

Manufacturing Affordability:

America's manufactured housing as an
affordable housing typology

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The goal of this research is to outline the strengths, weaknesses and potential for establishing a new manufactured housing industry in Australia as a means of providing more affordable housing options for low income families.

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1

Why manufactured housing for affordability?

Australia is in the midst of a housing affordability crisis, with housing prices in Sydney reaching almost 13 times the average household income.¹ To combat this unaffordability, governments have been advocating supply side solutions, releasing more land for single dwellings on the suburban fringes and building more high density apartment buildings in the inner ring.² However the perpetuation of standard housing typologies like these fail to address housing affordability beyond basic supply issues. In addition, traditional housing developments often reject alternative land, ownership, finance and development models.

Research which explores innovative and alternative affordable housing typologies that address these holistic issues of land use and planning as well as ownership, finance, design and construction, is often limited despite studies suggesting a need for greater interdisciplinarity in housing research. However, government bodies in Australia, including state-based planning authorities and local councils, have recently been running competitions which promote innovative and non-traditional housing typologies such as the 'Missing Middle,' 'Alternative Housing' and 'Pattern Book' Competitions.

Despite interest from governments and policy makers supply is underwhelming and very little housing has made its way into the housing market despite targets. Additionally, the housebuilding industry continues to maintain the status quo of traditional on-site, labour intensive building techniques. Yet this is not a unique issue we face now. In 1984, Arthur D. Bernhardt lamented that "despite the global need for lower-cost and better housing, the building industry's performance remains

suboptimal."³

While there are many levers we can pull to address to the housing crisis, this report suggests that we may need to find many different solutions, often looking to those forms of housing overlooked. The maligned, yet innovative and adaptable, mobile home and manufactured housing industry in the United States has the potential to provide an integrated, alternative development model to traditional housing during times of housing instability, labour shortages and construction cost increases, which all contribute to unaffordability.

Mobile housing has had the ability to provide shelter outside of the regular housing market during times of need throughout history, such as providing housing for roving workers during the depression, acting as temporary housing during the war, and now as an affordable alternative to detached housing. In many cities in America, manufactured housing communities (also referred to as mobile home parks) are one of the only sources of affordable market-rate housing available to lower-income households. As such, they play a critical role in preserving economic and racial diversity within cities and towns.

The mobile home is the dream of the factory-built house come true, yet the architectural and design community has had little involvement with the industry itself. Previously, architects have sought to 'improve' the industry with innovations like Archigram's 'Trailer Cage' or Elmer Frey's 'Skyrise Terraces' which proposed stacking mobile homes, and the Frank Lloyd Wright Foundation's 'Prairie' styled mobile home which was little more than a

styling exercise. Even Arthur D. Bernhardt in his seminal text “Building Tomorrow: Housing lessons from mobile homes” shows a prejudice against mobile housing as its own typology. Rather than necessarily advocating for the wide spread adoption of manufactured housing as a mainstream housing choice, Bernhardt sought to learn from the system. Instead this proposal aims to highlight how mobile homes already have the potential to provide a meaningful affordable housing option, alongside a more traditional housing market.

Unlike the USA which implemented the HUD code in 1976, allowing the nationwide regulation and implementation of manufactured housing, Australia has disjointed, state-based regulations which do not regulate the manufactured housing industry in a systematic manner for affordable housing. Instead, there is a strong focus on manufactured housing as short term vacation housing, aged residential communities, or transient workforce estates, and in addition manufacturers are required to adapt their product to each states’ specifications. Even amongst these three main industries there is little organisation, and the industry as a whole is discontinuous with major players only accounting for 9% of all parks.⁴ Barriers to utilising the manufactured housing sector as an affordable housing typology outside of a comprehensive nationwide regulation include: a lack of industry data, limited transactions and points of sale; new supply restrictions; and under-active management. In contrast, the American manufactured housing industry is a comprehensive yet adaptive, ‘loose-fit’ system, which uniquely incorporates manufacturers, retailers, community providers, financiers, and residents. This system allows the industry to adapt to differing contexts including locations, preferences,

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demographics, and budgets, whilst maintaining a “whole of system approach”.

As housing affordability affects the growing number of people without secure, affordable housing options in Australia, this report presents a significant area of research whereby innovative housing typologies may emerge in the housing market. Learning from an established and successful typology in a country with similar housing development models to Australia, the research has the potential to contribute and further the understanding of design and construction in the housing affordability discourse.

This report is particularly relevant now, as subsequent US Government’s changes to the regulatory systems, aim to reduce, simplify and repeal “overly burdensome” rules and regulations.⁵ Learning from and documenting the successes of the manufactured housing industry in America has never been more important.



*It sometimes seems that the mobile/
manufactured home was destined to be
either despised or ignored by housing
professionals... [Yet] no other housing
form comes close to the manufactured
home for sheer volume, speed, and value
for money.*

- Colin Davies -



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2

Defining Manufactured Housing

4

Part of the stigma and perception of manufactured housing as ‘low class,’ or as being less than a house, stems from a misunderstanding of what manufactured housing is, and how it differs from other types of moveable dwellings. The terms below are relevant to the US, and are what is used throughout this report. The legal definitions in Australia will be further discussed later in this report.

The generalised term moveable dwellings encompasses mobile homes, recreational vehicles (RV’s), travel trailers, manufactured housing, and now tiny homes. Arthur D. Bernhardt, in *Building Tomorrow*, defines a moveable dwelling (most specifically aimed at mobile homes) as:

*constructed to be towed on its own chassis, connected to utilities, and designed without a permanent foundation for year-round living. It can consist of one or more units that can be joined into one integral unit, horizontally or vertically.*⁶

However, manufactured houses are not the same as mobile homes, despite their history being intrinsically linked. Instead, the Housing and Urban Development (HUD) Code legally defines a manufactured home as:

A structure, transportable in one or more sections, which in the traveling mode is 8 body feet or more in width or 40 body feet or more in length or which when erected on-site is 320 or more square feet, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing,

*heating, air-conditioning, and electrical systems contained in the structure.*⁷

This is the definition used throughout this report to refer to the affordable housing typology ‘manufactured housing’. To differentiate between manufactured, mobile, modular, panellized, and trailer homes, Freddie Mac (the Federal Home Loan Mortgage Corporation) provides the following differentiations:

Manufactured Home: *Factory built to meet the performance standards or the HUD code, MUST have a chassis, rarely moves once placed.*

Mobile Home: *Typically refers to units built before 1976 and most similar to a trailer; occasionally used to refer to units built after 1976, despite the fact these units are technically (and legislatively) defines as manufactured homes.*

Modular Home: *Factory-built with some on-site assembly and some on-site construction, built to meet prescriptive standards of state and local codes. Chassis is optional.*

Panelized Home: *Factory-built panels are assembled on site and supplemented with on-site construction to meet prescriptive standards of state and local codes.*

Trailer Home: *Can be hitched to an automobile and moved, NOT built to a federal code. Also referred to as campers.*⁸

To further complicate matters regarding small or prefabricated and moveable dwellings are the new 'Tiny Homes' which often meet the definition of a travel trailer (caravan) and are registered by as vehicle with the local roads service. However, manufactured housing builders often have smaller models known as 'Park Models' which also meet this definition, and can be considered to be almost synonymous with 'Tiny Homes'.

In addition, there are parks emerging in America which are park model only communities. As these are considered RV's (recreational vehicles) or travel trailers they are not discussed in length within this report. However, it should be noted that many of the companies discussed within this document also build park models in much the same way as they do manufactured housing, and utilise the existing infrastructure of the manufactured housing industry (including finance, insurance, transport, and communities) to build these tiny house or park model communities. In America, legally manufactured housing cannot be placed within an RV park, and needs to be separated by a physical fence, as well as operated under different licences.

THE HUD CODE REGULATING MANUFACTURED HOUSING

The Housing and Urban Development (HUD) Code is credited as the biggest change to the mobile and manufactured housing industry, and established the manufactured housing industry as it is today. The Department of HUD established the code, officially known as the Manufactured Home Construction and Safety Standards (MHCSS), in 1976 after Congress

passed the National Manufactured Housing Construction and Safety Standards Act, which was updated in 2000.

The HUD Code regulated the construction of manufactured housing nationally, so that manufacturers did not have to adapt the construction of products to different state requirements (though this still happens to an extent in regards to aesthetic and character requirements). These federal standards regulate all aspects of construction, including design and construction strength, durability, transportability, fire resistance, and energy efficiency. The intent of the code was to move manufactured housing beyond mobile homes and provide quality, durable, safe and affordable housing options which were comparable to site-built homes. The performance-based construction standards also aimed to encourage innovative, cost-effective manufacturing techniques for manufactured homes.

Congress also authorized the establishment of a Manufactured Housing Consensus Committee (MHCSS) to assist HUD in the development, revision and interpretation of the MHCSS. The Manufactured Housing Consensus Committee is comprised of a balanced group of users, producers, general interest and public officials who meet on a regular basis to work on recommendations for revisions to the MHCSS.

In addition, it authorized HUD to establish minimum manufactured home installation standards that could be adopted by states to provide for the initial installation of new manufactured homes and a program to provide for the resolution of disputes between consumers, retailers and manufacturers.

MANUFACTURED HOUSING, TENURE AND LAND USE CHANGING OWNERSHIP MODELS

In addition to being manufactured under the HUD Code, manufactured housing can either be placed onto private land or within a manufactured housing community. Housing placed within communities are more commonly associated manufactured housing, however often have negative associations with trailer parks. In contrast, private ownership, where private land owners purchase a manufactured house for their own use, is now the dominate form of tenure for manufactured housing.⁹ In addition to varying land use, manufactured housing can fall into different tenure typologies, such as renting in addition to ownership models. This means residents of manufactured housing fall into three main categories: owner-occupiers on private land; owner-occupiers on rented land (either in an established community or other land options); residents renting both manufactured housing and land (either separately or both from the same party).

The process for placing a manufactured house on private land is much the same as a normal site-built house in terms of approvals and process, however many some zoning restrictions may apply to traditional manufactured housing, which has resulted in the emergence of the modular housing industry which produces housing almost identical to manufactured housing without the chassis and some other inclusions such as garages (discussed further later).

In contrast to traditional ownership, when a manufactured home is placed into a community, the community is Byera Hadley Travelling Scholarships Journal Series

known as a 'land-lease community.' This means residents pay a monthly rent to the community for the land and shared services or amenities. This removes the upfront cost of purchasing land with a house, and reduces the loan required by residents. It is often a way for low-income renters to break into home-ownership without large home deposits required for traditional mortgages. Each of these options have differing levels of affordability and stability for residents. For example, US manufactured housing academic Esther Sullivan has documented the instability some residents experience when manufactured housing communities are sold.¹⁰ While further research by Sullivan and Noah J. Durst has called into question some of the long held beliefs of manufactured housing affordability and its relationship to manufactured housing communities.¹¹ While programs from the government supported enterprises Freddie Mac and Fannie Mae are attempting to address some of these issues. These will all be discussed further throughout this report.

IMAGES TO RIGHT: Williams Estates and Peppermint Woods manufactured housing community in Middle River, MD. The top two images show two renovated mobile homes which were built pre HUD code, while the bottom row shows a single wide manufactured home with carport and a more modern double wide articulated manufactured home, both built post 1976.



3

A History of Manufactured Housing

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To look at the history of manufactured housing, is to look at the history of the moveable and mobile homes from which the housing typology originated. The mobile home and its modern day counterpart, the manufactured home, began its days as auto-camping - popular with the upper class and even presidents - onto the glamorous travel trailer to the temporary wartime and veteran housing finally to the manufactured, affordable housing we know today. However, the typology has been stigmatised by a history of unwelcome and unwanted travellers, uncertainty and instability in dwelling, and unfamiliarity and misconception. It is from this history we can begin to understand how the mobile home went from the 'house of the century,'¹² as Colin Davies refers to it in *The Prefabricated Home*, to the much maligned and stigmatised 'trailer trash' reserved for the lower class.

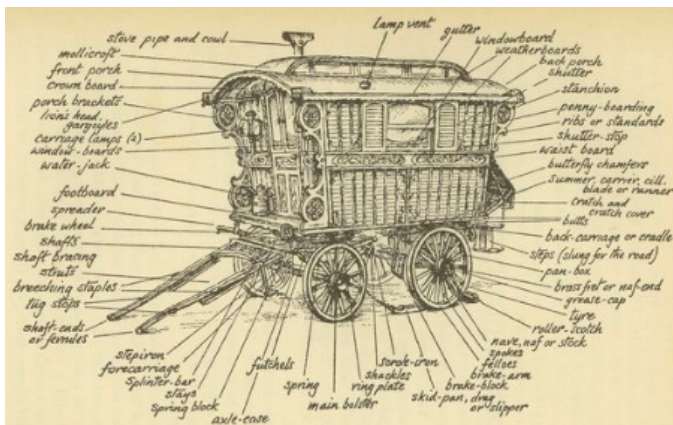


Diagram of a 'vardo' or gypsy caravan¹³

1500's

It can be considered that the first moveable homes, where those of the Romani people (also known as Gypsies) in the 1500's. Designed to be towed by horses, these caravans were known by their owners as 'vardo.' It was rare for a vardo to be built by its owner, and instead they were often commissioned, lavishly decorated and painted in bright colours. Unlike many of the later American covered wagons, they also often included stoves for cooking and a flu.

1700-1800's

The Conestoga Wagon or plain Covered Wagon was the American version of the Vardo. A wooden wagon, with large spoked wheels and covered in calico was used by American settlers as they trekked from east to west, looking for new areas to inhabit, following the Louisiana Purchase in 1803. Whereas the connotations of the 'nomadic' Romani people were negative and stigmatised, the settlers and their covered wagons were associated with "heroes" of the frontier.

However, later in the 1800's wagons pulled by horse and cart became home to a wide variety of travellers including circus folk, minstrels, salesmen, and tent-revival ministries. These types of travelling groups were often seen as 'outsiders' and this type of nomadic lifestyle may have added to the stigma of the later mobile home.

1870's

Some consider that the first 'mobile homes' in America were those in the Outer Banks region of North Carolina. They were designed as beach front properties, capable of being moved by teams of horses, however their place

The mobile home may well be the single most significant and unique housing innovation in twentieth-century America. No other innovation in the spectrum of housing activities - from construction, tenure, and community structure to design - has been more widely adopted nor, simultaneously, more broadly vilified.

- Allan D. Wallis -

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as the “first mobile homes” is contestable, as the houses were ‘moveable’ not ‘mobile’ and sat on in-situ piers above the water. These houses also had little influence on later travel trailers which began the mobile home movement in America 50 years later.

1890's

In 1893 the World's Columbian Exposition in Chicago, Romani caravans were exhibited, with lavish style caravans displaying four posters beds, folding doors, storage space, portable stoves, and painted, carved decorations throughout. However, The English travel trailer was much more influenced by these Europeans Romani caravans, and Americans still looked to their ancestors' own covered wagons as the inspiration for travel trailers.

