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The Effectiveness of Landcom's Housing Affordability Objectives for Moderate Income Households – A case Study in Western Sydney

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ABSTRACT

In recent years, housing affordability has becoming a significant issue in Australia, and in particular housing affordability for Moderate Income Households (MIH) in Sydney has been reached a crisis point. There are a number of government initiatives to improve the housing affordability for MIH, for instances, by reducing lot or house size from the product supply side and by introducing finance models such as shared equity or government subsidy from the demand side. Landcom is a State owned developer chartered to deliver social and economic benefits to the people of NSW and it is endeavored to provide affordable housing for MIH. The aims of this paper are to examine the effectiveness of Landcom's MIH housing affordability objectives using a case study in Western Sydney. The status of housing affordability in Australia will be first reviewed and Landcom's MIH housing objectives will be then outlined. Five key objectives are identified for examination: (a) dwellings are delivered at affordable prices for MIH, (b) dwellings constructed below comparable market costs, (c) housing project that made commercial returns, (d) model replicable by most competent and innovative project home developers, and (e) achievable in functional and aesthetic criteria as well as best practice in social and environmental outcomes.

KEY WORDS: housing affordability, moderate income households, Landcom

1 INTRODUCTION

In Australia, it is a common consensus that the "great Australian dream" is to "own your own Home." It is recognized by an industry report into affordable home ownership by the Urban Development Institute of Australia (UDIA) (2007) that *"The goal of owning ones home is a widely held aspiration in our society. To some it signifies security, to others perhaps an economic legacy, and to others the cornerstone of societal stability, morale or even national pride."* Furthermore, UDIA (2007) suggested that the realistic possibility of home ownership is often conceptually linked to a level of satisfaction with lifestyle and financial security and the hope of young generations that they can have a secure and prosperous future and live their personal version of the great Australian dream. If the potential for younger generations to be priced out of home ownership, it poses some serious questions about the future of society and the issue of intergenerational equity. However, in recent years, housing affordability has becoming a significant issue in Australia, and in particular housing affordability in Sydney has been reached a crisis point.

Moderate Income Households (MIH) is an important sector to consider in relation to housing affordability. It is that sector of the housing population with gross household incomes clustered around the median gross household income. This band of incomes falls within 80% to 120% of the gross household median income. When considered that the distribution of household incomes form a standard distribution, this group represents the major sector of households in Australia.

There are a number of government initiatives to improve the housing affordability for MIH, for instances, by reducing lot or house size from the product supply side and by introducing finance models such as shared equity or government subsidy from the demand side. Landcom

is a State owned developer chartered to deliver social and economic benefits to the people of NSW and it is endeavored to provide affordable housing for MIH. The aims of this paper are to examine the effectiveness of Landcom's MIH housing objectives using a case study in Western Sydney.

2 HOUSING AFFORDABILITY

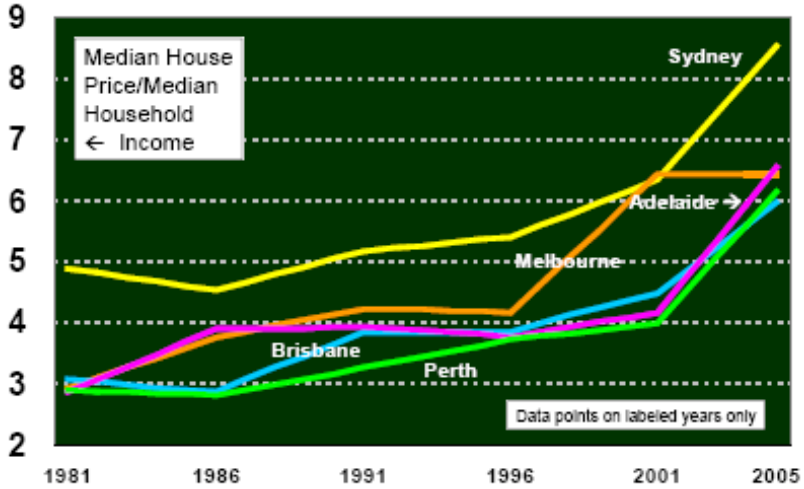
Housing affordability is measured as the median house price to median household income ratio (median multiple) (Demographia, 2006). If the ratio goes up then the house becomes less affordable. The ratings of housing affordability are classified as shown in Table 1.

