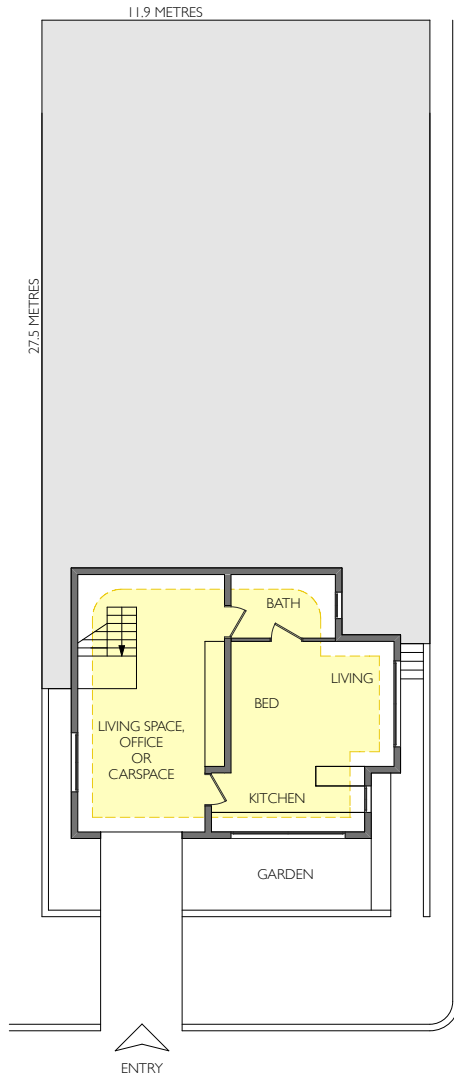
This 330sqm site in Dover Heights, currently zoned as a low density residential site could be comfortably adapted to 3 households. This would triple the number of households on the site without exceeding the FSR & Site Coverage recommendations of Woollahra Council's Development Control Plan.

The site is not large enough to meet Woollahra Council's minimum site requirements for Dual Occupancy and as all of the dwellings are larger than 60sqm, none would be permitted under the Affordable Housing SEPP on Secondary Dwellings.

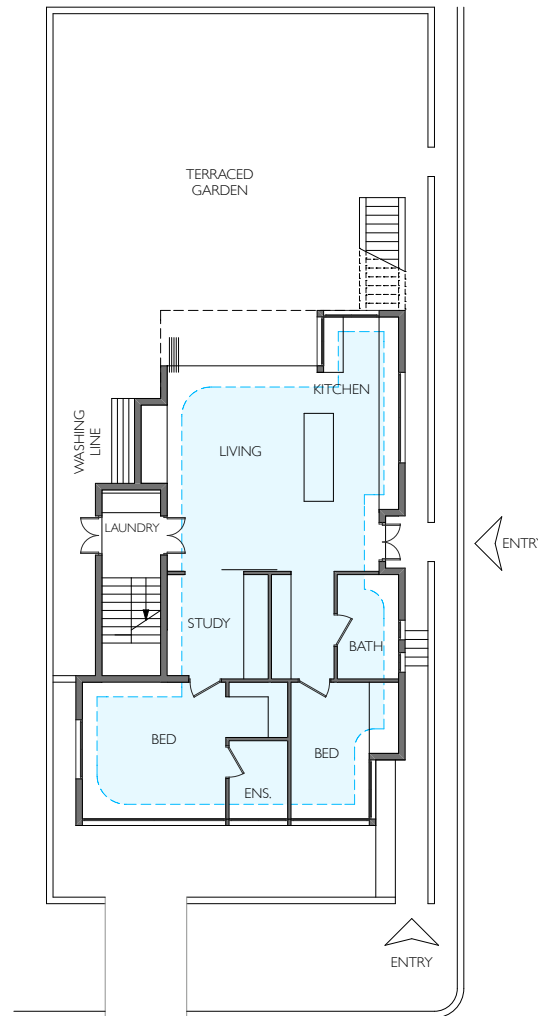
This case study exposes a double standard in planning regulations in that a single family residence is allowed to have any number of bedrooms and bathrooms, and can be home to any number of people; while a design such as this which accommodates 3 separate households in 5 bedrooms and 3 bathrooms is not permitted.

If planning regulations were amended to promote and legalise flexibility, our existing suburbs could support a vast number of small households without any reduction of landscaped areas and without increasing noise or traffic.