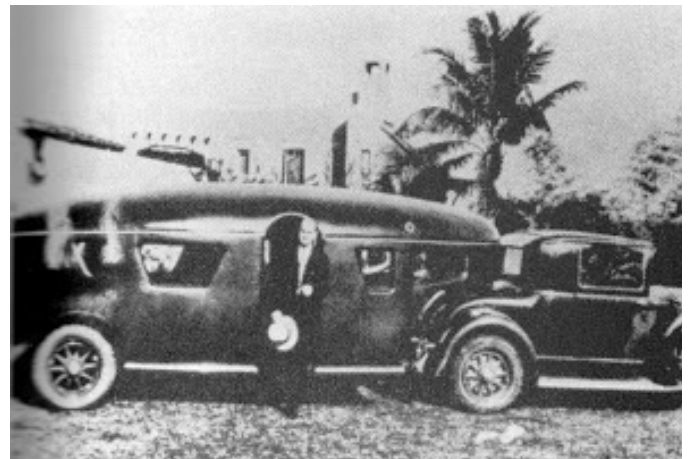
1900's

By the early 1900s, the English were building custom vans, based on this ‘vardo’ design; and Americans had devised a fifth-wheel hitch for their cars in order to attach a travel trailer.

1910's

With the invention of this ‘fifth-wheel hitch’ Glenn Curtiss, an aviation pioneer, was able to design and build his own customer travel trailer, the Aerocar, in 1919. Curtiss referred to the Aerocar as a ‘motorised gypsy van’ or ‘motor bungalow’ harking back to the original wagons. It featured rounded edges along with a gooseneck which sat over the rear of a towing car. Automobile and Travel Trailer magazine described the Aerocar as having four Pullman type berths, wardrobes, running water, a telephone and “an airplane type observatory cockpit

forward with a glass roof.”¹⁴ The Aerocar finally went to commercial production in the late 1920's, however was not as popular as other options at the time and went out of production in the 1930's.



Glenn Curtiss and his Aerocar, 1922¹⁵

1920-1930's

The 1920's saw a huge rise in the popularity of auto-camping, due in part to its popularity with presidents and other distinguished men, as well as an increase in car ownership. The car represented a sense of freedom, as did auto-camping, but also brought together families in travel and holidaying. Traveling away from home to a new and exciting place, while sleeping in the car or a tent beside the road, was a break from the mundane.¹⁶ In 1922, the New York times estimated that there were over 10 million cars in the US and that almost half of them were

being used to auto-camp.¹⁷ This number was estimated to peak at 20 million auto-campers in the next few years afterwards.¹⁸



Auto tourists camp in Washington DC in 1923¹⁹

Whilst the trailer parks were emerging and changing, so too were the new travel trailers which would start the boom. Following on from Curtiss' Aerocar, 'low-tech' models were popular with the middle class, often created by families for personal use before moving into business. One such product was the Covered Wagon by Arthur Sherman. Sherman created his own travel trailer from wood and canvas with a drop-down cooking space, and after gaining popularity among acquaintances, Sherman setup a production line with two cabinet makers in 1929. These trailers were designed as a 'home away from home,' but had no indoor plumbing. In addition, DIY trailers were very common during this

period and construction manuals could be purchased to build a travel trailer at home from local parts.

1930's

By 1936, Covered Wagon was the largest manufacturer of travel trailers, but more than 80,000 were produced that year by 400 different manufacturers.²⁰

The beginning of the 1930's saw travel trailer's popularity as a luxury fashion accessory grow. Futuristic styles like the Road Chief and Silver Dome became more common, as older styles like Sherman's wagons began to lose popularity. In addition, the iconic 'streamlined' Airstream Clipper went into production.

In addition, the 1930's saw new mechanical and electronic innovations including hydraulic brakes, stronger steel channel frames and carriages, ball-and-socket couplers, windows that slid into walls rather than being opened outwards, safer stoves, and the inclusion of fridge-freezers. Will the main body of trailers were still made from oak, elm and airplane spruce, they were mostly clad with steel covered plywood. In addition, the interiors became more liveable with electric lights, heaters, and ventilators.



A 1936 Airstream clipper and Lincoln Zephyr²¹

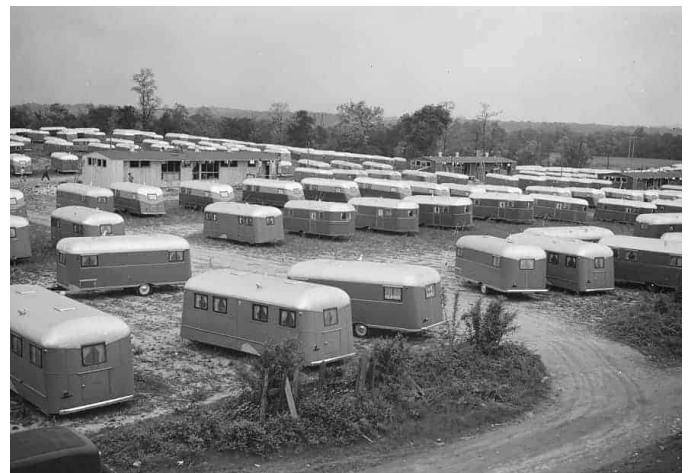
While the stigma of the travelling gypsies had mostly been forgotten in the form of the luxurious travel trailer, the depression began to change the perception once again. Whereas the travel trailer had been a symbol of fun and freedom for the middle to upper classes, it soon became the only homes affordable and available to the poor and unemployed.

1940's

With these technical innovations, the mobile home was born as people began to spend longer amounts of time in their travel trailers. However, it wasn't until World War II that production and uptake of mobile homes increased dramatically. It was during this period that the government purchased and placed mobile homes near factories and plants to house workers.

As soldiers returned from war, many were in search of hard to find employment and needed housing quickly and cheaply. A shortage of affordable dwellings which were large enough for new families, meant many turned to mobile homes. These new dwellings allowed the returned soldiers and their families to travel with their families dependant on work opportunities. One of the largest examples of these worker's communities was in Michigan outside the Willow Run Bomber Plant. Formed by the War Department in 1941, the plant had over 42,000 workers, half of which lived in the nearby mobile homes communities.²²

In the early 1940's, mobile homes averaged approximately 2.4 metres by 6 metres, with three or four sleeping areas but no bathrooms. However, by 1948 mobile homes were growing up to 9m in length with internal bathrooms.²³ This led to residents using mobile homes as permanent residences, with foundations on-site.



Mobile home camp during WWII

1950's

Permanent versions of mobile homes began to be marketed on permanent foundations and with extended widths over 3m. Wallis notes in his book *Wheel Estate*, that this was a turning point for the mobile home from a transient dwelling to the potential for long term occupation.²⁴ However, many homes were still predominantly used as mobile homes for transient workers, vacationers, and retirees. The over-55's became a burgeoning market, travelling south each winter, creating 'snowbird' mobile home communities.

In 1955 Trailer Estates became the first permanent mobile home subdivision in the country. The community was 160 acres in size, with 12m x 18m individual lots, and highly planned with resident social well-being in mind.²⁵ In addition to a full social calendar, the park included a post office, grocery store, and 1,400 seat auditorium.

1966 Advertisement for New Moon Homes, Dallas TX.²⁶

the happiest home of your life...



spacious, carefree, and furnished throughout ... can be yours for less than \$7000!

And all you need to set up housekeeping are dishes, linens, and silverware! *Everything else...* from kitchen appliances to living room drapes... is provided, ready for instant occupancy.

Whether you're planning your very first home or you've retired, consider a New Moon.

So many others have... and happily found it to be all they'd hoped for... that New Moon has become the *best selling* home in the nation.

There are 22,000 mobile home parks throughout the country, offering over one million mobile homes sites...

Write for free folder... or visit one of New Moon's more than 700 dealers.

NEW MOON homes
A PRODUCT OF REDMAN INDUSTRIES
Dept. 56 / 7800 Carpenter Freeway • Dallas, Texas

1960's

Mobile homes became common as long term living options, and as a result two section or 'double-wide' homes became popular options for families. In addition, homes incorporated more modern conveniences and appliances, marketing themselves as alternatives to traditional site built dwellings. It was during this period that the Mobile Homes Craftsman Guild developed also a specific construction code for mobile homes.²⁷

1970's

At the end of the 1960's, MIT established the first large scale academic study of mobile homes which ran for 7 years, culminating in Arthur D. Bernhardt's iconic book 'Building Tomorrow.' It was during this decade that mobile home ownership peaked, with one mobile home was built for every three site-built homes.²⁸

However, in 1976 the United States Congress passed the National Manufactured Housing Construction and Safety Act, often referred to as the HUD Code, managed by the Department of Housing and Urban Development. This code ensured all homes were built to a rigid standard nationally, Most notably the chassis system under the home was predominantly used to transport the house to site, and almost all homes now longer had wheels, but sat on permanent foundations.

1980's

The 1980's saw congress replace the term Mobile Home with Manufactured Housing. This represented the shift away from 'transient' or temporary housing, towards a more established and regulated housing product. Part of the move towards making manufactured housing a 'secure' choice included the introduction of new safety



measures such as hurricane straps which anchor homes to the ground.

1990's

Despite upgrades in the 1980's, Hurricane Andrew in 1992 was particularly destructive for manufactured houses, hitting a number of communities. Even stricter safety regulations were implemented, however a stigmatisation remained. Davies notes in *The Prefabricated Home*, that manufactured home sellers have attempted to address many of these concerns through promotional videos, highlighting the changes in regulations and the similar outcomes for site-built houses at the time.²⁹

Despite a decline in market share from the 1920's, more manufactured homes than ever were being sold in the 1990's, due to solid financing options, affordable prices, and demand from buyers wanting an affordable home for their private land or for living inside a pre-existing mobile home community.

2000's to Present

However, the 2000s saw a steep decline in new mobile and manufactured home sales. Similar to the sub-prime mortgage crisis, the manufactured housing industry was afflicted by a series of bad loans, over valuations, and defaulting prior to the Great Recession. This, in conjunction with the recession which affected the US and housing markets globally, almost decimated the industry. Many builders and dealers went out of business and low real estate prices and stricter lending requirements have contributed to keeping manufactured home sales low. However, the industry is beginning to rebound with the introduction of new modular-manufactured hybrids

supported by Freddie Mac and FannieMae. In addition, manufactured housing still counts for 10% of all new detached homes built in the US and house over 22million people, making it an important part of affordable private market housing.³⁰

IMAGE ABOVE: Oakwood Homes display lot in Virginia.

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The Manufactured Housing Industry in the USA

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In 1980, as part of the MIT Mobile Housing project, Arthur D. Bernhardt theorised that the mobile home industry had three major areas which make up the ‘loose fit’ system: the production system (manufacturers); the distribution system (sales centres); and the park system (owners and operators of the communities), complimented by secondary environments.³¹ However, the manufactured housing industry today, while having arisen as an extension of the mobile home industry, is structured in a slightly different manner.

Bernhardt originally theorised that the three functional systems within the mobile home industry were independent, with most firms specialising in one area. However, these systems were highly inter-dependent on one another for success, and required supporting and regulatory environments to function. This is depicted in his diagram [opposite], which illustrates the various relationships between these systems and environments.

The Production System

The manufacturing system is probably the most obvious part of the manufactured housing system, and the one whose role has changed least since Bernhardt’s diagram. The manufacturers provide the housing product including design and construction services, meeting customer expectations within regulations. Manufacturers rely heavily on the supply sector for materials, and practices are dictated by building regulations (now the HUD code).

The Distribution System

Originally, Bernhardt noted that the retail centres act as a “coordinating agent” between manufacturers and purchasers, often linking buyers with community

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operators and guiding them through the approvals process. In the 1970’s this was mostly in the form of ‘trailer rows,’ much like car-yards, with models on display. Bernhardt places a high value on this system noting it “separates and protects the highly centralised production function from the fragmented, localised functions of marketing, consumer financing, and land development.”

The Park System

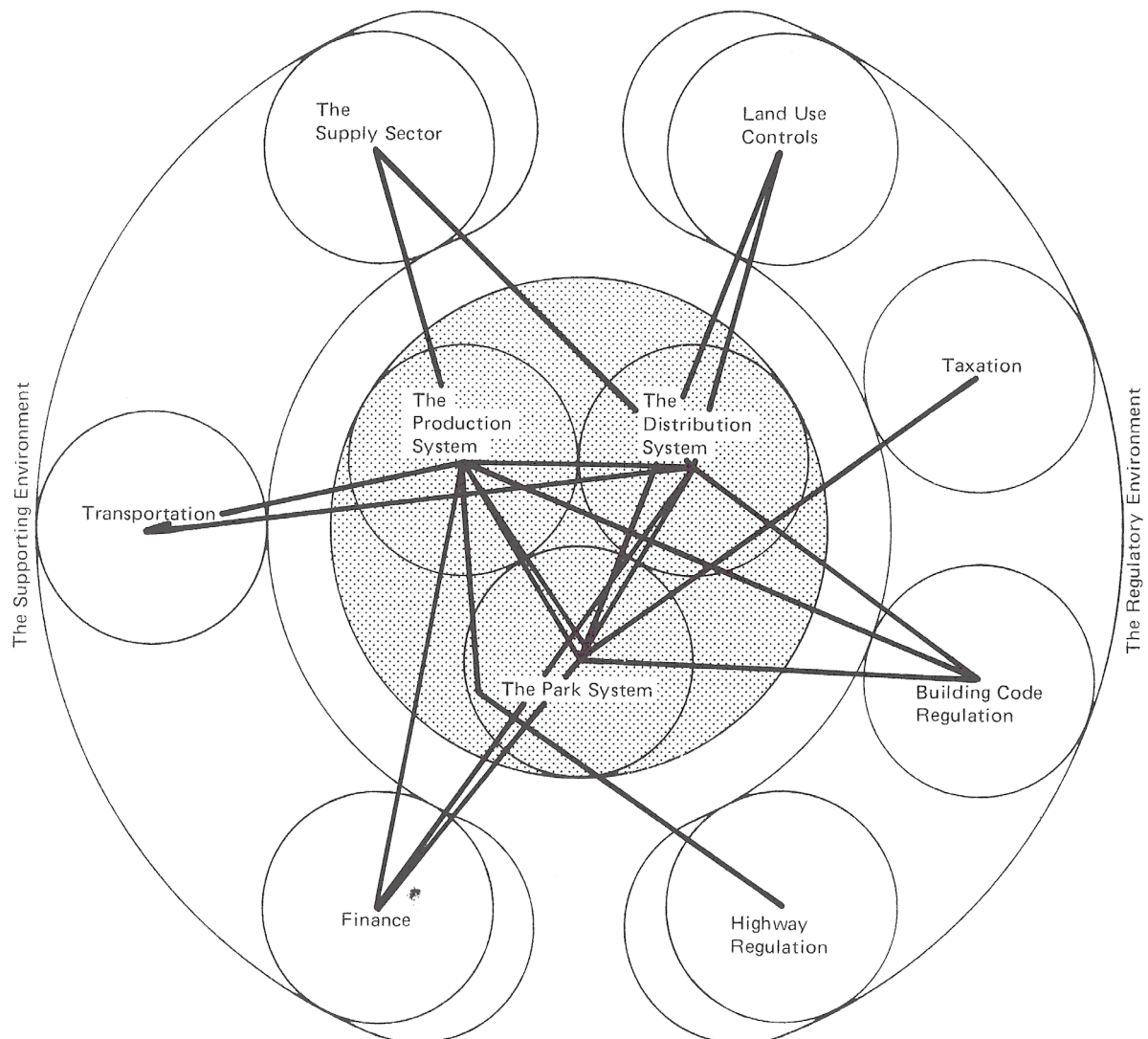
At the time Bernhardt wrote *Building Tomorrow*, half of all mobile homes ended up in the parks, and appropriately he noted they were the “final agent” in delivering mobile homes. These community operators take on the management and ownerships of land lease communities, creating alternate development, ownership, and finance opportunities for residents.