Table 1: Classification of Housing Affordability
Source: Demographia (2006)

Rating	Median Multiple
Severely unaffordable	5.1 and over
Seriously unaffordable	4.1 to 5.0
Moderately unaffordable	3.1 to 4.0
Affordable	3.0 or less

In the global property market, Demographia, (2006) states that the least affordable markets are in California, Hawaii, and the USA East Coast where Los Angles tops the list at 11.4 median multiple, Sydney 8.5, London is 8.3 and Vancouver is 7.7. All these fall within the seriously unaffordable rating. However, the affordability crisis becomes clearer when comparing countries rather than cities. For example the median multiple in Canada is only 3.2 and the UK 5.5 compared to Australia 6.6. In addition, the most pervasive housing affordability crisis is in Australia, where all capital cities with Metropolitan population more than 1 million people have median multiples of 6.0 or higher. Sydney was top on the list at 8.5 as shown in Figure 1.

Figure 1: Median Multiple Trend in Australian Capital Cities
Source: Demographia (2006)



Between 1981 and 2003 the median house price in Sydney rose from $78,000 to $470,000. In 1981 the median multiple was 4.6, and by 2003 it was 8.5 times (Randolph et. al, 2004). It is even worse for the 40th percentile households and the figures vary with geography with the coast becoming the least affordable. When applying the rating system to the trends from 1981 to 2003 then the Sydney market is in a "severely unaffordable" state. In deed, the median

multiple trend gap records the rising effect on "unaffordability" in all Australian capital city markets since 1996 (Demographia, 2006).

The Housing Industry Association has produced a report on restoring housing affordability by investigating the contributing factors such as land supply and infrastructure costs (Dale, 2003)**.** The Australian Federal Government has investigated the housing affordability issues (Wood, 2004; Yates, 2007) and committed resources to resolve the problem. In September 2008, the Federal Government has announced the Housing Affordability Fund, which will address supply side issues, for instances the cost of developing new infrastructure including water, sewerage, transport, and parklands, local government infrastructure charges; and the 'holding costs' associated with planning and approval delays such as interest, land taxes, council rates and staff costs, that ultimately will be paid by the new home buyer. The Federal Government has invested up to $500 million in this housing plan to save up to $20,000 per house purchase. It is believed that this will boost supply and provide up to 50,000 new affordable houses over the next five years.

3 MODERATE INCOME HOUSHOLDS (MIH)

Moderate income households (MIH) are defined as those households having incomes in between the 40^{th} and 60^{th} percentile of the local median household income (Randolph et. al, 2004). In Sydney in 2003, this translates to represent households with income from $45,000 to $68,000 per year, and comprises around 250,000 households. This MIH sector represents the "Middle Australian" that includes the majority workers, such as police officers, teachers, nurses, IT support people, etc. Most of these households would prefer a detached house on its own land that they simply cannot afford it.

In Sydney, this MIH sector is already been priced out of the home ownership market. For instance, in 2003, the "affordability gap" in Sydney is $250,000, i.e. the gap between what the MIH can afford and the median price of a house. It is assumed affordable means that the households had saved 10% as a deposit of the housing price and will spend no more than 30% of gross income on housing loan repayment.

Landcom is a State owned developer chartered to deliver social and economic benefits to the people of NSW and it is endeavored to provide affordable housing for MIH sector. Landcom's strategy is to seek market-based solutions which enable MIH sector to purchase homes. The Landcom's focus has been set on developing a diversity of innovative housing types that can be priced at levels that are affordable to those on moderate incomes. In 2002, Landcom has developed three strategic aims for MIH sector as follows:

- Provide homes for Essential Service Workers' – nurses, teachers, police etc. that might fall into the MIH category
- Delivery of MIH dwellings for purchase, not rental
- MIH Solutions that are market based and commercially feasible

4 A LANDCOM's MIH PROJECT - A WESTERN SYDNEY CASE STUDY

In 2000, a project "Forest Glade" at Parklea in Western Sydney was developed collaboratively by Landcom, Cosmopolitan Developers, and Blacktown City Council to provide a model for market-based affordable housing for MIH sector. It aims to demonstrate a development model for affordable housing with a combination of best practice in urban and housing design, sustainability, construction, marketing and finance.

The urban design component of the project required a modification of the existing DCP for the site, to enable density increases without compromising public and private open spaces and building design, these including:

- Minimum lot sizes to be reduced from 300 sqm to 220 sqm, whilst maintaining average lot sizes of 350 sqm,
- Zero lot boundaries,
- Zipper lots, i.e. staggered side boundaries for better allocation of private open space,
- Reduced setbacks,
- Relocation of private open space from front and side setback to backyards.