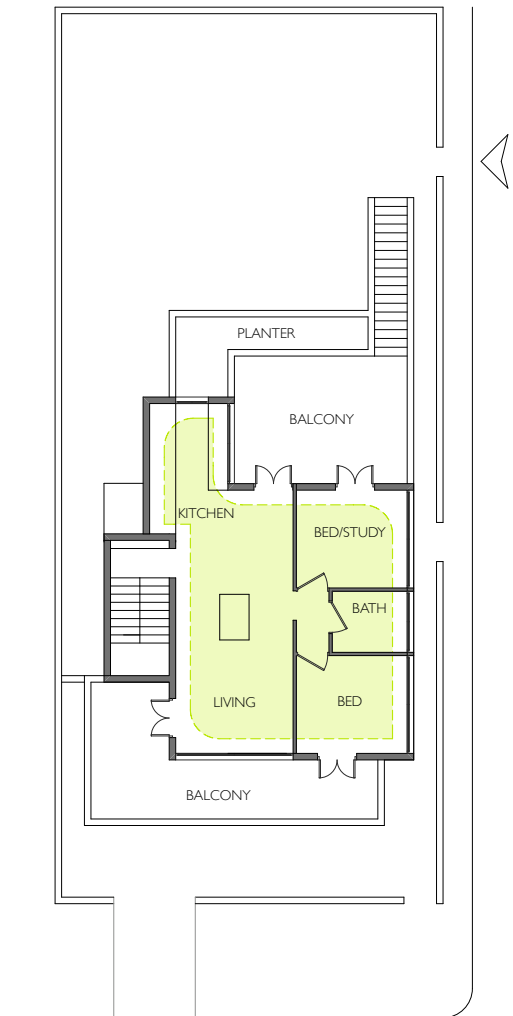
Council Area:	Woollahra Council
Zoning:	Low Density Residential
Site Area:	330sqm
Current accommodation:	Detached single family 3 storey house
Current floor area:	244 sqm
Current FSR:	0.74:1
Current open space:	191sqm - 58%
Proposed accommodation:	Three dwellings
Proposed floor area:	No change
Proposed FSR:	No change
Proposed open space:	No change



**LOWER LEVEL DWELLING**  
 70 SQM INTERNAL AREA  
 20 SQM PRIVATE GARDEN  
 65QM SHARED AREA (BINS)



**GROUND FLOOR DWELLING**  
 115 SQM INTERNAL AREA  
 75 SQM PRIVATE GARDEN  
 20 SQM SHARED OUTDOOR AREA (WASHING LINE)  
 8 SQM SHARED LAUNDRY



**UPPER LEVEL DWELLING**  
 78 SQM INTERNAL AREA  
 42 SQM BALCONIES

## CASE STUDY: HOUSE FOR A SEPARATED COUPLE

Household composition: A separated couple with 2 children  
Site description: Duplex on 550sqm  
Location: Dulwich Hill, Sydney  
Status: Currently preparing for DA

### Description:

This 2 bedroom house was purchased by a couple in 2003 for \$570,000 when they were newly married, pregnant with their first child and in nesting mode.

Forward 7 years and the couple have decided to separate, yet they remain close friends and have no desire to put their 2 children in a situation where they are torn between two homes. Rather than selling the house that they love and dividing the money to buy 2 smaller houses, they decide to look at the possibility of adapting their existing house to suit their new circumstances.

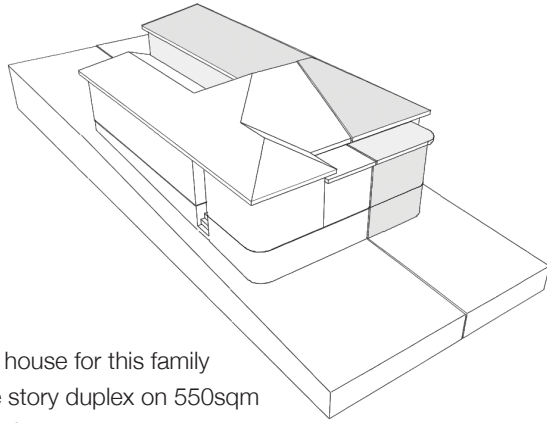
Both parents desire equal time with their 2 children. They canvass the option of building a completely separate structure in the rear yard, but quickly work out that this would involve both children having a bedroom in each house - ie. 6 bedrooms in total. On top of this is the complication of negotiating where the children keep their clothes, their toys and eventually their computers for schoolwork.