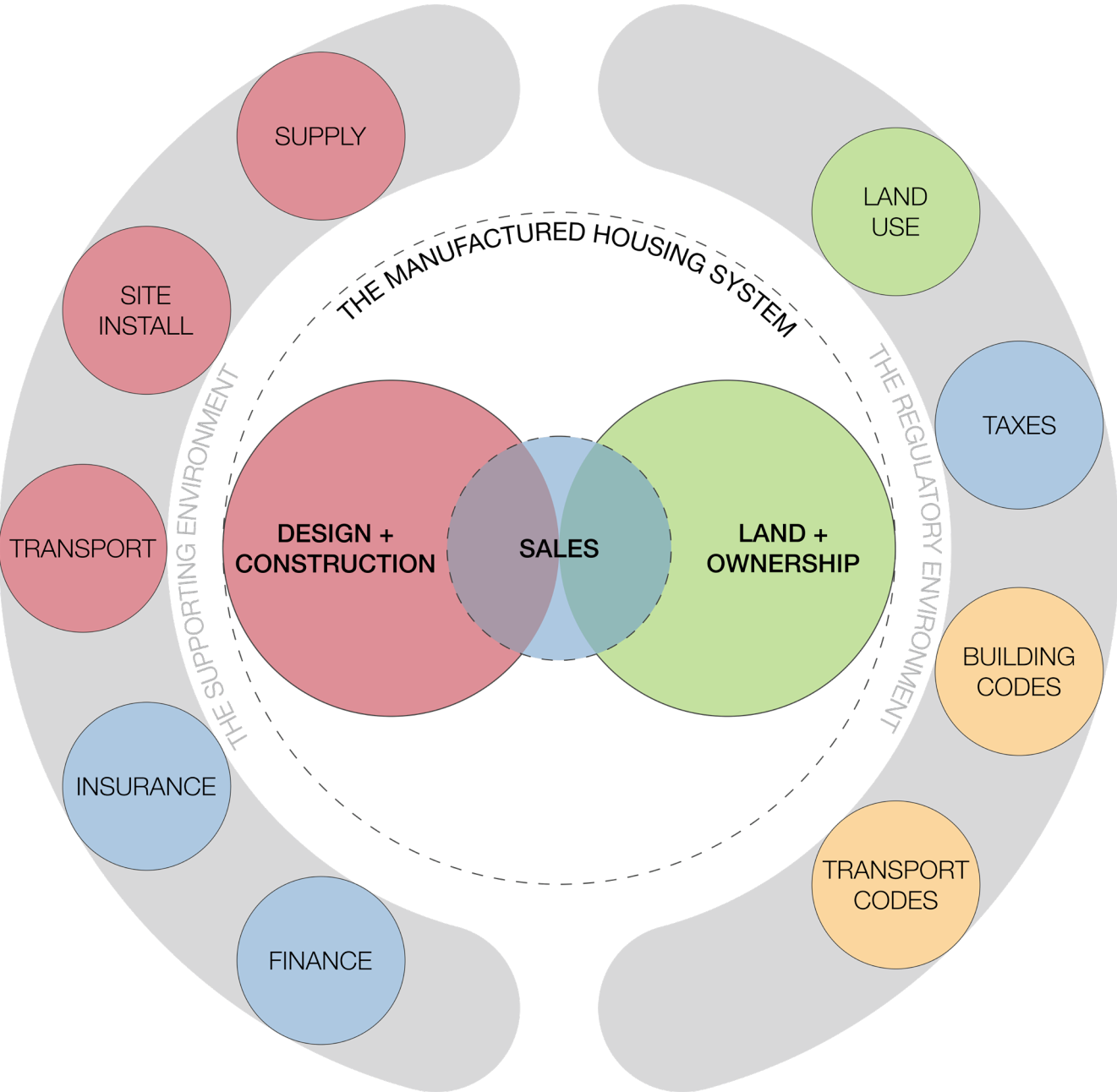
The Supporting Environment

The Mobile Homes industry was borne out of similar mass-production and assembly line industries, which were aware of the need to align their systems with supporting industries, which Bernhardt noted included the supply sector, transportation, and finance.

The Regulatory Environment

Despite being written prior to the implementation of the HUD Code, Bernhardt notes that the mobile home industry was “able to develop only through concerted efforts to integrate its production, distribution, and park systems with its regulatory environment on a national scale.” This included land use controls, taxation, building codes, and regulation in regards to road transport.





While Bernhardt's diagram was revolutionary at the time it was published, it focussed on the mobile home industry rather than the emerging manufactured housing industry. The new manufactured housing industry was very similar to that of the mobile homes, but there were subtle differences which have since been compounded. In the USA, the sub-prime mortgage crisis lead to a major shift in the industry following the housing crash and subsequent "Great Recession" in 2008. While the mobile home industry was once highly individualised and flexible, working between individual producers, distributors, and community owners as Bernhardt theorised, today the industry tends to be dominated by individual, larger companies which integrate manufacturing, retail, finance and insurance segments within their business.

From this it can be considered that the distribution system now heavily overlaps with the production and parks systems, rather than being a purely standalone alone element. Bernhardt's original diagram shows the collaboration between many independent parties; however, a new paradigm where individual companies take on much of the risk, as well as the benefits, is beginning to emerge today.

Many of the larger companies (such as Clayton Homes, Skyline Champion, and Cavco) now integrate the supply, installation, transport, insurance and financing, as well as manufacturing and sales. They are supported by a complex system that incorporates independent sales centres, manufacturers, suppliers, banks, real estate investment trusts, GSEs, land lease communities, zoning, national regulation and policies, and many other parties. Bernhardt's diagram also fails to take into account the

residents as a separate entity, and today, purchasers of manufactured homes are more than twice as likely to place their newly purchased home onto private land as they are to place it into a community. From this it can be considered that the 'Park System' as posited by Bernhardt, is now more focused on land and ownership models, whether that be in a land lease community or on private land.

Exploring these areas provides a more holistic understanding of the development and financial models at play within the manufactured housing system, as well as the architectural, constructional and ethnographic aspects, to better distinguish how each aspect contributes to the affordability and continued success of the manufactured housing industry within an American context.

IMAGE LEFT: The Modern Manufactured Housing System, author's own, adapted from Bernhardt's 1980 diagram.



THE PRODUCTION SYSTEM MANUFACTURING, DESIGN + CONSTRUCTION

The manufacturers are the first aspect which comes to mind when thinking of Manufactured Housing, and the most clearly defined aspect of the industry. These companies have a factory, or series of factories, which are used to produce manufactured housing to the HUD code, which is then put onto either private land or in a manufactured housing community.

A survey of some of the major manufacturers in America provides an insight into the design and construction of manufactured homes. Through the industrialisation process, these manufacturers have the ability to reduce the time and cost needed to produce a house, whilst needing to comply to the National Housing and Urban Development Code.

In 2017, the median size of a manufactured house was 1,278sqft (119sqm), and 81% of sales had 3 bedrooms or more, with a median sales price was \$US71,900. When comparing the size and costs of housing compared to site-built housing, the Manufactured Housing Survey stated the average cost of a site-built house at the time was \$384,900, of which \$91,173 was the derived land value, making the average manufactured house \$313,000 less to purchase upfront (if placed in a manufactured housing community) or \$221,827 less expensive to build. Indeed, looking at cost per square foot to build, manufactured housing comes in at \$50/sqft while site-built housing averages \$111/sqft, meaning two bedroom houses can start at as little as \$30,000 brand new.

The best way to measure the size and scale of manufactured housing companies is through the number of houses manufactured, rather than sales which is a complex area, and split between wholesale and retail sales depending on the company structure (discussed later).

There are 129 manufacturing facilities across the USA, managed by 34 US Corporations, and in 2018 the industry built 96,540 manufactured houses. This number is about a quarter of production highs which peaked in the late 1990's, but has almost doubled since the low of the GFC in 2008. However, the manufactured housing industry is dominated by 3 major players which account for 78% of all housing built: Clayton Homes - 50%; Skyline Champion - 15%; and Cavco - 13%.

Many companies operate multiple brands under a larger manufacturing umbrella for various reasons, the most common being the acquisition of smaller companies while retaining their original branding. In some cases, acquired factories maintain their names and branding if it benefits the parent company, while others are merged into the company's existing brand identity. Additionally, some companies create separate brands to target different customer segments. For instance, Clayton oversees eight home brands, 13 manufacturing brands, three supplier brands, four financial departments, and 10 modular and site-built brands. This complexity often makes it challenging to differentiate between market players and can complicate relationships among independent manufacturers, sales teams, and communities.

There has been a distinct change in industry towards

the whole of system company approach, whereby companies are vertically integrated. While this allows companies to retain profits, keep overheads lower, and be more resilient in turbulent markets, benefits are not always passed on directly to consumers.

In addition to HUD Code manufactured houses, most facilities also make Modular Homes. Modular Homes have emerged as an off-shoot of the manufactured housing industry as a way to circumnavigate planning restrictions which may prohibit manufactured homes from being placed in certain zones. These modular homes are almost identical in design, but differ in that they do not have a chassis and cannot be moved once placed on site. As these modular homes are not assessed under the national HUD Code, they often have a higher roof pitch, higher insulation values, and different finishes dependant on state based regulations and codes.

While many companies have a network of manufacturing facilities, most seem to work independently from one another. This is likely due to the process of acquisitions, whereby many companies expand their manufacturing capabilities through purchasing existing plants, often leaving the factory to continue operations in much the same way. However, those companies with multiple facilities, can rely on others to 'pick up the slack' and fulfil orders which are beyond the capability of another factory,

Like many housing construction projects, manufactured housing goes through both design and construction inspections to ensure they meet standards. These inspections are completed by Primary Inspection

Agencies (PIAs). Each company either utilises a state-based PIA or contracts one of the HUD approved independent PIAs. There are two types of PIAs: the Design Approval Primary Inspection Agency (DAPIA); and In Plant Inspection Agency (IPIA). The DAPIA reviews drawings, documentation, specifications, and installation details for approval before construction begins. These PIAs take on a role similar to the of a Principal Certifying Authority (PCA) in approving a Construction Certificate, and ensure that if the home is built to the documentation set its will meet the Manufactured Housing Construction and Safety Standards. The IPIA observes the manufacturing facilities and the construction of each manufactured home, to ensure the manufacturer has the ability to meet standards.

In addition to pre-construction and in-plant inspections, manufactured houses also need to be set up on site and inspected to ensure the installation meets standards and has not damaged the house. These on-site inspections are purely for the installation standards including foundations, connections and services, and the house itself is not inspected again except for any damage that may have been incurred during transportation or installation.

One aspect which was of interest throughout this research, was the camaraderie and sense of "family" within the factories, with many workers displaying close friendships both between themselves and with management.

Despite the HUD code which is all encompassing for the construction of manufactured housing, local authorities

may have their own design and planning requirements which products need to meet in addition to standardised construction codes. This means a lot of the products may have to be custom made, and factories which service many states need additional staff locally to interpret codes. This often falls to sales centres which are locally based and know the area and consumer well.

Additionally, on-site builders have varying wages based on state laws, demand and availability, which can affect pricing of products nationally. In contrast, factory workers have a standard fixed rate by state which is more standardised. These rates have allowed certain states to house more factories due to lower wages for workers.

Factories are sensitive to small changes in construction and process - even though it may be essentially the same action or task, the change in directive can stop a factory line and set the project back weeks.

Currently the manufacturing process is very 'hands on' and labour intensive, with building practices being very similar to those completed on site. The efficiencies come through having multiple people working on the floor, specialising in a certain task which they become faster at completing. However, the industry is moving towards the integration of more automated practices, and Skyline Champion recently established a fully automated facility in Louisiana.

Despite minor changes to automation, amalgamation, and increased energy efficiency requirements, processes for manufacturing these houses have remained fairly static since the industry's establishment, and innovation

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appears to be found in other aspects of the industry beyond the nationalised and systematised construction alone.



IMAGES: Clayton Homes factory, from the Clayton Homes interactive facility tour available at <https://www.claytonhomes.com/dreamtoreality/interactive-facility-tour/>

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Case Study 1: Cavco Durango, Phoenix AZ

Cavco is the third largest manufacturer in the United States, accounting for 13% of all manufactured housing built in 2018. They sell their homes mostly through independent dealers or developers, which account for about 83% of sales, in addition to their company-owned retailers.³³ Following a recent acquisition of Destiny Homes this year, Cavco employ almost 5,000 people across 20 manufacturing facilities.³⁴ These facilities range anywhere from 79,000-341,000sqft internally, and have a range of 110-400 workers in each facility.³⁵

Like many other companies in the manufactured housing industry, Cavco has a number of other brands within its company including Cavco, Fleetwood, Palm Harbor, Fairmont, Friendship, Chariot Eagle, Lexington, Nationwide Homes, and Destiny Homes. Cavco acquired Fleetwood in 2009, which was previously the largest manufacturer of houses in 2007, but had filed for bankruptcy as a result of the GFC. As part of this acquisition, Cavco obtained 7 of Fleetwood's manufacturing facilities. In addition to manufactured homes,

Cavco also produce RV park models, vacation cabins, and systems built commercial structures. It's this diversification that led Cavco to continue to expand during the GFC, despite manufactured housing shipments falling to a 41 year low at the time.³⁶ This success was particularly due to Cavco's park models - a 400sqft (37sqm) that is usually placed in RV parks, but is also popular with 55+ communities and retirees.



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Case Study 2: New Era Modular, Strattanville PA

New Era Building Systems is a modular house building in Pennsylvania which falls under the Skyline Champion company umbrella. New Era manufacture approximately 90% modular housing which is placed onto private land, and 10% HUD code manufactured houses, all of which tend to be for 55+ communities. They service over 20 states from Vermont to South Carolina to Iowa to Kentucky.

Like many factories, New Era was built out of the closure of a previous builder who went out of business. Stratton Homes closed in 1992 and New Era began manufacturing soon after, before Champion acquired the company in the early 2000's, before going bankrupt in 2011. Following a gradual claw-back and merger with Skyline, Champion Skyline is now the second largest manufactured house builder in the US. Aside from New Era, Champion Skyline also includes brands such as Skyline Homes, Champion Home Builders, Athens Park Model RVs, Dutch Housing, Excel Homes, Homes of Merit, Redman Homes, Shore Park, Silvercrest, Titan Homes.

Champion are pushing for their manufacturers to sell predominantly through company sales centres, however due to its long history in the area, New Era mostly sells their products through independent retail centres. The relationships built with these sales centres are a strong part of their business model

Companies like New Era, which produce modular housing were born out of a need to provide a lower-cost housing option that was suitable to be placed in multiple zoning areas, avoiding the restrictions on manufactured housing placement. However, there has been a push in recent

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years to reduce these restrictions on manufactured housing placement, which leaves the place of the modular industry in doubt with fears it will be marginalised within the market.