The project comprised 64 detached homes with a mix of two, three and four bedroom houses. The average size of each house is 156 sqm, varying between 101 sqm and 261 sqm, on an average lot size of 350 sqm (see Appendix A and B). Thirteen (20%) were targeted to MIH sector and their price ranged from $156,000 to $230,000 (2002 prices), while the asking prices of those aimed at the boarder market were between $270,000 and $415,000.

In this case study, the participants selection criteria was to target those in the range of 80% to 120% of the Median Sydney Gross Income Range, this was $45,000 to $68,000 pa in 2003. The housing affordability is then determined as households spending no more than 30% of gross income on housing. Table 2 outlines this analysis for the 2003 median income.

Table 2: Affordable Housing Price for MIH based on the 2003 median income

Medium Household Income $	MIH Household Income (80% to 120%)	Monthly repayment capacity (30% of household gross income)	Borrowing capacity at interest rate 7%	Price Point Purchase (assuming 10% deposit excludes all purchasing costs)
$56,500	$45,000 to $68,000	$1125 to $1700	$192,857 to $291,428	$212,000 to $320,000

According to the case study the house land packages sold $156,000 to $230,000, Figure 2 compares the MIH (Sydney) and the case study price point targets.

Figure 2: Case study Price Points versus MIH target Price Point range

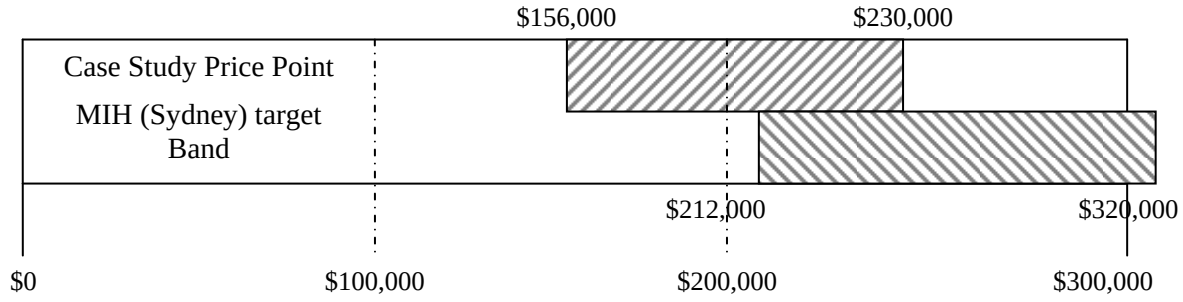


Figure 2 illustrates that the price points offered by the MIH case study were well within or below the upper and lower “affordability” range in Sydney.

Five objectives were identified to be demonstrated from this model (Landcom, 2002) as follow:

A. 20% of dwellings were to be delivered at prices affordable to Moderate Income Households,

B. All dwellings were to be constructed below comparable market costs,
C. The delivery of a housing project that made commercial returns,
D. A model that could be replicated by most competent & innovative project home developers,
E. Housing affordability would be achieved while still achieving functional and aesthetic criteria as well as best proactive in social and environmental outcomes.

In the following section of this paper, each of these five objectives will be investigated and analyzed in detail.

Objectives A - Affordable Prices

The first objective is: "*20% of dwellings should be delivered at prices affordable to moderate Income Houses"*. On face value it would seem from Figure 1 that the MIH not only achieved this outcome but exceeded it. As further evidence an RP Data search was made of sales during 2003 for a specific street within the case study site. This revealed 11 sales ranging from $179,200 to $270,000. This is clearly within the MIH range stated for Sydney as a whole. However, the case study makes the following significant assumptions:

1. That the majority of purchasers in the case study represented an "average" cross section of Sydney buyers.
2. That the purchases were evenly spread across the Sydney Metropolitan Area.
3. That the median income of the LGA was the same as the broader Sydney median gross household income.

Upon further analysis it was demonstrated that the above assumptions were flawed as follows:-

Assumption 1: "that the majority of purchases represented an average Sydney buyer"
Assumption 2: "that the purchases are evenly spaced across Sydney"

The theory of purchasers of land, or house / land packages, coming from within the same LGA is well researched in the property sector. People tend to purchase new homes close the where they currently live. To support this, Leo Consulting (2003) provided a report on "Landcom Migration Analysis" to gain an understanding of the distances people migrate to move to specific home sites. The methodology that Leo used was:-

1. "Geocode" the home sites on a map for each home site.
2. Put each customer on a map for each home site
3. Calculate distances between sites & customers previous addresses.

Across Sydney the findings are shown in Table 3.