The site is narrow and unusually long. The house is a duplex. There is no rear lane access. Both adults want the flexibility to eventually be able to bring home new partners, and they want enough privacy to not know when the other is not sleeping alone.

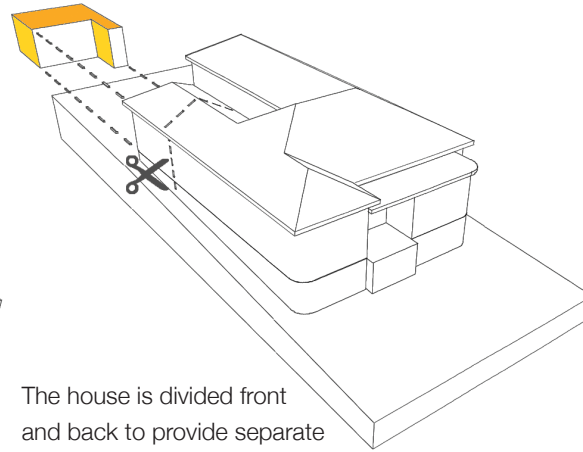
### Analysis:

Urban context: This adaptation makes very little change to the appearance of the house from the street. The upper level addition is located behind the main ridge of the existing roof and the rear addition can not be seen from the street. The steep slope of the front yard and a new landscape wall is used to provide privacy to the street facing dwelling. The side boundary fence to the west of the site is demolished to make a shared hard paved play area between the subject property and the neighbour. This also prevents the entry path to the rear dwelling from feeling too enclosed. Because the height of the flat roofed upper level addition does not extend any higher than the original ridge there is no additional overshadowing of the adjacent property.

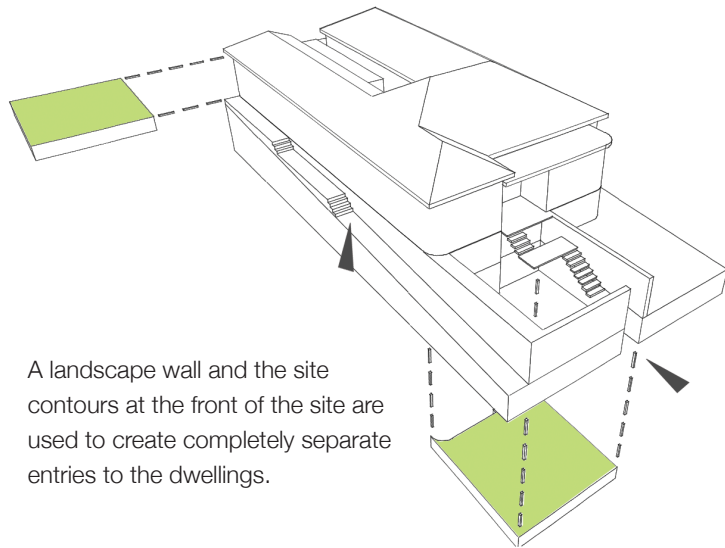
Public / Privacy: The two residences have completely separate entries and completely separate gardens. Acoustic privacy is maintained between the ground level dwellings by a solid wall within the house and blank walls to the courtyard. The courtyard becomes part of the street facing dwelling as compensation for loss of access to the large back yard. There are no windows from either ground floor dwelling that overlook any part of the other. The front dwelling is relatively large and includes a separate adult study area. The rear dwelling is smaller but includes access to the large rear yard and a separate shed & workspace at the rear of the property.



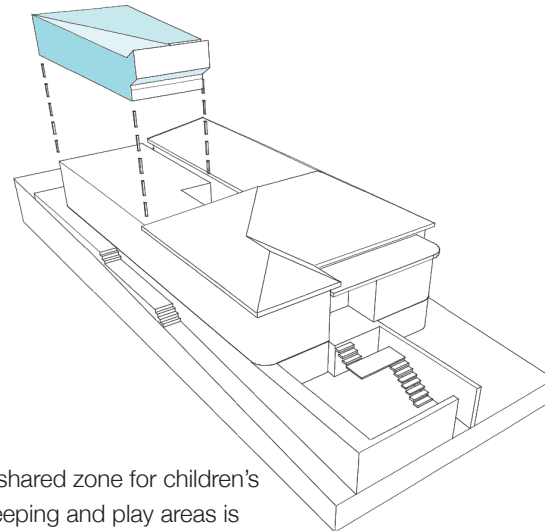
The existing house for this family of 4 is a one story duplex on 550sqm of land in the inner west.