The factory isn't necessarily involved in the acquisition of planning approvals, but does have a lot of involvement with them due to the changes they incur within the factory. For example high wind areas increase the needs for strapping and higher structural elements which can affect the cost by as much as \$1500 (as opposed to the usual \$350). While this doesn't seem like a huge cost increase, the budget of customers are often tight, and for New Era even though "a couple of hundred dollars has never killed a project but \$3,000 definitely does."

A big difference between HUD manufactured houses and modular houses are the structural elements - moving from a 2x4 stud to a 2x6. This is not due to differences in structural requirements, but is in fact to do with stricter site-built insulation requirements, and the extra depth is needed to accommodate thicker insulation batts. Another difference is the roof pitches. While many think this is due to snow loads or shedding water, the difference in pitches is mainly aesthetic and considered to be 'higher end'.

For New Era, almost 85% of their housing is customised beyond the standard floor plans, and about 70% of their modular product goes on top of basements. The HUD manufactured housing can also sit on basements, and the chassis is built around a stair opening for access. For New Era their foundations are also mostly piers, with very few if any slabs.



Case Study 3: Adventure Homes, Garrett IN

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Adventure was established in 2009 following the closure of a Fleetwood factory, and since then has become the fifth largest manufacturer in the US with 1.85% of all manufactured houses sold. However, they are one of the fastest growing manufacturers, and last year increased their production by almost 25%. They have also been awarded the 'Manufacturer of the Year' for the last four years by the Manufactured Housing Institute, making them one of the most awarded and well respected manufacturers in the US.

The factory produces 39 floors a week - this means the factory could produce 39 single wides, or almost 20 double wides each week. These 'floors' are sent along a single production line which houses single, double and some triple wide houses. The production line works on timing of about 45 minutes at each station, and slower jobs, like drywalling, go "off-line," taking about 1.5 hours before they are reintroduced to the line.

This manufacturing process starts with the flooring which is then prepared and sanded for lino which is put on before anything else. Next are the walls and kitchens, before insulation, roofs and then cladding. If the product is a double wide it is then checked for connections. Finally, the chassis is the last element added to the house due to the camber needed to properly support the house. All work is ticked off a hard copy "traveller" which goes through the line with the module and is signed off at every stage. There is no digitisation of the process within the factory.

Most of the single wides from Adventure go to communities, while the double wides tend to higher-end

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products going to either 55+ communities or private properties. Most of their products also use a drywall interior, rather than panels, as the product is considered to be better quality and easier to repair, particularly in rental communities. It's also rare these days for a home to go through without any customisation, and Adventure suggests that customisation is a standard for the industry and customer expectations.

Adventure is a single factory which is rare in the industry today, and they distribute their homes for sale through a network of 50 dealers in addition to community sales centres. Adventure also don't have a large online presence due to being a relatively new company, but some of their dealers may sell the products via their independent websites. It is also common for other companies to sell their products exclusively, and the 'Clayton Factory Direct' showroom beside their factory sells only Adventure, rather than Clayton built products. The company has found that due to a push from community operators to sell their own products, the majority of their sales are now directly through communities. They also feel that being an independent company allows them to engage more closely with the customer and allows greater customisation to their products due to the direct involvement of directors.

While manufacturers have competition within the industry and compete against one another for sales, Adventure's president Wally Comer, prides himself on breeding camaraderie between manufacturers, offering tours to other manufacturers. The company will also refer a customer to another manufacturer if for some reason they cannot meet their needs.



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THE PARK SYSTEM COMMUNITIES, RESIDENTS, MANAGERS + OPERATORS

Visiting manufactured housing communities provides critical insights into the design and evolution of mobile and manufactured homes. These observations reveal significant differences between modern multi-section manufactured homes and older single-wide mobile homes that have been expanded on-site. This contrast relays the desires of the people who live in affordable homes, and how people choose to expand their residences as their finances allow.

Manufactured housing is a substantial segment of the U.S. housing market, with approximately 22 million residents and accounting for 10% of all new detached house construction starts. This typology represents a vital component of the affordable housing landscape, blending design, community, and accessibility in unique ways.

Research indicates that manufactured housing communities possess distinctive characteristics contributing to their safety and social cohesion. A 2014 study conducted by the Department of Criminal Justice at the University of Nevada found that trailer parks exhibited the lowest rates of violent crime calls for service when compared to similar non-manufactured housing communities. The physical design of these communities plays a pivotal role in ensuring safety. The study highlighted that layouts promoting passive surveillance and clear sight lines, where neighbors have direct views of nearby homes, reduce property crime. Furthermore, the proximity of homes fosters a “community of guardians,”
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where collective vigilance makes illegal activity easier to detect.

Historical perspectives also suggest that these communities create a unique form of social interaction. Landscape Designer J.B. Jackson believed that contemporary trailer parks acted as blue-collar “villages” that encourage openness and hospitality. By promoting outdoor interaction and mutual reliance among neighbours, these communities foster a sense of collective identity, akin to a “super family” or a shared “us.”³² This contrasts with traditional middle-class housing designs, which emphasize isolation, privacy, and minimal neighbourly interaction. This was experienced first hand during my research, where I was approached multiple times by concerned residents asking what I was doing in the community, and when I explained my research, offered stories and anecdotes about the place they lived.

Part of the land-lease community model which is very attractive to manufactured housing residents, is often the access to communal facilities. While people may have small homes, communities may offer large rooms for gathering an entertaining, both for community gatherings, but also personal family functions such as birthday parties. This allows people to host events despite their budget not stretching to owning or renting a larger home. Additionally, there are often facilities such as parks, pools, playgrounds, mini golf courses, gyms and libraries, which are all covered in the land rental amount.

Integral to the cohesion of the community is the management team. Multiple residents spoke highly of their managers, but often expressed how the park was “so



much better now that” person “had left.” A lot of residents attributed community atmosphere to the management team, and praised aspects such as community letters and events, but also flexibility in payment options for rents and other operational aspects.

Community owners frequently serve as real estate agents and sales representatives within their communities, engaging in diverse activities such as advertising vacant lots, selling pre-owned homes and advertising rental options. Often if vacant lots are available residents may select new, customizable homes from partnered manufacturers to place on available lots. While some communities work exclusively with specific manufacturers, most allow residents to purchase homes externally. Communities also often act as intermediaries, earning commissions on sales or purchasing homes directly from residents for upgrades and resale. Many communities offer flexibility by listing homes for both purchase and rental, accommodating a broader range of potential residents.

However, the intersection of construction, design, planning, and financial considerations positions manufactured housing as a pivotal housing typology in the affordability debate. However, the growing influence of vertically integrated manufactured housing companies raises important questions. Many manufacturers now operate their own sales centers, often promoting their products or affiliated communities. This integration has implications for market competition, housing accessibility, and community dynamics, though its long-term impact remains uncertain.

These practices illustrate the complex interplay between community ownership, home sales, and rental dynamics, emphasizing the need for further investigation into the influence of large companies and community management models on the broader manufactured housing industry.

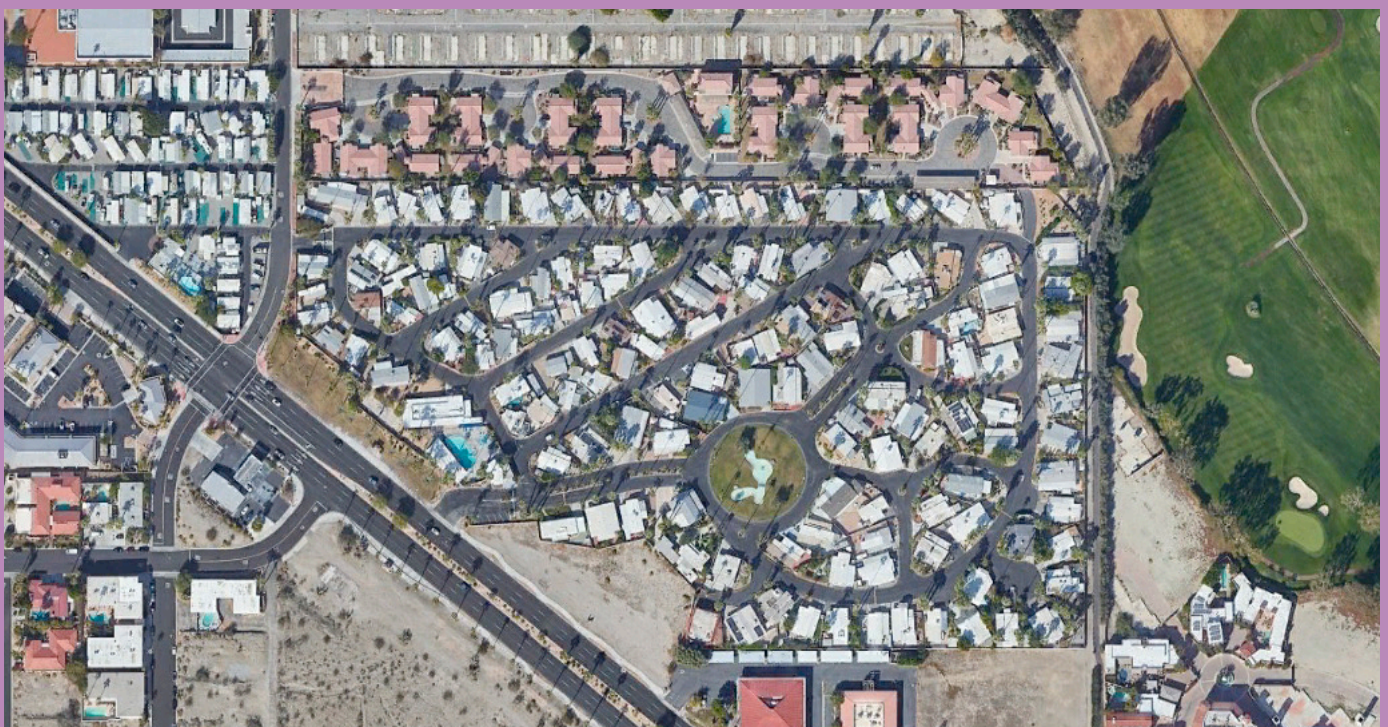
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Case Study 4: Blue Skies Village, Rancho Mirage CA

Built:	1945
Type:	55+
Operator:	UMH Properties
Size:	141 sites
Density:	18dw/hectare
Housing:	95% single wide, 40% peaked roofs, 75% lapped siding
Awards:	N/A

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Blue Skies Village is probably the most famous of the celebrity trailer parks, and was originally founded by Bing Crosby in the 1950's as a weekend get-away and playground for his many Hollywood movie star friends. However, the value of Blue Skies Village as a case study isn't in its celebrity past, but in the ways in which it documents how mobile homes can be renovated and restored to reflect the personality of a bygone era, while meeting the needs a modern community





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During the 1950's and 1960's over 30 trailer parks were located throughout the Coachella Valley, but in 1956, Blue Skies Village became the first architecturally planned mobile home park in the valley. The park featured landscaping, community services, architectural controls and well-designed roads named after the celebrity investors (Bing Crosby, George Burns, Gracie Allen, Barbara Stanwyck, Greer Garson, Jack Benny, Claudette Colbert and Danny Kaye).

Named after Crosby's hit song, Blue Skies was originally an escape for movie stars. However, following the exodus of celebrities and demise of mobile homes, the park is now used as a senior's village. The park was built in two stages - one in the 1950's and another half later in the century, when the name changed from "Blue Skies Trailer Park" to village, distancing itself from the now stigmatised low income housing.

Despite residing in the most expensive city in the desert, Blue Skies homes start at \$US100,000, where neighbouring properties often sell for millions of dollars. Unlike most other estates, the purchase price also includes the land rather than paying a land rent fee each month. In contrast, residents are required to pay a Home Owners Association fee of approximately \$US250/month. The HOA fees include water, basic cable TV, and waste collection. Amenities on site include a salt water pool and spa, putting golf green, and community clubhouse with large kitchen facilities. The HOA also gives owners more scope to extend and invest in their homes as permanent structures. The main functions of the mobile homes, including kitchen and bathroom have to remain within the existing structure, so additions often

function as large living spaces and entryways. These extensions are known as "ramadas" and the large sun room additions are referred to as "California rooms."

Despite the park being almost all vintage-style single-wide homes, the original homes are heavily modified with carports, living rooms, and decks built in-situ. These additions render the homes totally immobile or non-transportable. As demonstrated in the photographs above, the trailers also tend to be 'kitsch' or colourfully themed architecturally, with a high level of personal expression. Many are unrecognisable from their original design, while others maintain more simple mid-century style additions, typical of Palm Springs. Additionally, some have added spiral stairs and sun-decks to the roofs of homes, however, these are generally no longer allowed due to privacy and overlooking concerns.

Housing affordability and displacement is a hot topic within this area. Rancho Mirage City, and the city's Housing Authority, purchased two mobile home parks to the north of Blue Skies. While one has been redeveloped into housing, another has been left empty more than 15 years after purchase, despite displacing existing residents. These examples highlight the persistent idea that mobile homes are unsafe for occupation, while redevelopment is fraught, and communities are left without homes for years between.

Case Study 5: Rosewood Estates, El Mirage AZ

Built:	1985
Type:	Affordable Housing
Operator:	Yes! Communities
Size:	246 sites
Density:	18dw/hectare
Housing:	45% double wide, 85% peaked roofs, 85% lapped siding
Awards:	2018 Land Lease Community of the Year (Western) Manufactured Housing Institute.

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Rosewood Estates is a manufactured housing community near Phoenix which is owned by Yes! Communities, the 4th largest MHC owner in the US with over 47,000 home-sites. Rosewood is an all ages community which has both rental and owner occupied manufactured housing within the community. The community demographics are varied, and there is a large mix between young families with children through to older residents that have lived in the community for decades.

Only 21% of residents own their houses outright, while 44% are in the process of paying off their mortgages, and 32% are rented, though this fluctuates. Rosewood is now at capacity (all the lots have houses built on them), but despite being established over 30 years ago, the last houses were only completed a few years ago. The houses were built by a variety of manufacturers, though those built at a similar time are very similar in design.



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Rosewood benefits from being part of Yes! Communities larger company as the staff and residents get more support as part of a larger team. Part of Yes! Communities' policy regarding loans is to work directly with one bank for the financing of their manufactured homes in the community (whether they were purchased new or second hand). This makes the job of the community staff much easier, as even though loans are through the bank, community managers collect payments as a group and pass them onto the bank. This also has the benefit that residents pass on both their mortgage and lot rent to the same person (cheques are still the most common form of payment for mortgages and lot rent in MHCs, and most communities do not have an online system available).

Like most large MHC owners, Yes! Communities holds on to many of the houses for rental purposes, but also help residents looking to sell up by either buying their houses or using their online infrastructure to market their homes for sale. When someone moves out (either after selling or at the end of a rental agreement) there is a 14 day turn around for cleaning and maintenance before re-listing the houses, with the option for most new tenants to either rent or purchase the home. Rosewood is in an area without a large amount of manufactured housing and as such the houses tend to sell quickly, with many new residents having friends or family already living in the community.