Table 3: Migration across Sydney Sites
Source: Leo Consulting (2003)

Distance customer migrated to new home site from old home site	Total %	Total Cumulative %
0 to 9km	51.42	51.42
10 to 19km	18.23	69.64
20 to 29km	11.88	81.53
30 to 39km	5.79	87.32
40 to 49km	1.79	89.10
50 to 69km	2.65	91.75
70 to 129km	0.62	97.78
130km and more	2.22	100

In broad terms Table 3 represents that the pattern of migration across Sydney:

- 50% within 10km
- 70% within 20km
- 80% within 30km

This clearly demonstrates that purchasers of new home sites are not evenly distributed across Sydney but in fact come from nearby, and in most cases, from within 10km of the same LGA. To truly test whether the MIH market was provided for it is therefore essential to know what the MIH target is for the specific case study LGA.

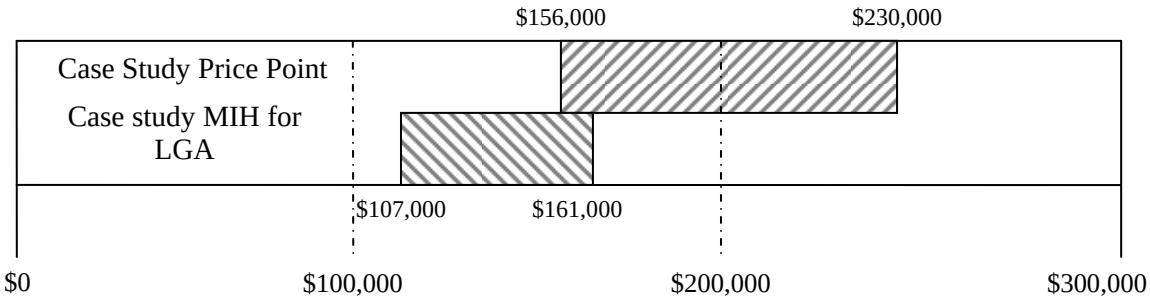
The third assumption is therefore should be tested "*that the medium income of the LGA was the same as the broader Sydney median Gross Household Income*." The medium income for the same LGA of the case study was $500 to $599 per week (ABS 2001 Census). Assuming an average of $550 per week, the affordable housing prices for MIH within the case study LGA in 2003 are shown in Table 4.

Table 4: Affordability for MIH within the Case Study LGA in 2003

Medium Household Income Within same LGA	MIH Household Income (80% to 120%)	Monthly repayment capacity (30% of household gross income)	Borrowing capacity at interest rate 7%	Price Point Purchase (assuming 10% deposit excludes all closing costs)
$28,500	$22,859 to $34,200	$571 to $855	$97,885 to $146,571	$107,673 to $161,000

According to the case study packages sold from $156,000 to $230,000, comparing the LGA MIH with that of the case study Figure 3 provides a comparison.

Figure 3: Home site LGA MIH compared to case study price point.



From the above, it appears that the MIH objective for the majority of purchases is not met. In reality the case study participants with an annual medium income of $48,500 were well above the LGA MIH group of $28,500.

Objective B – Market Costs

The objective B is "*all dwellings would be constructed below comparable market costs"*. The building company that completed this project used the following techniques to lower the cost of construction:

- Trusses, floor joists, gyprock panel dimensions and modular kitchens were limited to standard designs and off the shelf product. All these are aimed at reducing on site fitting costs and waste of materials.

- A scale economy was achieved by being a consistent design suite across a larger housing estate, such as standard windows, doors and cupboards were used across the project.
- Wall lengths were designed to match standard lining sizes (no cutting or waste), and prefabricated components were widely used, such as straight staircases and kitchens with cupboards along one wall.

To test this objective research of the adjacent streets within the LGA was considered. Homes constructed within the estate but not built as part of the case study were contrasted. Houses within the estate were used for the following reasons:

1. They were within the same LGA and therefore available to potentially the same market,
2. They were comparable in size and structure, and
3. They were constructed and sold at the same time as the case study product in order to keep the "market timing" variable constant.

A study of sales in the same street during the year 2003 using RP Data revealed the price of houses as shown in Table 5.

Table 5: Case study product compared with standard product available
Source: RP Data (2003)

Item	(a)Case Study Houses	(b)Houses Sold - In Same Street - At the same Time	% difference (a) divided (b)
Number Sold	11	5	
Price House and Land (lowest)	$156,000	$270,000	58%
Price House and Land (Highest)	$230,000	$325,000	70%

Whilst the sample size is small it would appear that comparable product, produced in the same area, was sold to the market at higher price points. The table assumes that the builders of the case study and other houses in the street achieved a 10% margin on costs. It was claimed that the efficiency gain through construction reduced costs from approximately $1,000 per sqm to approximately $800 per sqm. This represents 80% of the average cost.