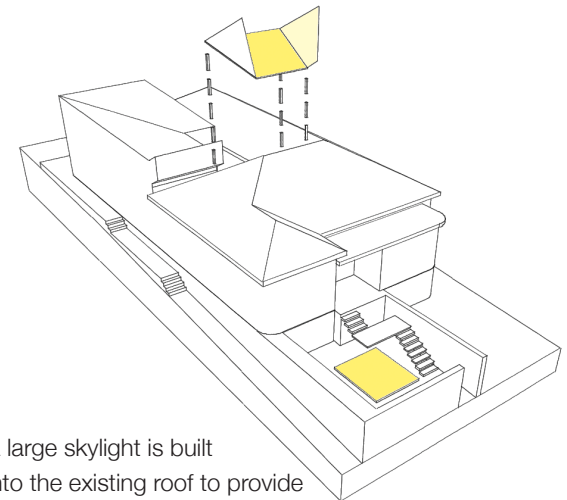
The house is divided front and back to provide separate dwellings for the separated couple.



A landscape wall and the site contours at the front of the site are used to create completely separate entries to the dwellings.



A shared zone for children's sleeping and play areas is added as an upper level. There is equal access from both dwellings.



A large skylight is built into the existing roof to provide direct sunlight to the south facing apartment.

The only shared space of the site is the new upper level addition for the children's sleeping and play areas. This area can be accessed equally from both ground floor dwellings - and acoustic sliding doors at each end of the children's area allow for this zone to be closed off from whichever parent is having the night off.

When the children are grown and the household composition evolves this upper level space can become part of either dwelling - or can be divided in half so that both dwellings add an extra room or an external stair could be built adjacent the front landscape wall to make this upper level a completely separate third dwelling.

Environmental amenity: The site has a generous north facing backyard, and the living areas of the rear dwelling open to this garden to take advantage of this orientation. The living areas of the front dwelling face south toward the street and a large skylight is built into the existing roof to flood this area with natural sunlight. The bedroom and study areas of this front dwelling open onto a north facing private courtyard.

## **Conclusion:**

This 550sqm site in Dulwich Hill, currently zoned as low density residential, could be comfortably adapted to suit this modern family of 2 separated adults and their 2 children. This design could be achieved without exceeding the FSR, overshadowing or open space requirements of Canterbury Council's Development Control Plan.