Like many other MHCs there is also a strong relationship between management and residents, and often the managers live within the park as well. The community hold parties for the residents every 3-4 months, particularly around holidays. The community is also strengthened

through shared facilities including a full sized pool, kids pool and jacuzzi, as well as kids play areas, basketball court, a children's 'shared' library, barbecues, dog walking park, fire pit, and bulky storage yard (usually for RVs, boats, or cars that are being restored). Yes! Communities is very hands on in terms of amenities and maintenance, and offers a gold key service whereby every 3 months smoke alarms are checked and replaced if necessary, air filters are cleaned or replaced, and other maintenance is carried out.

Residents are responsible for the maintenance of their own yards, and on Wednesdays there are inspections to ensure everyone has removed rubbish and tidied up to maintain the community standards.

The houses in Rosewood are typically 3 bedrooms, with a couple of 2 or 4 bedders, but there are no 1 bedroom houses within the park. All homes have a carport and come with a dishwasher, fridge and stove as standard inclusions, and residents can either choose to purchase a washer dryer as an additional or bring their own. For renters in particular, having a laundry is a huge plus for low income families, and not having to use the laundromat is seen as a large step up in convenience and status. Residents can also add awnings, decks and carports to their homes if they are the owner, with permission from the community. As the HUD code doesn't allow extensions or additions to manufactured homes, a lot of houses also have a shed for storage. These sheds can be purchased privately, or bought or rented from the community directly. This rental service is very popular (particularly with renters) and the community has currently run out, with more on back order.

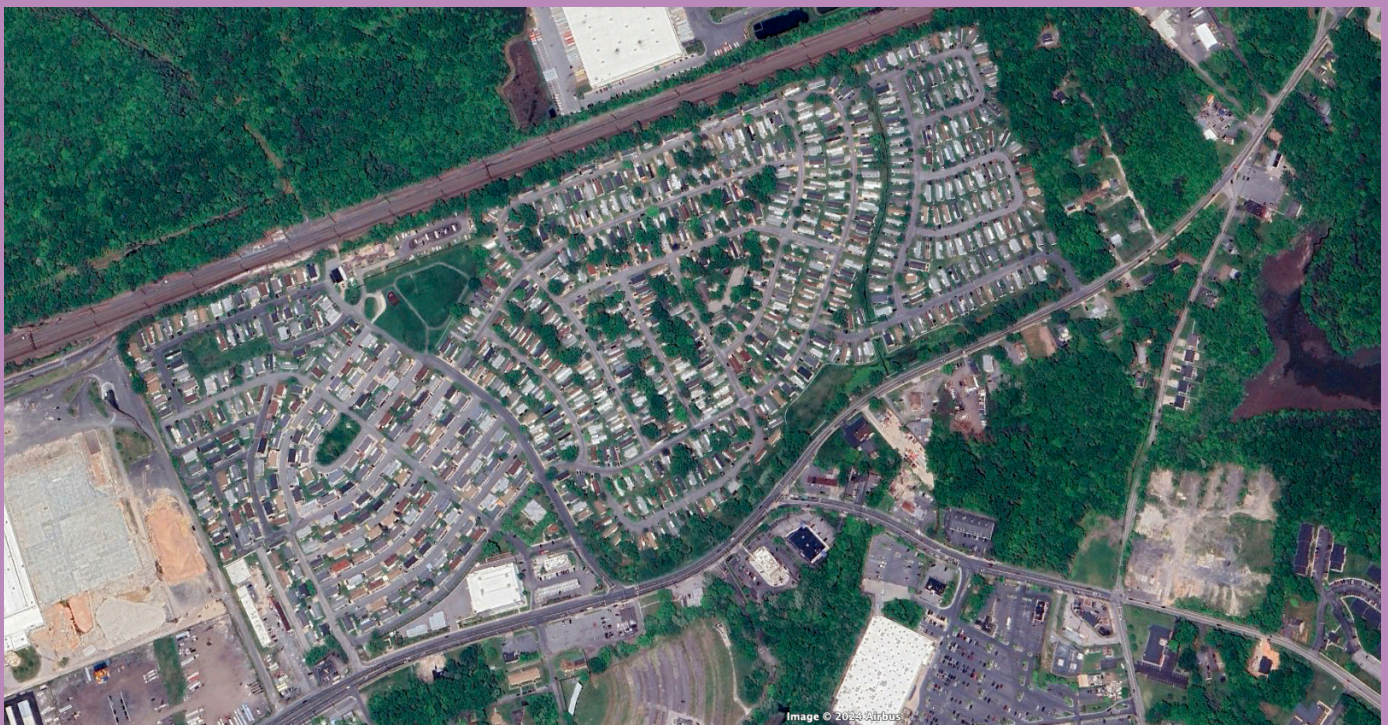
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Case Study 6: Williams Estates + Peppermint Wood, Middle River MD

Built: 1970
Type: Affordable Housing
Operator: Equity Lifestyle Properties
Size: 804 sites
Density: 17dw/hectare
Housing: 65% double wide, 85% peaked roofs, 90% lapped siding
Awards: N/A

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Williams Estate and Peppermint Woods is almost 50 years old, and has an eclectic mix of older, renovated mobile homes alongside manufactured housing. The village also has two distinct halves following the expansion of the park, with one half characterised by large established trees and older homes, the other half being new, large double-wide manufactured housing with wide streets and established guttering. Williams Estates was also the largest MHC visited, with 804 sites.





The differences in housing in this community give a character to the architecture, and most of the older homes are in the process of or have been renovated. For older mobile homes this requires approval from the community as well as the county, as they are not covered under the HUD Code. The most popular additions are sun-rooms, ramps, and decks. The park was purchased by Equity Lifestyle Properties, the number two MHC owner in the US, in 2011.

The community is a mix of all ages and retirees, however this has been a recent shift away from mostly retired people. All residents are owner occupiers and many of the residents have been living in the community for decades, and in the past few years a few of the older residents have moved to aged care facilities, making the community more popular with young families and baby boomers looking to downsize. Williams Estates believe these young families are interested in manufactured housing as it sets them up for a 'dream home' later. They are also attracted to the lifestyle that the community offers where they can have a driveway, have people over to entertain outside, and grill (BBQ) outside which may be prevented in apartments.

The all ages community has facilities including a fitness centre, playground, clubhouse, RV storage, and is also pet friendly with a dog park. Residents would like to have a pool installed and have been working with management to get this approved. However, the MHC needs to spend funds on capital improvements like roads, water meters, and sewerage updates first.

The relationship with the on-site managers is very good

in the community, but this is likely due to the fact there is a manager on site every day to deal with resident issues. This also builds trust between the residents and staff, when there is a sense of reliability. The on-site manager also feels like MHCs have many benefits for residents (over typical apartment living) as people take more pride in their home and do a lot of the maintenance themselves.

Their monthly newsletter also has a 'Homes of the Month' which residents are proud to win. This also creates a greater sense of pride and ownership over the community's appearance and 'curb appeal'.

The residents also feel safe in their community due to the screening processes which occur for every new resident. While most new residents are recommendations by people already living in the community, this extra layer of security makes the existing residents feel more protected. They also know a lot of their neighbours due to community gatherings like quarterly breakfasts, back to school parties, bingo nights, outdoor movies, and holiday celebrations like Easter egg hunts.

The double wide houses are the most popular when selling in the community and usually have 3 bedrooms and 2 bathrooms, so they're suitable for families. While the community is full now (following the large expansion) the most popular brands of manufactured houses were Fleetwood and Skyline were the most popular in this area. Also, unlike some other MHC owners, Equity Lifestyles doesn't have an in-house finance group, instead they provide help to new residents in getting loans with other lenders including providing them with a loan information pack which guides them through the process.

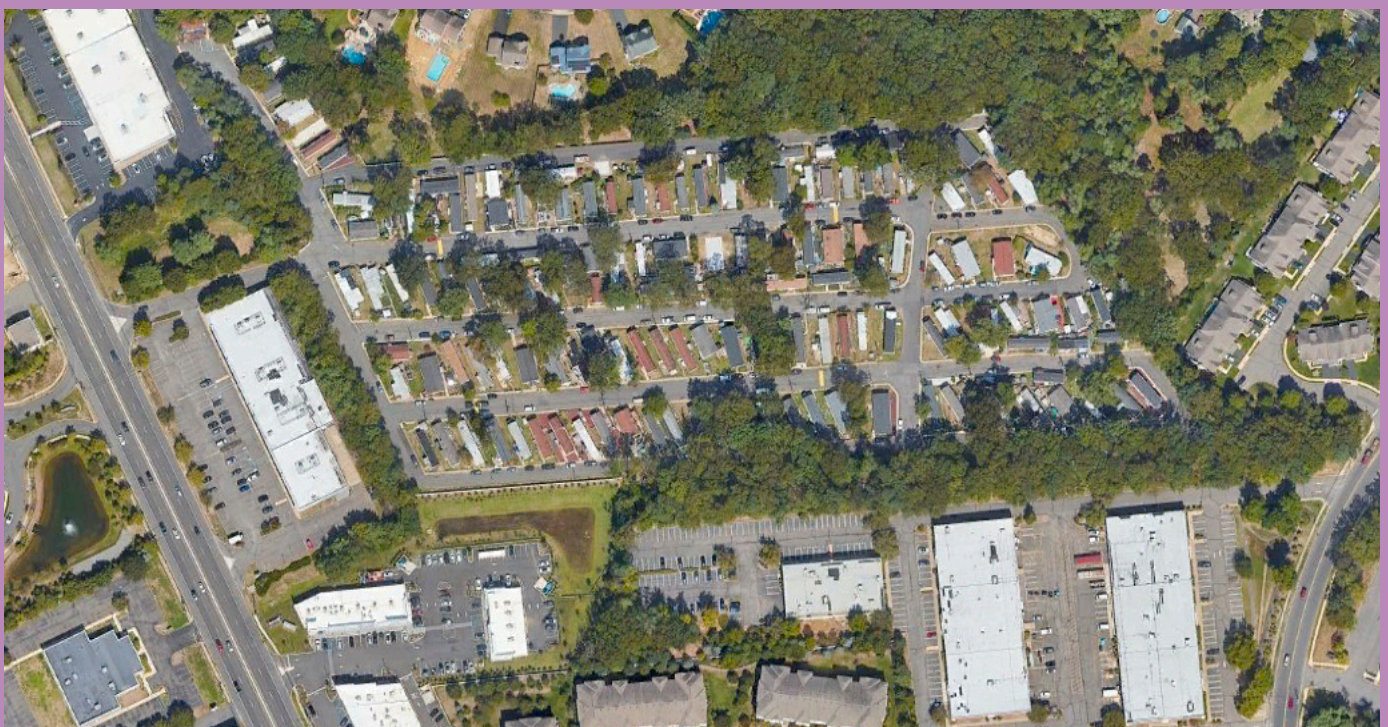
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Case Study 7: Woodlawn Village, Eatontown NJ

Built: 1945
Type: Affordable Housing
Operator: UMH Properties
Size: 160 sites
Density: 30dw/hectare
Housing: 95% single wide, 40% peaked roofs, 75% lapped siding
Awards: N/A

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Woodlawn Village was the oldest village visited, and has been operating since 1945. The park has also been under UMH management since 1968, when they began operations. The village currently has two maintenance workers and one manager which oversee 146 homes. The majority of these are owner-occupied with the remaining rental properties slowly being converted for sales.





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Due to the age of the community, there are still a number of Pre-HUD Code mobile homes. While some are still in good condition, the park has a 'first buy' clause allowing it to purchase homes for sale before going to the open market. This allows the community to purchase older homes and replace them with new HUD product, of a higher standard. In some cases where homes are beyond repair, older residents tend to give over their houses to the community as removal can cost up to \$US4,000.

Woodlawn Village is one of the only communities visited which had fences around the manufactured homes. These were installed by individual owners, but are slowly being removed as homes are sold and refurbished, as they can create issues maintaining underground services between properties. UMH buy and resell these types of properties to maintain the community standards and remove any non-compliant additions in the process (such as illegal or unapproved works).

In addition to modernising some of the older homes, Woodlawn has added online payments for lot rent to their systems. However, like many other communities, many residents still prefer to pay their lot rent through cheques which are dropped off to the site manager each month. The manager believes this is likely due to the sense of community is enhanced through these types of day to day interactions, despite online payments being easier to manage. Due to the site manager taking on this 'community counsellor' role, it can also be very busy on the first day of every month when all residents need to drop off their cheques.

The community has a larger population of older residents which the team believe is likely due to the maintenance policy, which includes maintenance of lawns by the operators. Some older residents have left the village for retirement villages, but have also returned due to a preference for autonomy over their housing, and the strong community support. Each year the community holds a series of events including back to school parties, fire brigade visits and seasonal celebrations, which are well patronised.

The village is one of the densest villages visited, averaging approximately 30dw/hectare. This is likely due to the prevalence of single wide housing in the development which takes up a smaller footprint and site. Additionally, the development does not include any driveways or on site parking, however, this can lead to congestion for street parking and traffic. Future sites are likely to consider the need for additional parking, as the residents are generally reliant on vehicular transport.

Each year, the village receives funding from UMH as an allotment for repairs and upgrades in the community. The management was looking into water meters so they can monitor when water leaks happen, and keep down operational and usage costs for residents,

Case Study 8: Pine Manor + Pine Ridge, Carlisle PA

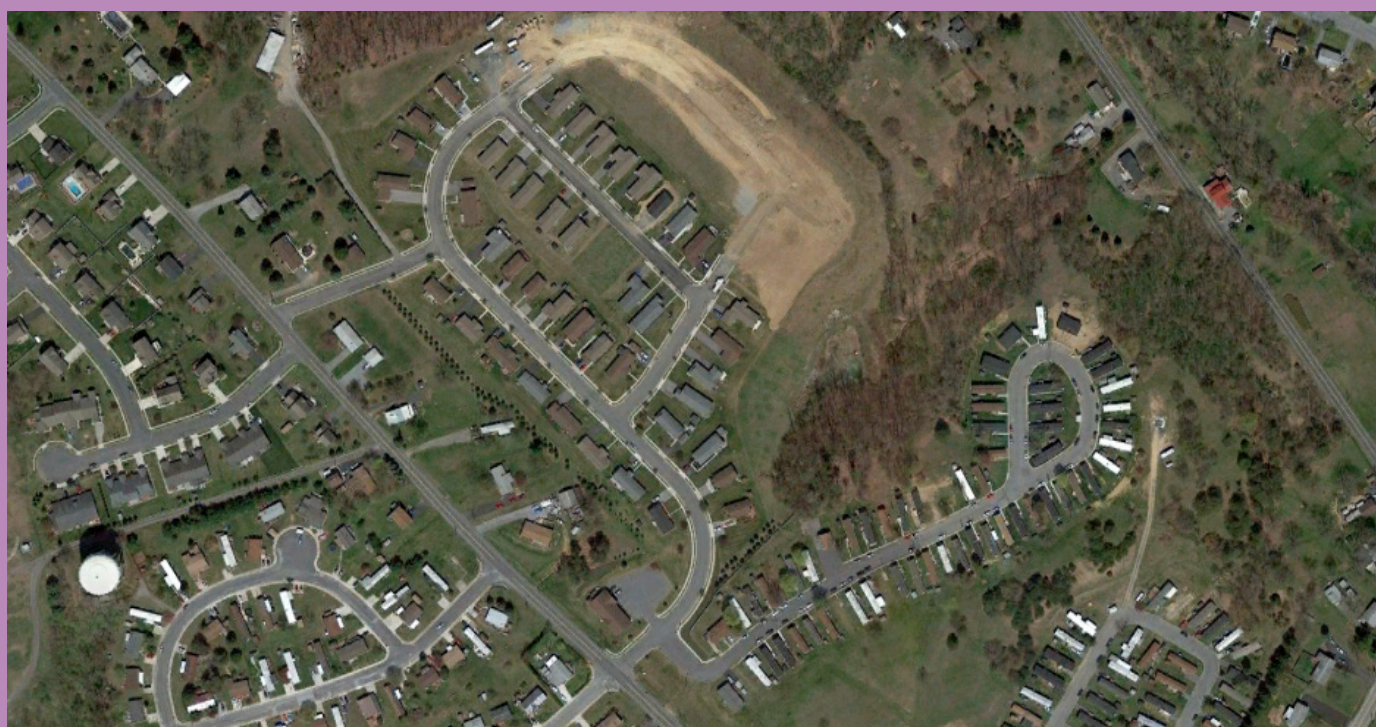
Built:	2005
Type:	55+ / Affordable Housing
Operator:	UMH Properties
Size:	198 sites total
Density:	18dw/hectare
Housing:	100% double wide, peaked roofs, lapped siding (55+) 95% single wide, 70% peaked roofs, 90% lapped siding (Affordable)
Awards:	2016 Land Lease Community of the Year (Northeast) Manufactured Housing Institute.