It would appear that an efficient building technique has assisted in reducing the costs and hence reflect the lower market price of the case study product. As outlined in Table 5, the lowest priced House and land MIH packages are 58% less than the standard package and 70% of the higher priced package.

Having the ability to produce housing at a lower cost of construction is an important component in delivering house land price points suitable for the MIH price range. However, recent NSW Government Legislation has added extra costs to construction, increased developer contributions and infrastructure levies, these including Rural Fire Services provisions and BASIX environmental compliance. According to Landcom's (2008) calculation, these extra costs could be as high as $35,000 per dwelling, and add from 15% to 22% cost to MIH Packages which would then need to be reflected in a higher price point if margins are to be maintained. The costs associated with these extra compliance issues further push up building costs and make it more difficult to reach an MIH price point.

Objective C - Commercial Returns

The objective C is *"The delivery of a housing project that made commercial returns."* The commercial returns of the case study were evaluated in terms of the returns to the developer. Firstly, the land costs between the Landcom case study and other lands within the same suburb are reviewed as shown in Table 6.

Table 6: Comparison of the Case study verses other land within the same suburb

Date	Total properties	Statistic	Sale Price ($)	Area (sqm)
7/2002 to 7/2003	7	Highest	$135,000	434
Case Study land		Lowest	$87,000	324
		Average	$111,000	377
		Median	$125,000	365
		Average per sqm	$294	
7/2002 to 7/2003	10	Highest	$265,000	657
Other land		Lowest	$165,000	324
within the same		Average	$251,000	526
suburb		Median	$245,000	505
		Average per sqm	$477	

From the Table 6, an average lot size of the Landcom case study land was 377 sqm which was less than the lot sizes on the remainder of sales with average 526 sqm within the suburb. The square metre average cost for the Landcom sites was $294 compared with other sites of $477 (60% higher). Usually as the lot size reduces in size the cost per sqm goes up. This is due to the lot having to carry construction costs such as estate major works but not having as many square metres to amortise this cost over. This therefore goes against the standard trend and suggests that the Landcom lots were discounted below the market price.

To test this objective, a study of NPV, Development margin and IRR was undertaken for the case study land. The following assumptions were use in doing this:

a. **Land acquisition**: Comparative sales show an englobo site in the same suburb, at the same time with approximately the same size and same zoning was: 4 ha selling for $5,187,000. This equates to $1,296,750 per hectare. Assuming a lot yield of 20 lots per hectare (allowing for a lot size of average of 377 sqm and road, open space and road reserves). The average cost for raw land per lot is therefore $64,837.
b. **Construction costs**: the total construction cost per lot is $30,000.
c. **Project Hurdle rate (or discount rate)**: This includes the risk free rate (10 year Commonwealth Bond rate at time of project) plus a number of project and market risk factors. Because this is a special MIH project, it used a -3% deal structure to illustrate the objective of producing MIH. The project hurdle rate selected is 15.5%.
d. **Consultants, operating costs**: These costs include things like DA approvals, project management and consultant's fees for design of roads etc.
e. **Timing**: assumes year 1 acquisition of land, Year 2, construction and years 2 and 3 sales.

The cash flow analysis is outlined in Appendix C. The average sales price for these seven lots was $111,000 per lot. The Gross margin was 4.1% and the development margin was very low at 4.3%, with a development profit of $31,792. The IRR (3.1%) is well below the discount hurdle rate, and the NPV is negative (-$89,962).

In order to compare the other land sold at the same time in the same suburb the following assumptions were made:

a. **Land acquisition**: Comparative sales show an englobo site in the same suburb, at the same time with approximately the same size and same zoning was: 4 ha selling for $5,187,000. This equates to $1,296,750 per hectare. Assuming a lot yield of 10 lots per hectare (allowing for a lot size of average of 526 sqm and road, open space and road reserves). The average cost for raw land per lot is therefore $129,675.
b. **Construction costs**: the total construction cost per lot is $30,000. This includes all civil works for a flat parcel of land with few engineering constraints.

c. **Project Hurdle rate (or discount rate)**: This includes the risk free rate (10 year commonwealth Bond rate at time of project) plus a number of project and market risk factors. Because this is not a special MIH project, a 5% deal structure is assumed. The hurdle rate selected is 23.5%.
d. **Consultants, operating costs**: These costs include things like DA approvals, project management and consultant's fees for design of roads etc.
e. **Timing**: assumes year 1 acquisition of land, Year 2, construction and years 2 and 3 sales.