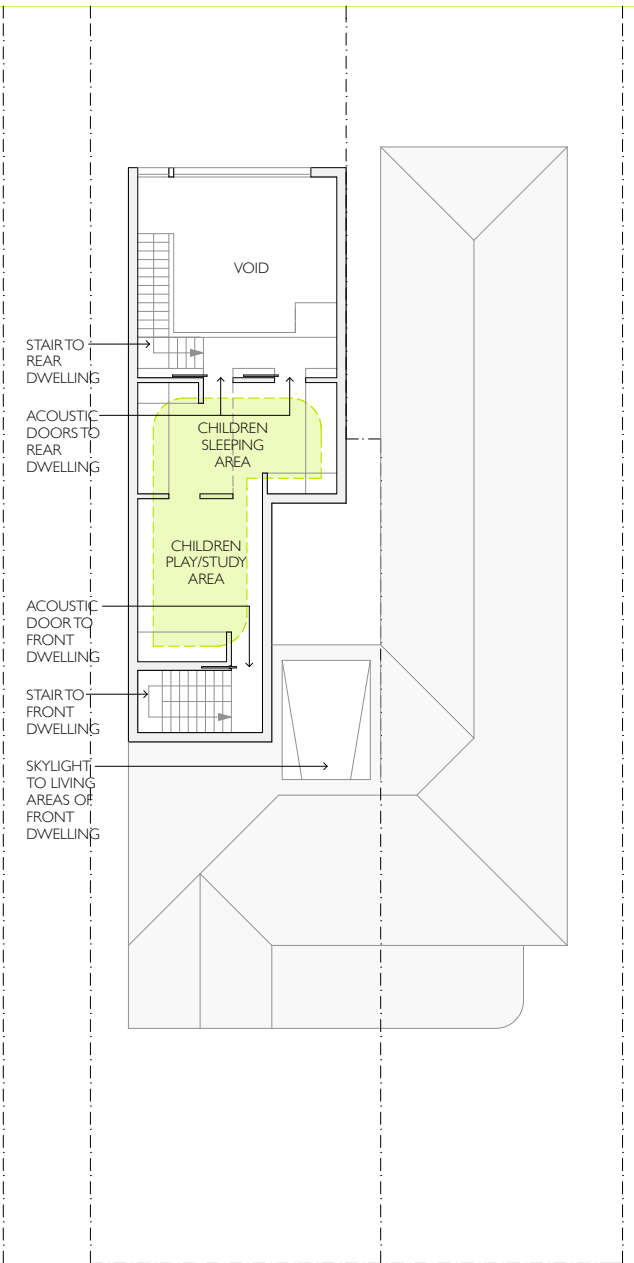
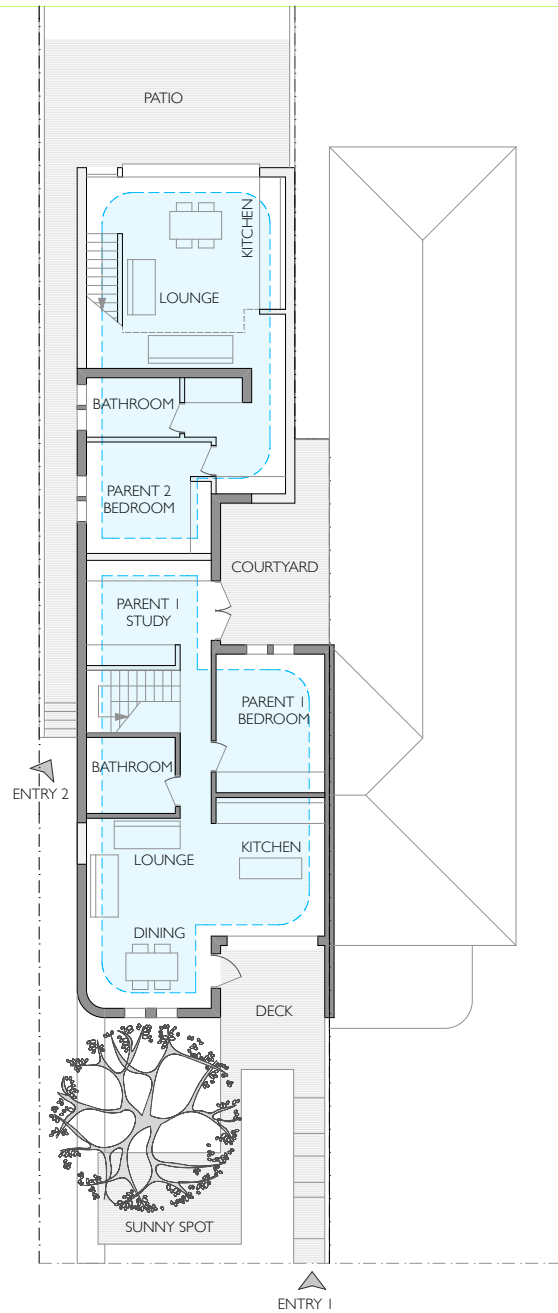
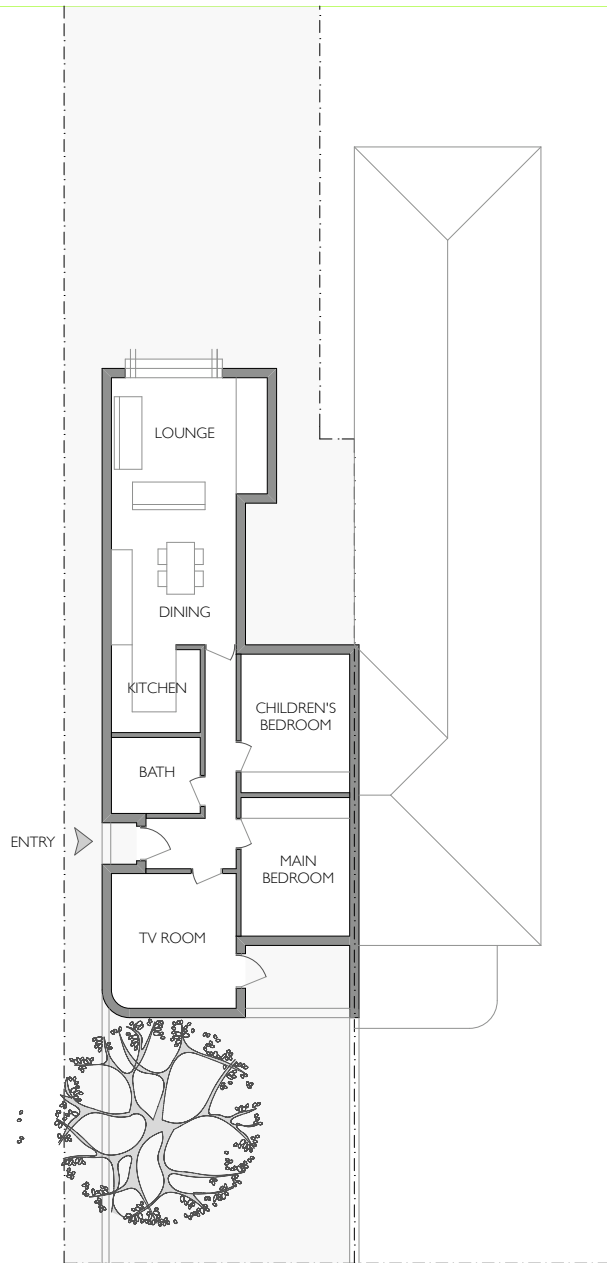
This case study responds to the changing demographic of contemporary households. After the adaptation there is no increase to the occupancy rate on the site - but by accommodating two small households it reduces the demand for one additional 3 bedroom dwelling - as is the typical result of a family separation.