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Pine Ridge and Pine Manor are a combined over 55's and affordable housing community. While most of the other communities visited specialise in only affordable or over 55's accommodation, Pine Manor and Pine Ridge are a divided community with specialised areas for both. While this has benefits of potentially maintaining proximity between families, the community's two halves are distinctly different.

The park is currently growing and at the time of meeting, there were approximately 198 homes, 150 of which were rented. There is a distinct split between the over 55's community and affordable housing section, with both halves sharing only the community centre.

The community centre includes a full kitchen, large dining area, fitness centre, library, and pool table. While this space hosts activities like Thanksgiving dinner,





the community centre is mostly used by the over 55's residents. As such most activities are directed at this group, with no back to school or children's activities which are common elsewhere. In addition, maintenance workers are on call 24/7 for renters within the community, going so far as to change light bulbs if necessary.

The affordable housing section is mostly rentals, with only a few residents owning their manufactured house and paying lot rental. The houses which are owned in this section are usually bought by people who were previously renting and wanted to stay in the community but own their own home. Most of these houses are single-wide houses of varying ages, and residents are responsible for maintaining their gardens and outdoors areas. Only half of the houses include driveways for on-site parking, while other residents must park on the street.

In contrast, only 6 houses within the over 55's community are rented and the majority of houses are new, double-wide models. These houses often have garages which are built on site after the manufactured home s delivered and installed. Those homes without integrated garages usually have a large matching shed on site for storage and/or car parking.

The over 55's section also has included amenities such as yard maintenance and snow ploughing which are included within the lot rent. While this is an attractive option for many older residents, some have chosen to stay within the affordable housing section in order to tend to their own gardens and reduce their lot rents. In addition, the community runs a "Yard of the Month" which is rewarded with \$100 off lot rent each month.

The over 55's section is still expanding with 11 lots still open. Each year the community builds and sells another two or three houses within this section, dependent on demand. The community usually engages Champion, Skyline, or Eagle River to manufacture these houses, and at the time there were three houses available for purchase. The community also believes maintaining good relationships with manufacturers and the local council is important to ensuring the high quality and timely delivery of housing.

As with other UMH communities residents can choose to finance through outside lenders or through UMH's own in-house division. For those renting, while slightly more expensive than owning a manufactured home, it is attractive for young families due to the flexibility and the lack of deposit required.

In addition, the community believes being part of a larger network of communities gives them the ability to recommend homes and locations which are best suited to residents, rather than solely recommending their product.

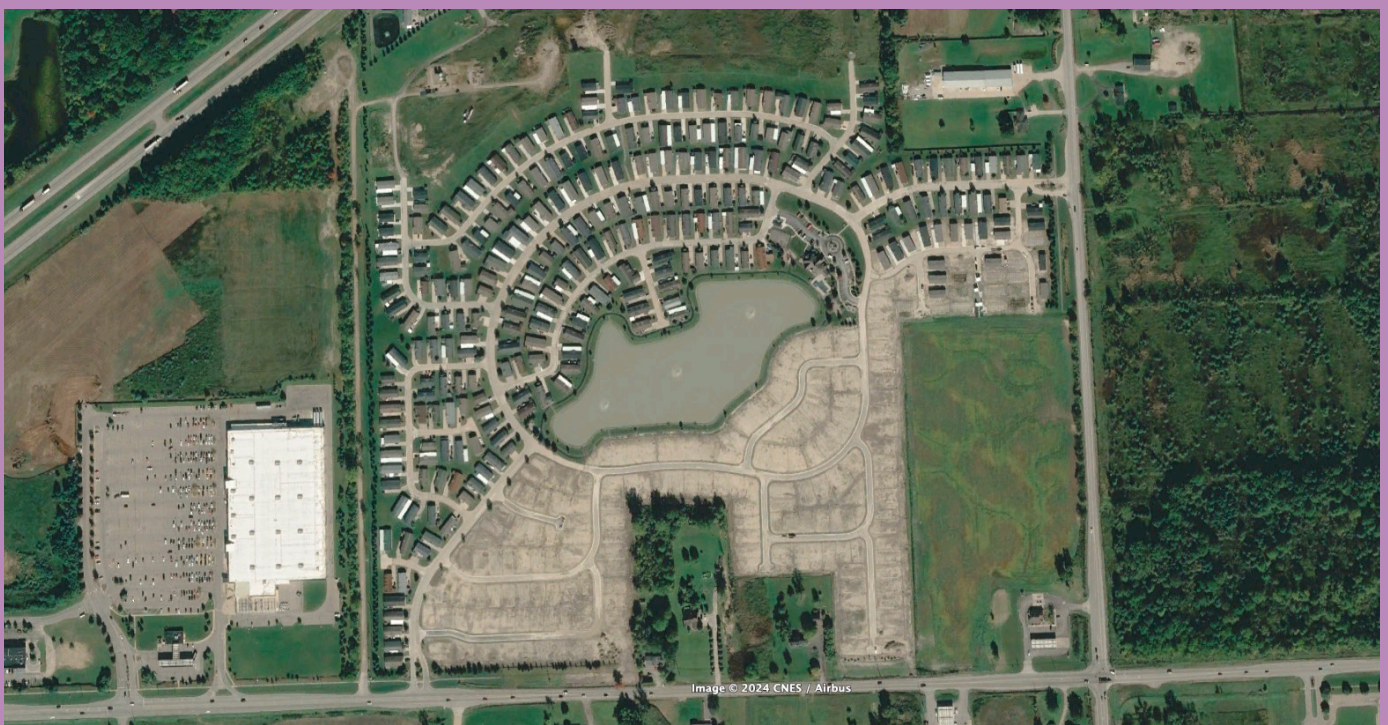
Case Study 9: Millstone Pond, Lenox MI

Built:	2000
Type:	Affordable Housing
Operator:	Meritus MHC
Size:	259 sites (expanding to 500+)
Density:	Approx 12dw/hectare when complete
Housing:	100% double wide, peaked roofs, lapped siding
Awards:	2017 Land Lease Community of the Year (Midwest) Manufactured Housing Institute.

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Millstone Pond is a community just outside of Detroit which is currently undergoing a gradual and sustained expansion from 259 sites, to over 500. The park is relatively new and all the homes are double wide, modern manufactured homes. The community also includes a large grey-water filtration system through the central pond, as well as up-market amenities including a new gym, clubhouse, pool, and playground.

Built in 2000, the park was originally owned by a “Mom and Pop” investor, who owned a number of communities around Michigan. However, the owner had slowly downsized to just Millstone Pond, which was eventually sold to Meritus Communities in 2017, after winning the mid-west community of the year award. Since this time Meritus has more than doubled their community holdings from 20 in 2017 to 50 in 2019, making them the 12th largest community owner/operator.





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When Meritus purchased the park they bought in 10 new houses, with another 11 for sale now. These houses are produced by Clayton Homes and Champion, which the company has a close relationship with. The expansion will begin with 201 lots, released approximately 10 at a time to meet demand. The remaining lots will be released at a later stage as needed. The first part of the expansion is awaiting the energy lines before being settled. The community has to hire an additional sales representative to deal with the increase in size. These new properties are advertised through social media as well as the Meritus and more traditional manufactured housing sales websites, however there are two methods by which the community sells new houses. Firstly, Meritus can build a house on a lot to sell (the most common in the new expansion). However, they also can work with new residents to build a house of their choosing on a new lot.

In addition, Meritus often purchases old homes when residents want to move or sell, and renovates them to a higher standard, before putting them on the market again. This creates a profit for the owners, but also keeps the standard of housing high within the community. Residents can also choose to sell their home on the private market, though this is less common. During this process, the community has four preferred lenders, and while these are not mandatory for purchasers to use, the process is often expedited due to their familiarity with the community's procedures.

The park is predominantly owner-occupied, however recently four homes have been rented out due to low interest from purchasers. Similarly, the new homes are

going to market for sale, but may be rented if the demand is not there. The managers of the community however, believe its success is due to the high owner-occupier rate as they feel the long-term owners take more pride and care in the community generally.

The manager of the community also attributes their success to a variety of rules which were instigated to keep up the appearance of the community, but also provide a set of guidelines for all residents to follow. However, these guidelines have been amended since the park was bought out by Meritus, to ensure there is consistency between their communities. These new rules include no toys or other items to be left in gardens, and no parking outside of driveways or carparks, as well as new garden and design guidelines. Some of the park's old rules were actually stricter than those new ones imposed by Meritus, which creates some tension between older residents and newer residents who follow the slightly more relaxed Meritus rules - such as keeping your garbage cans behind a patio or stairs, rather than in a shed.

The change from an independently owned park to part of a larger network has also meant some changes in the management of the community. While previously management was split between two people who looked after grounds-keeping and residents respectively, this has all now fallen to one person. This has meant that the manager and other staff, also residents of the community, do not always have the time to spend on the social, 'resident relations' aspect of community management.

This has meant the park no longer runs children's events

42 due to staff numbers. However, residents often help out running community events such as holiday parties and summer celebrations, even bringing in food trucks. The community facilities in Millstone Pond are also much newer than many other communities. The pool is open from the beginning of May through to September and a fitness centre with a variety of exercise machines is open every day from 5:30am to 9pm for resident use.

All the residents are responsible for their own yard maintenance, including mowing and snow ploughing. However, it is very common within the community for residents, particularly older residents, to outsource these jobs. Like the majority of manufactured housing communities, Millstone Pond also does not have any fencing between houses. The staff outlined that this is likely a result of the community and home owners association push to make the communities look more 'open.' However, this affects residents differently and those with pets and children find this more difficult, and many residents are required to keep dogs inside all day.

The managers note there is a "sense of security" that the community gives residents. If there is something within a neighbourhood that goes wrong, there is someone for residents to talk to about it. In addition, residents feel like when they are away from their homes, others around them are looking out for their property.

Millstone Pond credit a lot of their success in surviving the Great Recession to the fact the community kept its site rents low in order to ensure residents kept their homes. Instead, other communities in the area kept rent higher and had more foreclosures during this time, which has taken years to recover from. The owner at the time, bought many of these foreclosed homes and put them into Millstone Pond as a means to provide more affordable housing options.





THE DISTRIBUTION SYSTEM

RETAIL CENTRES, COMMUNITY SALES + FINANCE

The developmental, financial and distribution or sales aspects of housing are often considered secondary when investigating the architectural understanding of housing typologies, however it is the connection between construction, design, planning, development and finances in the manufactured housing industry which makes it so uniquely placed as a potential typology in the housing affordability debate.

Historically, the sales centres for manufactured houses have been seen as a pivotal and vital part of the housing delivery process. However, as manufactured housing companies begin to expand and vertically integrate, sales centres are often run by the manufacturers or providers themselves - either promoting their own product, or promoting their community. The influence of these megalithic companies is still to be determined within the manufactured housing industry, but the legacy of these companies is likely to redistribute power and influence within the system.

Today, sales within the manufactured housing industry can happen in a number of ways. However, houses must be purchased from a licensed seller, which is usually either a standalone retail dealer or via a community who is selling homes on their land. These dealers (either standalone or within the community) may sell a variety of manufacturers' products or may have exclusive contracts to only sell the housing of certain manufacturers. This is usually dependant on market demand as well as a series of complex relationships within the manufactured housing industry.

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housing industry.

Manufacturers themselves do not sell housing directly to the public, however some manufacturers are part of a larger umbrella company which may also have dealers, making it seem like it is a purchase directly from the manufacturer. For example, Clayton Homes produces manufactured houses but also markets and retails its homes through a network of 353 company-owned sales centres in addition to over 2,000 independent retailers.

Manufacturers sell their products as wholesale items to a dealer, however this dealer may be a company owned retail dealer, an independent retail dealer, or a community developer/Real Estate Investment Trust (REIT).

Despite often selling through developers or REITs, manufacturers deal mostly with the community directly rather than the larger company. This is due to the community's direct consultation with future residents, and specific customisations that may need to be completed to meet locality requirements, codes, or customers needs and desires.

E-commerce is changing the way people market and purchase manufactured homes and websites have emerged which are now marketing and selling homes online, often in conjunction with a manufacturer. While some of these are still licensed dealers which have just pivoted to selling online, others are reconsidering the existing paradigm.

Some companies are "online only" sales centres, which do not have traditional lots like a car-yard, and are

changing the nature and value of physical sales centres. Traditionally, centres may be a legacy customer and have an “exclusivity” clause for an area with a manufacturer, i.e. being the only centre who stocks a certain brand or model within an area to reduce competition.

However, online retail is not location based and could market any product to any area, creating friction with those existing physical centres. Some owners in the industry believe this undermines those existing relationships within the industry, while others believe online players create competition and provide better pricing and outcome for the public and residents.

There is also a transparency issue with many of these sales centres, both online and physical, as many buyers don’t understand how the industry is structured or the complex umbrella companies which may own multiple different brands. This is further complicated when one company buys out another, potentially creating conflicting exclusivity contracts.

Generally, when buyers are looking to purchase a home in a community they utilise a chattel loan rather than a mortgage. Chattel Loans are similar to personal finance loans, as they do not include the land beneath the home. While their interest rate is lower than personal finance, they usually incur a higher interest rate than mortgages, as they are typically for a significantly lower value than traditional home loans. Additionally, the term of a chattel loan may start at as little as a couple of years, and is typically shorter than a mortgage term

If buying privately for their own use, a buyer might have up to 3 loans, more typical to a new home build.

These include a loan for the land if they don’t already own it, a construction loan for the site works and other on-site construction costs, and a temporary loan for the manufactured house itself. Following the installation of the house, buyers typically refinance and have these three loans rolled into a traditional mortgage.

While the distribution system has begun a slow evolution from Arthur Bernhardt’s original research, the industry is likely to continue to see innovation and change in how products are marketed, sold and distributed, as well as a pivot in how the consumer and residents are bought from traditional markets into manufactured housing.