The cash flow analysis is outlined in Appendix D. It assumes sales at market rates as evidenced in RP data. The average sales price for these ten lots was $251,000 per lot under these assumptions. The Gross margin was 33.1% and development margin 49.6% with a development profit of $831,904. The NPV is positive ($182,129) and the IRR at 36.8% is above the hurdle rate by a good margin.

Comparing cash flow analysis in Appendix C and D, it indicates that the case study development probably did not achieve the objective of the delivery of a housing project that made commercial returns. At best, it could be only described as a breakeven project.

Objective D – A Replicable Model

The objective D is *"A model that could be replicated by most competent and innovative project home developers."* This objective is analyzed as follows:

1. The land development impacts such as product type density, floor space ratios, and setbacks were all negotiated with the local council. The result was exemptions from normal Local Environmental Plan (LEP) and Development Control Plan (DCP) requirements. This allowed the developer to obtain extra yield from the site. Whilst this is not impossible to replicate it will be difficult. LEP's are Government gazetted instruments and take considerable time and effort to change. DCP's likewise require Council cooperation and significant community consultation. Some Councils will support the ideas and others may reject them as there is no standard approach across NSW.
2. The land development costs were reduced through Council discounted land and waivers on development fees. These were special one-off considerations. In order to replicate this any Council must have suitable land and be prepared to discount at a margin. They must also discount fees such as DA and Section 94 (developer's contribution) fees. Not every Council will be in a position to do this.
3. The builder selected produced building product that reduced construction costs and provided design efficiency. This maybe replicable for a large builder but many small cottage construction companies may find this too difficult. The other issue is that the building company that produced this case study is in competition with many of the other potential builders in the area. It could be assumed that the case study builder would be reluctant to pass on information that provides competitive intellectual property.
4. Where product was sold below market rates, measures were put in place to ensure there was no windfall gain to the purchasers. This included a 9% per annum capping of gains for seven years. This involved controls with a second mortgage by the developer. This is difficult to manage over a 7 year time period. It means the developer has to monitor contracts, second mortgages and sales for the period well beyond the end of the development. This may be manageable on a small scale but when dealing with hundreds of lots it will become an administrative and resource intensive issue. In the long term this will reflect on the cost of MIH product provision.

It is evident that a competent and innovative project home developer would have most control over item 3 only. Whilst being able to influence changes in LEPs and DCPs and other development controls they will have little direct control over the outcome. Furthermore, land prices need to be negotiated but outcomes of those negotiations cannot be directly controlled.

Objective E – Best Practice

The objective E is "*Housing affordability could be achieved while still achieving functional and aesthetic criteria as well as best practice in social and environmental outcomes*." From the designs of the case study homes it would seem that good design was achieved. The houses were modern at the time; they demonstrated good articulation of the façade and were not garage dominant within the streetscape. The product showed a mixture of colour schemes and one and two storey product to prevent it looking like typical social housing. The improved realizable value increases indicate that the product was considered valuable in the market.

The real test of this objective is to determine the success over time of this product in the market. For the project to be truly successful the houses should show real capital gains providing the owners with an opportunity to step outside the need for moderate income housing in the future. To test the price point at provision of the MIH project sites in 2002 were compared with resale prices in later years. The sales history of MIH housings were shown in Table 7.

Table 7: Sale History of MIH Housing
Source: RP Data (2008)

House identifier	Sale date	Lot size (sqm)	Building type	Sale price
House 1	2003 (first purchased as MIH) 2005 2007	351	Two storey brick	$189,400 $385,000 $395,000
House 2	2003 (first purchased as MIH) 2004	351	Two storey brick	$189,000 $427,500
House 3	2002 (first purchased as MIH) 2007	367	One story brick	$194,900 $430,000
House 4	2002 (first purchased as MIH) 2004	583	One story brick	$181,500 $420,000
House 5	2002 (first purchased as MIH) 2005	322	Two storey brick	$169,000 $400,000

From resale prices of the houses in the case study, it shows that the capital gains were high from between $200,000 to $300,000 over a 3 to 5 year period. The result, in many cases, was a tripling in value. This realizable equity gain will bring those home owners in the case study out of the MIH range.

CONCLUSIONS

This Landcom's MIH case study in Western Sydney was aimed to becoming a model of market based solution for affordable housing. Small one and two storey buildings on small lots formed an integral role in delivering the case study outcomes. It was claimed that the builder in the study used innovative cost saving techniques and just in time arrangements to reduce costs. In summary the case study would appear to have delivered the following advantages:

- By reducing lot size the cost of land is reduced to allow urban consolidation.