The site is not large enough to meet the minimum size of Canterbury Council's Dual Occupancy criteria, and this adaptation does not comply with the conditions for an attached granny flat under the Affordable Housing SEPP for Secondary Dwellings because the two dwellings are of equal weighting rather than one primary and one secondary residence.

To be approved, the application for this proposed adaptation would need to be misrepresented either as an alteration for one large house or the rear dwelling would need to be shrunk to 60sqm and the stairs to the upper level deleted - to be built later illegally.

The Affordable Housing SEPP for secondary dwellings has the potential to significantly increase the number of small dwellings and in so doing address housing choice and affordability, but the policy needs to expand to embrace increasingly diverse household groups.





## HOUSING POLICY & PLANNING CONTROLS

In general, local government planning controls for low density residential development are predicated on maintaining the existing forms of traditional single family housing.

Planning controls allow for existing houses to be replaced by larger houses, but prohibit any significant deviation from the norm in terms of increasing the efficiency of the site, or to accommodate small groups of non-traditional household types. The effect of this current planning legislation often results in increased building mass with no reciprocal increase in occupancy rates.

There are two planning regulations for low density sites that do work in the favour of multiple households, but the scope of these regulations is conservative and does not go far enough toward improving housing choice.

### **Dual Occupancy:**

Dual Occupancy development was introduced in Sydney in the late 1970's and was intended primarily to permit small dwellings for relatives in the back yard of a large house. The conditions of approval included provisions that the owner of the block of land had to live in one of the dwellings and that both dwellings had to be on one title.

Because of the construction costs of building a second structure on one site, not many granny flats were built until the legislation changed in 1991 to allow separate titles and to do away with the requirement for the land-owners to be in residence. These changes led to a dramatic uptake of dual occupancy development but rather than being used primarily for families, backyard developers took the opportunity of making quick profit by buying up large lots, demolishing houses, subdividing the lots, building 2 new houses as large as they were permitted and quickly selling.

This practise meant that dual occupancies became very unpopular with communities and councils and the legislation was curtailed in 1995. According to a NSW Government Briefing Paper on Current Developments in Urban Consolidation prepared by Stewart Smith in 1997, the most common objections at the time were loss of privacy, overshadowing, poor address to street, loss of property values and increased traffic.

From this time, the ability to separate the titles for dual occupancy dwellings was repealed and site area restrictions were imposed for attached and detached dual occupancy developments. This restriction of dual occupancy development to large sites is counter-intuitive when it comes to urban consolidation. It promotes higher density development on the outer edges of the city where the sites are larger, and fails to take advantage of the potential to increase the number of small dwellings in existing inner and middle city suburbs.