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Case Study 10: Santiago Sales, Riverwood CA

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Santiago Communities incorporates sales offices, communities, finance, and property management into their business, with 46 communities across Nevada, Arizona, California, and Washington. They are within the top 50 manufactured housing community owners in the US, and have approximately 5,100 home sites.

Santiago believe that their 'whole of business' approach to sales, finance, and communities benefits the customer through an easier finance approvals system, but also through security of tenure on the land if they choose to go into a community.

Santiago sell housing to both customers looking to place a home within their communities, but also to place on private land. Their finance division services both types of customers as well, though the process differs due to loan types and often the requirements of purchasing land.

Most of Santiago's sales are mostly for communities, due to recent upgrades of older communities across the nation, however the demographics of their customer are very dependent on the area. In Riverside (where the retail centre is located) customers tend to be younger families looking to purchase for private land, due to the availability of low-cost land. In Orange County, CA the customer tends to be an over 55's community buyer.

The availability of land in the Riverside area also means that the approvals for the private residences are relatively easy, as the issues with zoning restrictions are usually in more densely populated urban areas. Most of their communities are also established in permissible areas, making their upgrades process fairly simple.

Santiago don't manufacture their own houses, but instead have 5 different housing suppliers, who they are a dealer for. They used to work exclusively with Fleetwood Homes, however changes in freight laws made the costs of working with one manufacturer exclusively prohibitively expensive. Instead Santiago now have manufacturers across the country to reduce both freight costs and delivery time. Santiago believe the cost savings achieved in manufactured housing are due to the use of assembly line techniques and reduced time on site, rather than a reduction in material costs and quality. One of their local manufacturers produces about 36 floors a week, which is equivalent to 36 single wides or 18 double wides.

Like many manufacturers and dealers, Santiago also offer their customers the option to 'upgrade' their house to modular to reduce issues with zoning, or to include certain other design aspects which may not be possible or permissible with a manufactured house. Most of their orders are also customised to some extent.

Despite this fast production time, Santiago have recently experienced a backlog in their manufacturing facilities due to an increase in demand for manufactured housing. For the first time in years they were seeing lead times of 14-20 weeks, and factories had to increase their production capacity to keep up.

In addition to their manufactured housing communities. Santiago also have a community for "park models" only - that is manufactured homes below 400sqft (37sqm). These are registered by the DMV (even after wheels taken off) and Santiago believe these are a hugely growing area due to the interest in tiny houses.

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Case Study 11: Clayton Homes, Raleigh NC

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Clayton Homes is the largest manufactured home manufacturer in the US, representing approximately over 50% of all housing shipments in 2017 and 2018.³⁷ Founded in 1956, Clayton originally sold mobile homes from a car sales dealership, expanding into manufactured housing in the late 1970's, before being acquired by Warren Buffett's company Berkshire Hathaway in 2013. The Clayton Homes umbrella company now encompasses manufacturers, suppliers, retail sales, finance, property management, and home insurance across manufactured, prefabricated and site-built home brands.

Part of Clayton's vertically integrated business model includes retail sales centres. In total Clayton have 353 company-owned retail centres; but, also sell their housing through up to 2,000 independent sales centres. Clayton-owned retail brands include Clayton, Oakwood, Freedom, Luv, G&I, Crossland, International and TruValue Homes. While many of these only sell Clayton housing products, they may also sell products by other manufacturers in areas where there is no factory. These retail stores sell houses mostly for people to put onto private land, however the retail stores may also sell houses to customers, which are then placed within communities.

While Clayton don't invest in communities, they do help purchasers throughout the process, including with payment plans and installation. Instead, like many other manufacturers, Clayton also sell its product directly through locally communities, which represents the largest portion of its sales. These communities often have a partnership with only one or two manufacturers, and sell new housing directly to the customer in this manner. This integrates the land rental and manufactured housing

purchase, making sales easier for a customer, in much the same manner as purchasing a land and house package in Australia.

Clayton work with a variety of lenders, the majority of which are owned by the parent company, including Vanderbilt, HomeFirst, 21st Mortgage, and Silverton Mortgage. The financing divisions work separately from the sales group, as individual companies under the Berkshire Hathaway umbrella. This allows them to provide financing for their own manufactured housing sales, as well as those in communities

At Raleigh, the 3 bedroom models are most popular, and the majority of customers are first home buyers. Manufactured housing is particularly popular in this area, due to its low price point in comparison to site built homes or renting which can be expensive. However, most communities in the area are almost at capacity and finding land can be difficult.

Clayton also have contractors for site installation as they are a full service provider. The costs of this vary between models and location due to site requirements such as service installation, access, and soil conditions.

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Case Study 12: Greenfield Housing, Garner NC

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Greenfield Housing Centre is a leading provider of manufactured and modular homes, representing a variety of manufacturers. While a full list of manufacturers can be found on their website, the homes currently displayed on their lot include models from Fleetwood, Champion, and Palm Harbour, a more high-end product.

The most popular type of home sold at Greenfield are the double-wides, which are spacious enough to feel like a traditional house while remaining within the mid-range price bracket. All homes now include Energy Star-rated upgrades, such as enhanced insulation, ensuring energy efficiency and lower utility costs.

Greenfield takes great pride in maintaining a polished and attractive environment at their housing centre. The layout of their display area is thoughtfully designed to resemble a small village, emphasizing the aesthetic appeal of the properties. This attention to detail mirrors the approach seen in the project housing industry.

Greenfield primarily supplies homes to three main communities in the region: two traditional housing villages and a privately managed development. Approximately 60% of Greenfield's customers already own land, while the remaining 40% rent lots in these communities.

However, a persistent challenge in the industry is the stigma attached to manufactured housing, particularly among appraisers. This bias often results in higher down payment requirements, making it more difficult for some buyers to enter the market. Greenfield's owner, who serves on the appraisers' board, is actively working with industry stakeholders to reduce this stigma and create a

more equitable environment for potential homeowners.

Greenfield Housing Centre does not provide in-house financing but collaborates with a selection of trusted lenders. Around 80% of their customers secure financing through preferred partners, but Greenfield will work with other lenders if a customer has a specific preference. The company emphasises the importance of pre-planning to ensure their customers secure loan approvals, although specific details about their process were not disclosed.

Local regulations allow double-wides on lots smaller than one acre but prohibit single-wides, reflecting lingering biases against smaller homes. Greenfield's most popular models include the Liberty double-wide and, previously, the King Castle by Fleetwood. Although the King Castle, available in both modular and manufactured options, was recently removed from the display due to its age, it remained a customer favourite for many years.

Greenfield serves a diverse clientele, ranging from older adults seeking efficient, downsized housing to younger families looking to transition from renting to homeownership. Modular homes, while more expensive due to stricter construction standards and higher-end finishes, remain a strong option for those seeking premium housing. All homes are built above ground due to their chassis, with ramps added as needed for accessibility.

Despite the affordability, efficiency, and quality of manufactured homes, the stigma within the industry remains a challenge. Addressing this perception is a top priority for Greenfield and its leadership.

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Case Study 13: Oakwood Homes, Farmville VA

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Oakwood Homes was recognised as the Retail Sales Centre of the Year (Northeast/Mid-Atlantic) by the Manufactured Housing Industry in 2018. This accolade highlights the company's focus on providing high-quality, affordable housing solutions across Central Virginia.

Serving an 80-mile radius, Oakwood Homes accommodates a variety of land types, including agricultural properties, where families often subdivide land for residential use, as well as residentially zoned areas (primarily focused on modular homes), with only a few communities being serviced. Although manufactured housing communities are less prevalent in the region, the demand for modular homes has steadily increased, as they are generally perceived to retain higher appraisal values and offer greater long-term stability.

Modular homes, while commanding a price premium of \$10,000 to \$30,000 over manufactured homes, include substantial structural and design upgrades. These enhancements range from improved wiring and stronger joists to steeper roof pitches and additional height. While these features contribute to a more durable and more marketable product, they also introduce logistical challenges, such as increased transportation complexity and stricter permitting requirements, particularly in the more urban areas of Northern Virginia.

Oakwood Homes caters primarily to two distinct demographic groups: first-time home-buyers seeking affordable starter homes and individuals downsizing from denser areas to smaller, energy-efficient homes - commonly referred to as a "tree change." Additionally,

they have seen many parents purchasing second homes for rural lots to house their children with worsening affordability in the area.

Among its offerings, double-wide models remain the most popular, with budget-conscious options like the Oxford leading sales. As awareness of the affordability and efficiency of manufactured housing grows, Oakwood Homes has seen increasing ease in marketing these products to a broader audience.

Like other sales centres, the introduction of energy-efficient features has added to the quality of the homes over the past five years. Notably, better insulation, windows, lighting and sustainable materials have contributed to the growing acceptance of manufactured homes as viable alternatives to site-built housing.

Oakwood Homes offering options through trusted lenders such as Vanderbilt and Home First Insurance. They believe these partnerships streamline the purchasing process for buyers while maintaining compliance with federal regulations. However, the regulatory environment presents challenges, particularly in urban areas where zoning and permitting requirements are more stringent. Modular homes are often preferred in such regions due to their alignment with appraiser expectations and their perceived ability to retain value over time.

Oakwood was acquired by Clayton Homes in the early 2000s. This acquisition brought increased operational support and reduced manufacturing risks. However, it also resulted in the loss of some local connections, which had previously strengthened community ties.

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Lessons from America

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The manufactured housing industry in America is the largest source of unsubsidised affordable housing, and has many strengths which can be drawn upon and seen as an exemplar model for housing delivery. However, like most housing typologies and industries, manufactured housing still has issues which it needs to overcome and apply better practices. This list provides a road map for Australia, looking at what is best adopted and utilised from the American context, and those areas where greater caution may need to be taken to ensure this housing typology best serves its residents. Each of these areas is further expanded upon within this chapter, with answers gathered from interviews with each of the previous case studies.

STRENGTHS

- Affordability
- Speed and Quality
- Vertical Integration
- Community - Social Sustainability
- Mixed Tenures + Ownership Models
- HUD Code
- Flexibility
- Density + Missing Middle
- Relationships

WEAKNESSES

- Perception
- Land Availability
- Restrictive Zoning
- Land Tenure
- Labour Shortage
- Over-regulation of Codes
- Poor Practice

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STRENGTHS

AFFORDABILITY

Affordability is still considered the main strength of this industry, and its ability to provide low income home ownership for people who may otherwise not be able to afford it. A number of respondents listed the larger companies' ability to secure lower costs as part of a large supply chain as one reason for the lower cost of the housing, but the assembly line production was more commonly listed as the means to make housing more affordable.

More than half of the respondents also noted their jobs were very rewarding as they were part of a system which helped low-income residents achieve home ownership, when it might not otherwise have been available to them due to the costs and financing associated with traditional home ownership. This idea of manufactured housing as a 'stepping stone' to traditional home ownership was common, despite surveys showing most manufactured home owners plan to stay in their homes for more than 10 years.³⁸

SPEED AND QUALITY

Almost all manufacturers and dealers noted the speed and quality of manufactured housing to be a huge advantage. They noted the benefits of off-site construction in a factory prevented delays due to weather, but also ensured the quality of the product as it was not subject to rain or snow during construction.



They also noted the efficiencies of production lines as used in manufacturing facilities, and how this reduced build time results in lower costs for owners waiting on their homes (either due to mortgage repayments or additional housing costs).

Another benefit of the speed of manufactured housing delivery was the benefit of rapid deployment, and both manufacturers and housing associations noted the ability of the manufactured housing industry to quickly supply quality housing for key workers - either in (sub)urban areas for professions like teachers, police officers, etc., or in more remote areas, for miners or oil field workers.³⁹

A few of the community park managers had previously worked in apartment rental management, and believed the quality of housing, and life, was much better in the MHCs, than the apartment buildings they had worked or lived in.

VERTICAL INTEGRATION

The benefits of vertical integration of companies can be wide and varied depending on the company structure and the services it incorporates. Within the manufactured housing industry this could mean only a manufacturer with their own dealer, or could mean a company which builds housing, provides finance, sells housing, and manages communities. There are benefits and risks associated with both, but some of the case studies which were part of a larger company noted the vertical integration of their company as a benefit for a variety of reasons.

Some noted the ability of larger manufacturing companies to gain lower costs of supplies as well as hold larger stocks of materials and other fittings, which reduces any wait time of products which may hold up production. Others noted that the ability for their business to refer customers to their in-house finance or work directly with communities also reduced the burden on customers, and often allowed them greater freedom to access affordable housing which may otherwise have been a complicated and difficult process.

One respondent believed their company's strength was in their whole of business approach, and being able to provide housing as well as finance to customers who are perceived as 'risky.' This was due to the company's in-house finance, community ownership, and relationship with manufacturers. They believed having a vertically integrated company removed some of the risk with lending to customers.

COMMUNITY + SOCIAL SUSTAINABILITY

Multiple communities and even manufacturers noted the community aspect and the lifestyle it provides as a huge selling point for many customers. The MHC managers who had worked as apartment rental managers previously also noted their MHC a much stronger sense of community than other rental or low income properties, which makes people take pride in their community and homes. This has the knock on effect of helping to raise the image and perception of manufactured housing to those beyond residents.

Many respondents also noted it was the background checks and community rules which had a major effect on people's sense of security, neighbourliness, and 'togetherness', rather than having feelings of over regulation or oppression. It was suggested it may be to do with the rules being established over a long period to reflect the residents desires, or that the strong relationship between manager and residents ensured there was no resentment in complying.

MIXED TENURE + OWNERSHIP MODELS

Some communities have mixed tenure models (i.e. both ownership and rental properties) within their communities which provide two distinct benefits: for residents, this often allows those unable or uninterested in buying to live in a community alongside family or friends who may own their property; and for landlords and community owners, having a mix of rental and owned properties allows flexibility during drops in the market, and opens properties up to more customers (i.e. both purchasers and renters) leaving fewer houses empty.

However, mixed tenure communities also come with downsides, and many owners perceive that renters 'don't take care of their houses' or maintain yards as well as owners. Some communities refuted this claim, while others agreed it was dependant on the renter. These managers suggested that vetting renters was important, as maintaining the community's atmosphere and appearance was part of what draws people to live in MHCs.

HUD CODE

The HUD Code is widely agreed upon as being a beneficial piece of legislation which enabled the manufactured housing industry to move beyond the poor quality and instability associated with mobile homes.

One manufacturer outlined the clear processes and standards which need to be met for each house as being a huge advantage. There is no time wasted in trying to understand what requirements must be met for different homes, instead the HUD provides a clear outline and breakdown of what each trade must do to meet standards for every house.

FLEXIBILITY

Quite a few manufacturers also noted the built in flexibility in most of their designs, and the ability for home buyers to customise their housing options. This flexibility in design worked in two ways: either to upgrade basic plans to extra rooms, high end detailing, or external additions; or to remove certain aspects of a house which customers may not have needed to reduce the cost of the overall house.

This type of flexibility is common for project home builders in Australia as well, however these upgrades and options seemed to be extremely prevalent and standard on most manufactured housing plans. The differences in advertisement of pricing was dependant on companies, though it did seem like most manufacturers were willing to give discounts for multiple prices and work with the customer for the best outcome.