- By reducing setbacks and use of common boundaries, the land uses efficiently and the house can be larger on a smaller lot.
- Well designed product and economic methods of construction to reduce waste and increase the build efficiency.
- Offering market rates but still be affordable to MIH while public funded subsidies and complicated financing is not required.
- House price is controlled for up to seven years allowing some of them to remain within the MIH.

However, from the detail analysis of the five objectives, the case study had the following shortcomings:

- Apparently, the case study is catered for MIH across the whole metropolitan area of Sydney, however, the lot prices do not truly reflect the MIH of the same LGA in Western Sydney.
- Lot size does not always deliver a significantly lower cost unless subsidized by the Council or developer.
- This case study required one-off special approvals and exemptions from LEP and DCP, however, councils and approval authorities will not always allow this type of product and positioning in many development approvals.
- This case study relied on small and custom made lots well positioned within the estate. In addition, these houses were specially designed for these lots. However, it is unlikely volume builders will adopt the approach across industry the project, as commercial returns are not achievable and will not be replicable on a large scale.
- Not all the house will remain in the MIH range for seven years. When inflated the top priced house at $230,000 at the time of the case by 9% it could sell at $385,000 (beyond the upper 2007 limit of $325,000.)
- Once seven years are up these houses are predicted to sell well above the MIH bracket. Thus the MIH supply chain is broken.
- The covenant and second mortgage relies on the developer or third party. On a larger scale this will tie up administration and development funds for seven years and create ongoing management issues.

At the time of the case study, the Landcom's MIH housing objectives were not achieved satisfactory. Through the analysis in this paper, it was evident that it was difficult to produce suitable housing at a MIH price point that only addressed from the "supply" side. As this case study does not deal with "demand" side solutions to providing houses for MIH, that may provide a means to bridge this increasing gap by essentially funding the difference, such as shared equity and government subsidy scheme. In the long term a combination of both supply and demand side solutions may be required to solve the MIH housing affordability problem.

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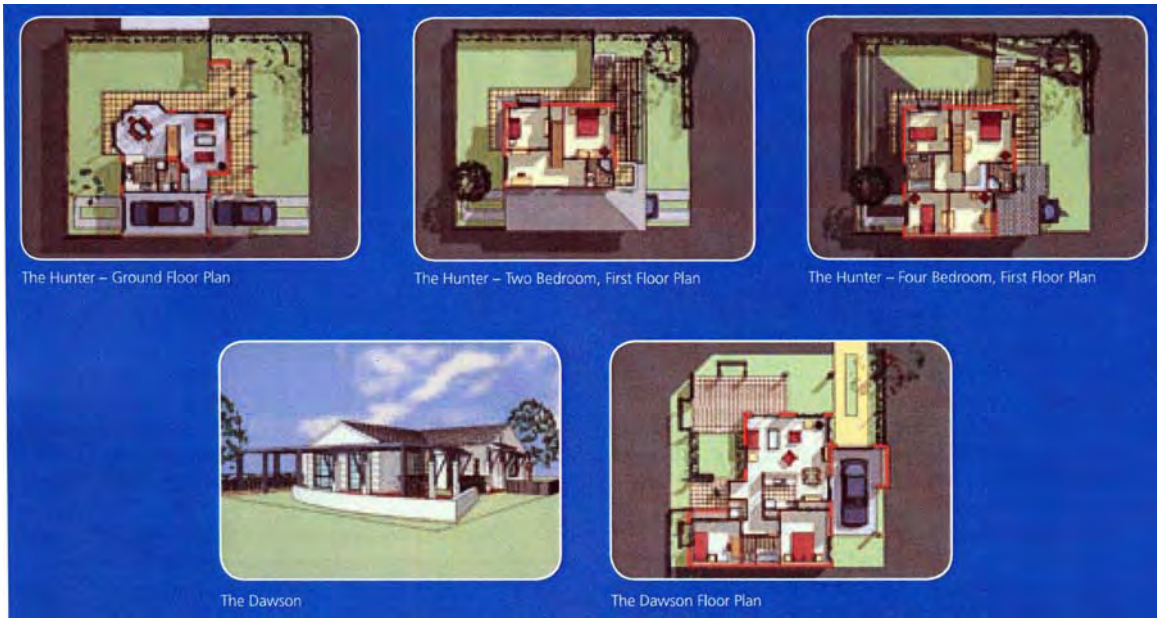
APPENDICES

Appendix A House Design of the Case Study in Western Sydney
Source: Landcom (2002)



Appendix B Household Types of the Case Study in Western Sydney
Source: Landcom (2002)