Reducing or deleting the minimum site area requirements for dual occupancy developments would encourage these types of developments. The quality of these developments (new or adaptations) could be controlled by maintaining current merit based planning controls such as overshadowing and landscaped open space requirements.

### Secondary Dwellings:

Recently the NSW government introduced a State Environmental Planning Policy on Affordable Rental Housing. This policy is designed to increase the number of affordable rental properties in existing suburbs and allows secondary dwellings of up to 60sqm in any residential zone within Sydney.

This policy is exactly the sort of change required in housing regulations to encourage incremental densification. It is particularly cunning in that it is a grassroots approach to increased density. The policy is designed to increase the number of small dwellings in existing suburbs without any financial contribution from government.

This Granny Flat legislation is a very well intentioned move toward increasing the number of small dwellings in existing suburbs. In practise, the legislation is still very conservative for the following reasons:

- The maximum size of a granny flat is capped at 60sqm. This figure is based on the traditional household typology of a large nuclear family inhabiting the primary dwelling with a granny or grown progeny inhabiting the secondary dwelling. This legislation does not allow for 2 households of equal weighting such as 2 sole person households/ 2 single parent households/ 2 generations of the same family each with 3 people.

The Sole Person Case Study is not permitted within this legislation.

- No matter how large the site, the secondary dwelling policy does not allow for 3 households. A property has to be zoned medium density residential before 3 dwellings are permitted. There is a discrepancy in that planning regulations permit a single family house with 5 people and 3 cars but would not allow that same house to be adapted into 3 separate dwellings for 3 sole person households with 1 car.

The Multiple Family Case Study is not permitted within this legislation.

- The site limitations for complying development are onerous and will limit the uptake of granny flats in inner and middle ring suburbs. The minimum site area for complying development is 450sqm of which there are many sites in middle ring suburbs but hidden deep within the policy is an extra condition of a minimum 15m site width. Very few inner and middle suburban sites are of this proportion which means a DA, with all the associated costs, delays, additional building envelope restrictions and Section 94A contributions set by the various local councils.

The Single Parent Case Study is not permitted within this legislation.

This policy needs to be expanded beyond the limited view of accommodating an older parent or growing teenager. This policy is the instrument by which multiple households can become legal. This policy has the potential to reverse the trend toward decreased occupancy rates due to changes in household structure and therefore reduce the number of new dwellings required to be built in the next 25 years to accommodate increased population in Sydney.

## CONCLUSION

The 2006 census estimates that there are 1.5 million occupied private dwellings in Sydney. According to the Metro strategy, the NSW government is planning for this number to increase by half again to a figure of 2.27 million dwellings by the year 2036. These extra dwellings are primarily envisioned as high to medium density infill developments in existing suburbs or as new detached houses in new release zones on the outskirts of the city.

This paper introduces an alternative strategy which does not rely on new development but an incremental increase in the number of households that fit within existing houses. This strategy responds to the fact that a considerable amount of the demand for new dwellings required comes not from population increase but from changes in the demographic composition of contemporary households.

900,000 of the existing private dwellings in Sydney are detached houses, each with an average occupancy of 2.6 people. The Australian Social Trends paper published by the ABS in 2007 estimates that an average house has 3 bedrooms and 39% of these houses have 2 or more bedrooms above requirements.

If just a quarter of those existing detached houses were adapted to fit 2 households rather than 1, then the number of new dwellings required to accommodate Sydney's population in the next 25 years would be reduced from 770,000 to 545,000. If the same number of houses were adapted to fit 3 households rather than 1, then the required number of new dwellings would be reduced from 770,000 to 320,000.

What this could mean is an end to the outward expansion of Sydney's boundaries. The outer edge of residential development could be fixed in its current position and all future residential development could occur within the existing footprint of the city. The main advantages would be the retention of arable land in the Sydney basin and that money spent on public transport and infrastructure could be devoted to improving the scope and efficiency of existing services rather than being further stretched to cover additional area.

### **Architectural implications**

Accommodating 2 or 3 households within an existing single family house does not mean doubling or tripling the size of that house. Instead the strategy is to identify inefficiencies in traditional suburban development and make best use of underutilised spaces. Storage rooms, garages, carports, side setbacks, backyards, undercrofts, attics & rooftops become the sites of intervention.