DENSITY + MISSING MIDDLE

While Manufactured Housing is often categorised as low density, the reality is most communities are denser than their surrounding suburban neighbourhoods. The Lincoln Institute of Land Policy's *Visualizing Density* project found that communities in Arizona and Florida had densities of approximately 36 dwellings/hectare,⁴⁰ falling within the "Missing Middle" definition of 30-55 dwellings/hectare.

This suggests, manufactured housing could be a denser housing typology which has potential to "hide" within suburban neighbourhoods which may be resistant to change and reliant on 'character' controls and height limits to deter densification.

RELATIONSHIPS

A number of manufacturers and sales centres listed the people working within the industry and their company as a valuable asset to the industry. These relationships built within the factory are important to the success of the production line, and throughout the research tour it was apparent that factory workers had strong relationships with one another and office staff. For manufacturers, the importance of these relationships also extended to long term working relationships established with suppliers, sales centres, and other parts of the industry, as well as just in-house workers.

The relationships within a MHC are also part of its strength, and the importance of having good on site managers has been highlighted by a number of recipients (and reflected in the interactions witnessed during

interviews). The fact that so many managers also lived within the community was also telling in how embedded and invested in these communities they were. It would seem from the interviews, things mostly go wrong when a manager or the company who owns the community, fail to properly establish relationships with tenants and build rapport.

WEAKNESSES

PERCEPTION

The perception of manufactured housing was the most common response from all participants as the major hurdle within the industry. The perception and stigmatisation of manufactured housing as poor quality, unstable, “trailer trash” appeared to stem from the mobile home industry and its history of failures in storms, poor insulation, non-existent maintenance, and “undesirable” residents. This stigmatisation pervaded not only the public perception of manufactured housing but also spread to areas including financing, zoning, appraisals, and even potential customers.

One manufacturer noted that there is still the perception of a trailer home - like that in the Lucille Ball movie - but they are slowly breaking this down through demonstrating high quality products people can experience, such as exhibition homes.

The perception of manufactured housing in finance may be one of the largest hindrances to customers looking to purchase a home. Most banks view these types of customers as ‘high risk’ both in their credit histories and the type of housing they are purchasing. This makes it harder for customers to get finance at the very low end of the market, and businesses often rely on in-house financing to help customers. This type of in-house financing can be risky for companies if they aren’t the manufacturers of the product and or owners of the community, whereby they may be able to recover losses.

One MHC manager also noted that this perception in regards to financing also effects potential buyers. They tend to believe that buying a house within lower income groups is very hard and complicated or they won’t get credit approval, which stops them from seeking the opportunities within manufactured housing, despite being \$100-200/month cheaper than renting.

LAND AVAILABILITY

While denser than typical suburban subdivisions, manufactured housing estates are competing for land against developers selling a luxury or “dream” lifestyle, with higher profit margins. This has led to them being priced out of more desirable and well located areas and pushed to the urban fringes. Additionally, urban sprawl and natural boundaries of many cities are making land availability for larger communities difficult to obtain.

RESTRICTIVE ZONING

As with many affordable housing typologies, there is often a ‘not in my backyard’ mentality towards the residents who live in low income housing. This type of stigma is two-fold with manufactured housing, as it can be easily identifiable (though this is changing as the industry matures). As a result, respondents noted that local zoning regulations often try to prevent manufactured housing from being placed in desirable areas (close to schools, transport, services, etc.) and instead relegate manufactured housing to areas on the suburban fringes, in industrial zones, or in less desirable locations (next to train lines, under power lines, etc.) This can be done through making manufactured housing

a non-permissible housing typology, or by creating rules such as minimum home widths and minimum floor areas, which also have the negative side effect of reducing the possibility of building smaller, cheaper, more efficient site built homes.⁴¹

LAND TENURE

Historically, manufactured housing has had a separation of land ownership and home ownership, as detailed in the case studies above. However, as cities begin to sprawl, many MHCs in the US, which used to be on urban fringes, are being surrounded by urban development as the city grows. This increases land value significantly, and some communities have had their land sold by the owner to developers, as it becomes more profitable to sell than maintain the estate.

In many states, communities are looking to purchase their land back under a Community Land Trust model (known as Resident Owned Communities or ROCs). To prevent the displacement of communities, “First Buy” clauses can be implemented to ensure communities have the option to buy back their community before developers

LABOUR SHORTAGE

One manufacturing company stated that the industry as a whole is facing an employment shortage due to the downturn during the GFC when many people were laid off. Now with an increase in production, they have found there is less labour available for hire, slowing down their production processes.

OVER-REGULATION OF CODES

While the HUD Code is still seen as a huge advantage to the industry, and many businesses quote it with establishing the quality of manufactured housing, there are still some areas which are considered as ‘over-regulated’. The Manufactured Housing Consensus Committee has produced a document with over 100 recommended amendments to the HUD Code, however during interviews the following issues came up as being road blocks to implementation of manufactured housing.

POOR PRACTICE

A few manufacturers and sales centres noted that despite the industry’s efforts to move away from low quality, poorly maintained mobile homes, there were still some manufacturers who bought the industry down in terms of standards. Though one respondent noted there is a place in the market for very low cost housing, the quality of finishes and cladding still needs to be maintained so as not to harm the whole industry, as customers often see manufactured housing as one thing rather than having a spectrum of quality like site-built housing.

This poor practice can also extend to installation and another manufacturer noted that their products only receive complaints which are due to poor installation. Maintaining the standards of on-site builders is extremely important in this respect as improperly installed manufactured housing can be subject to heat and frost conditions particularly through the underfloor area, can be more susceptible in storms, and can lead to cracking or splitting of internal and external finishes.

Conclusion

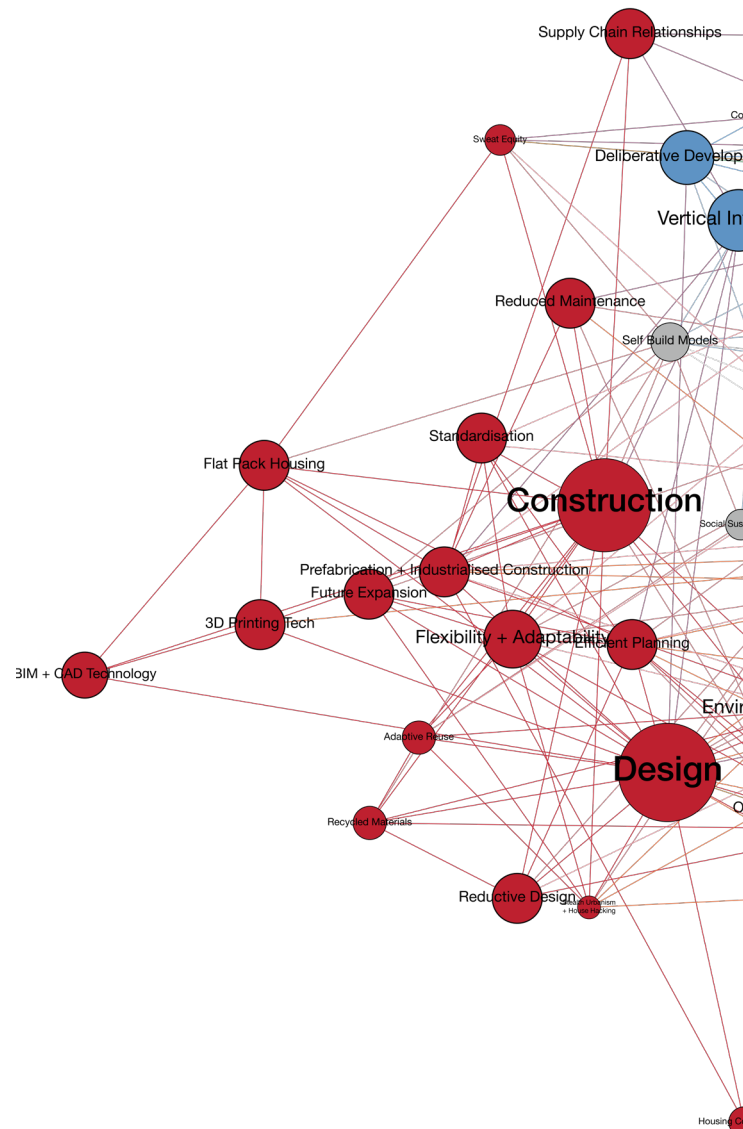
While Manufactured Housing is one housing typology which may offer affordability to its users, it is important to recognise that it is not a silver bullet.

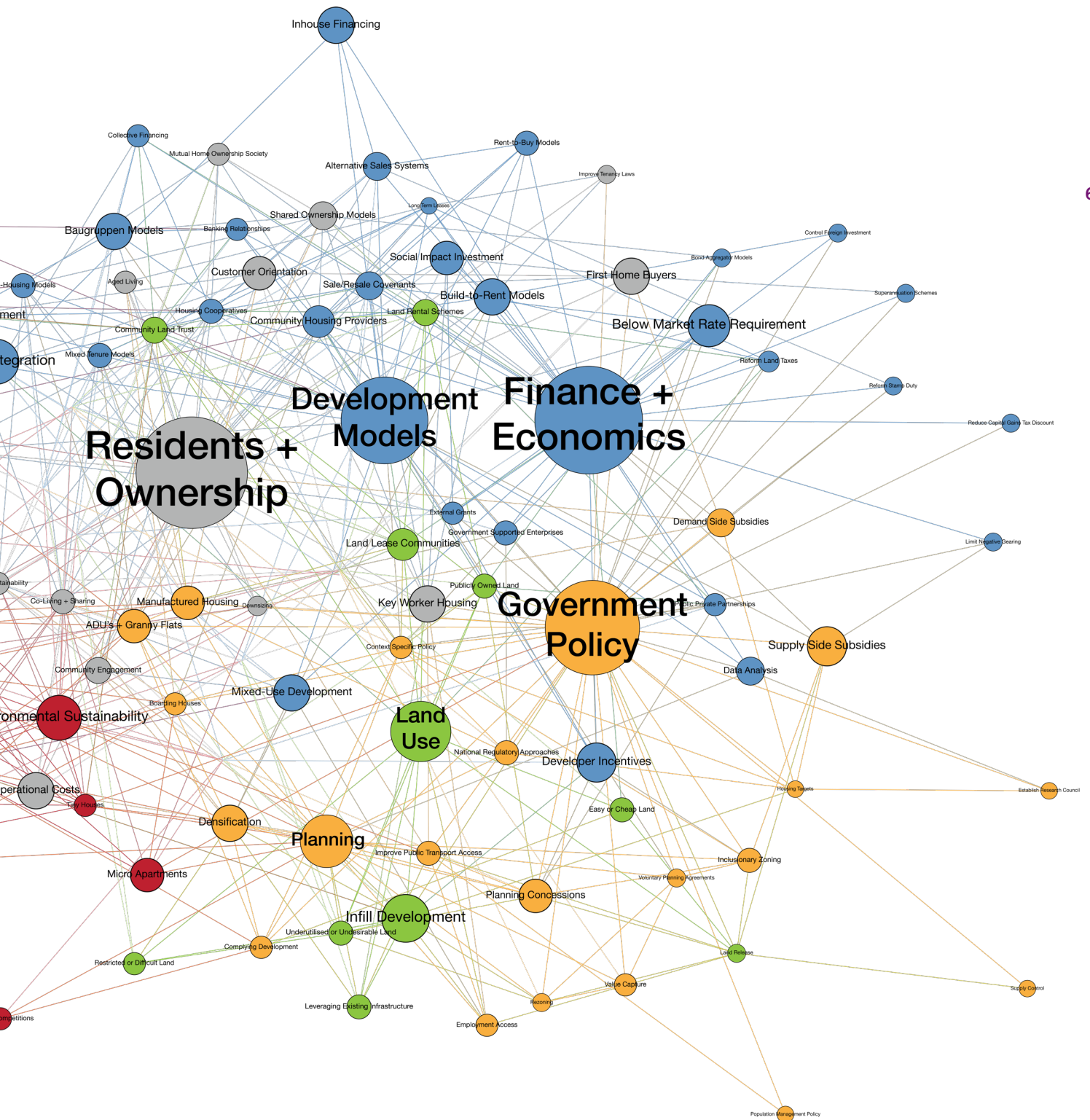
60 The housing crisis is driven by a multitude of interdependent factors operating within a complex network. Systemic issues—such as Australia’s land ownership structures, tenure policies, the financialisation of housing, and the fragmented nature of the development and construction industry—have made delivering housing more challenging than ever. Although the discourse around the housing crisis is evolving, many proposed solutions fail to adequately consider the complexity and interconnectedness of the problem. There is no single solution because there is no single cause.

Given this complexity, over 100 “solutions” or mechanisms for addressing affordability have been proposed by academics, politicians, journalists, designers, builders, and developers, among others. As part of my research, I documented these mechanisms and their interrelationships, along with their disciplinary and professional contexts, to create an “Affordability Atlas” (shown in the image on the right).

Australia must look to international case studies and adapt them to our unique context, addressing housing needs across multiple scales, densities, and tenures. This requires leveraging the strengths of various disciplines and professions to develop solutions that meet the diverse needs of our communities and residents.

Manufactured housing presents one such opportunity to challenge traditional notions of home-ownership while fostering communities that reduce social isolation, reduces housing footprints through sharing, and offers a pathway to affordability for residents.





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About the author Alexandra McRobert

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Alexandra is a registered architect with experience across industry, academia and local and state governments. She has a passion for better designed, equitable and affordable housing, and has worked on the Modern Methods of Construction Research and development program for Homes NSW and is currently the Director of Design for the Queensland Department of Housing.

Alexandra completed her PhD as part of the Future Building Initiative at Monash University (previously the Innovation in Applied Design Lab at the University of Sydney). Her research focused on Housing Affordability, Housing Development, Interdisciplinary Practices, and Prefabricated Construction, with the greater aim to provide more sustainable, affordable, and holistic housing options to the private market.

Alexandra's interest in this area of research came from her experience in private industry, where she completed various projects using semi-prefabricated methods, and worked on a variety of housing projects from granny flats and terraces through to large mixed-use, multi-residential buildings. It was during this time that Alexandra's desire to further explore more affordable, sustainable housing

developed, eventually leading her to accept an ARC scholarship to complete her PhD at the University of Sydney, and later transfer to Monash University.

She has presented at a number of conferences throughout Australia including the Australian Housing Researchers Conference, State of Australian Cities, Annual Design Research Conference, AHURI National Housing Conference, and the Affordable Housing Conference. She has also completed a number of research associate positions including research into affordable housing and transport options with AHURI (Australian Housing and Urban Research Institute) and university-industry collaborative housing development research projects.

Alexandra has also completed a series of volunteering and research projects overseas, looking at different housing typologies, including Global Studio in India and various building projects throughout Asia and Central America. She also has a keen interest in global housing typologies and has completed research trips to Sweden, Western Europe, and Japan, in addition to her Byera Hadley research in America.

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Images

Images not referenced within text previously:

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Page 3: Sea Ripple Village in Karratha, WA. Found on Fleetwood website at: <https://www.fleetwood.com.au/case-studies/searipple-village/>

Page 5: Author's own images of Williams Estates and Peppermint Woods MHC, taken on Friday 2 August, 2019.

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