HOUSEHOLD TYPE	HOUSE SIZE	INTERNAL FEATURES	EXTERNAL FEATURES
Nuclear family "Murray"	155-165m², 1-2 car garage	3-4 bedroom, ensuite, 2 living spaces, study area	Secure storage and play, storage for children play items, front fence
Single parent "Lachlan"	135-165m², 1 garage	3 bedroom, shared ensuite, downstairs main bed (potential live-in relative) 2 living spaces, study area, expandable to 4 bedrooms	Secure storage and play, ground level supervision of play areas, front fence
Double Income No Kids Yet (DINKY) "Hunter"	152m², 1car garage, plus recreational vehicle space	Optional ensuite, 2 living spaces, study area, expandable to 4 bedrooms	Low maintenance, wide street presence
Single including retiree "Dawson"	101m², 1 garage	2 bedroom, spacious living all on one level	Low maintenance, patio and porch, front fence, sunny porch
Single level for nuclear family "Blackwood"	174-194m², 1-2 garage	2-3 bedroom, expandable to 4 bedrooms, 2 living areas, open floor plan, single level	Larger yard extending off living/family area with good solar access

Appendix C: Cash Flow Analysis of the Landcom Case Study

Project	Case study
Location:	West Syd
Developable area (ha):	0.35
No. of lots:	7
Title(s):	Lot DP

Total area(ha) 0.95

Component	Range	Rate
10 yr Comm Bond Rate		5.50%
Property risk return	3.50%	3.50%
Development risk return	5%	5.00%
Location risk return	1% to 4%	2.00%
Project type return	5%	2.50%
Hotel=5%, Industrial=3%, Commercial=2.5%, Residential=2.5%		
Deal structure premium*	-3% to 10%	-3.00%
Project Hurdle Rate		**15.50%**

EXPENDITURE:	**TOTAL**	**Number**	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Acquisition & 1off costs	453,862	64,837	453,862						
Land/Dwellings	7	7		7	-	-	-	-	-
construction costs	210,000	30,000	-	210,000	-	-	-	-	-
Stamp Duty	-	-		11,346					
Consultants	50,000	7,143	25,000	25,000					
Operating costs (admin)		-	10,000	-					
Operating Costs (other)	10,000	1,429	10,000	-					
TOTAL EXPENDITURE	745,208	106,458	498,862	246,346	-	-	-	-	-

REVENUE:

	7			2	5	-	-	-	-
Cash at bank			-						
REVENUE:	777,000	111,000	-	222,000	555,000	-	-	-	-
TOTAL REVENUE	777,000	111,000	-	222,000	555,000	-	-	-	-

MARGIN/NET CASH FLO	31,792	4,542	- 498,862	- 24,346	555,000	-	-	-	-

Gross Margin	4.1%
Development Margin	4.3%
Developers Profit	$ 31,792
IRR:	3.1%
Approx residual land value based on NPV of $0	-$89,962

Appendix D: Cash Flow Analysis of Other Development

Project	Case study
Location:	West Syd
Developable area (ha):	0.35
No. of lots:	10
Title(s):	Lot DP

Total area(ha) 0.95

Component		Range	Rate
10 yr Comm Bond Rate			5.50%
Property risk return		3.50%	3.50%
Development risk return		5%	5.00%
Location risk return		1% to 4%	2.00%
Project type return		5%	2.50%
Hotel=5%, Industrial=3%, Commercial=2.5%, Residential=2.5%			
Deal structure premium*		-3% to 10%	5.00%
Project Hurdle Rate			**23.50%**

EXPENDITURE:	**TOTAL**	**Number**	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Acquisition & 1off costs	1,296,750	129,675	1,296,750						
Land/Dwellings	10	10		10	-	-	-	-	-
construction costs	300,000	30,000	-	300,000	-	-	-	-	-
Stamp Duty	-	-		11,346					
Consultants	50,000	5,000	25,000	25,000					
Operating costs (admin)		-	10,000	-					
Operating Costs (other)	10,000	1,000	10,000	-					
TOTAL EXPENDITURE	1,678,096	167,810	1,341,750	336,346	-	-	-	-	-
REVENUE:									
	10			5	5	-	-	-	-
Cash at bank			-						
REVENUE:	2,510,000	251,000	-	1,255,000	1,255,000	-	-	-	-
TOTAL REVENUE	2,510,000	251,000	-	1,255,000	1,255,000	-	-	-	-
MARGIN/NET CASH FLO	831,904	83,190	-1,341,750	918,654	1,255,000	-	-	-	-

Gross Margin	33.1%
Development Margin	49.6%
Developers Profit	$ 831,904
IRR:	36.8%
Approx residual land value based on NPV of $0	$182,129