Merit based development control criteria such as open space requirements and overshadowing would be maintained to control the amenity of existing suburbs. Less qualitative development criteria such as rear and side setback distances and height controls would be deleted. These merit based controls could become more stringent in order to preference small flexibly designed houses over large project homes.

### **Social implications**

As cars, houses and food become more expensive, many households will adopt a more collaborative approach to consumables. Street based share networks will emerge and vehicles, sheds, productive gardens, workspaces and guest rooms will become collectively used spaces. This will free up more space in the yards, streets and gardens for more small dwellings or communal facilities.

Privacy of individual residences and gardens will be maintained, but as the number of people per household decreases so will the size of their private space. The priority will be well designed internal and external spaces, suitably sized to the number of occupants per dwelling.

### **Instrument for change**

The Affordable Housing SEPP for secondary dwellings is the instrument by which this change can occur. Already heading in the right direction, this policy could expand to legalise and promote multiple dwelling houses in low density residential areas. The changes to the policy would include deleting the limitation on number of dwellings per site, deleting the 60sqm size restriction and relaxing the site area and width limitations. FSR, open area requirements and overshadowing controls would be maintained so as to control the amenity of existing suburbs.

### **Is it good?**

Encouraging dual or triple occupancy developments on low density residential sites in the inner and middle suburbs of Sydney would lead to a significant increase of households close to the city, many of which would be smaller than the typical new house, carless and totally appropriate for contemporary household types.

This strategy has the potential to reduce the demand for new dwellings over the next 25 years, improve housing affordability by sharing land, construction and living costs between multiple households and increasing housing choice by providing more small and more varied dwelling types.

Our households are becoming smaller, older and increasingly diverse. It is time for the form of our dwellings, our development policies and our models of ownership to evolve to meet this change. Incrementally we can adapt our houses, streets and suburbs to fit the city that we have become.

# CASE STUDY STREET: BASILDON RD, CABRAMATTA

2011 - 8 dwellings, 8 households, 20 people

2015 - 8 dwellings, 15 households, 31 people

One family has lived in this home for 30 years, and now the parents are older and the children have left home, the house has been divided into 2 flats. The parents live in the ground floor apartment while the upstairs is rented to a young couple who do 10 hours of work around the house instead of rent.

2 single mothers have bought this house together and they have adapted the house with separate sleeping and bathing areas, but with a communal kitchen, living areas, laundry, garden and play areas. Both mothers work 2 days a week, and they have coordinated this so that one mother is always at home. The two families share one car.

A nuclear family lives here, and because their kids get along well with the neighbours children, a large sliding gate has been installed in the side fence. Most of the time this gate is open so the kids have a large area to play. There are chickens in one yard, and a cubby house in the other.

The older lady in this house became lonely after her husband died, so she asked a friend from the bridge club to move in. The friend loved the idea, sold her own house and used some of this money to convert this house, with separate living, kitchen and sleeping areas, but a large shared sunroom looking out on the backyard. The money also allowed them to build a granny flat in the backyard to tempt their children to come for visits, and also paid for a cruise for both ladies while work was taking place. The bridge afternoons with the ladies now happen in the sunroom.



No. 15  
2011 household size 2  
2015 household size 4

No. 13  
2011 Household size 2  
2015 Household size 5

No. 11  
2011 household size 5  
2015 household size 5

No. 9  
2011 household size 1  
2015 household size 3

A couple share this house with their 2 adopted chinese children. There is a detached granny flat out the back of the house, and this is rented to an elderly chinese man. At least once a day the children visit the old man. He is teaching them their birth language.

A reclusive old man has lived in this house for 15 years. He makes the best punch for the street christmas party

The son of this family has started a medical degree and intends to stay at uni to complete a PhD. He works at a pub on friday and saturday nights. His irregular hours, noisy friends and unhealthy eating habits upset his mother. To give them all a little separation, his parents converted the downstairs garage and storage area into separate studio apartment.

Three friends bought this house together in their 20's, and lived in it during their university years. Since that time there have been a wedding, a child and some overseas work contracts, but ten years on they find themselves back living here again. The house has been internally divided into 3 separate apartments, but the balcony and adjacent kitchen are kept as shared spaces. Most summer nights the three old friends end up on this balcony for a beer and a chat.



No. 7

2011 household size 2  
2015 household size 5

No. 5

2011 household size 1  
2015 household size 1

No. 3

2011 household size 3  
2015 household size 3

No. 1

2011 household size 3  
2015 household size 5