

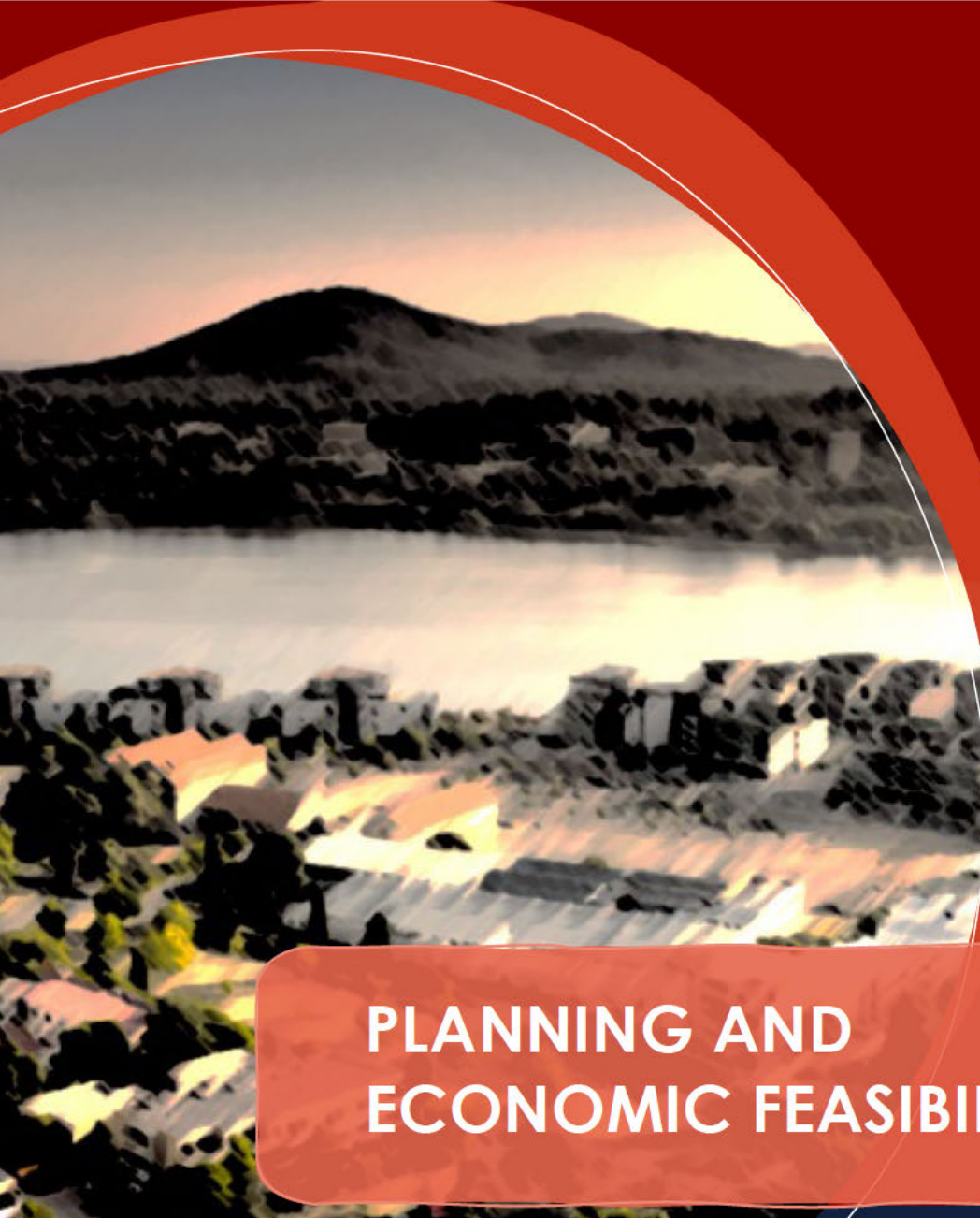
2025

**THE LEGISLATIVE ASSEMBLY FOR THE
AUSTRALIAN CAPITAL TERRITORY**

ELEVENTH ASSEMBLY

**Planning and Economic Feasibility Analysis -
Integrating the Missing Middle in RZ1 and RZ2**

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PLANNING AND ECONOMIC FEASIBILITY

Integrating the Missing Middle in RZ1 and RZ2
for the Environment, Planning and Sustainable Development Directorate

October 2024





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Purdon acknowledges
Traditional Custodians of
Country throughout Australia
and their connection to lands,
waterways, and community.

We also acknowledge and
respect the continuing culture
of the Aboriginal and Torres
Strait Island people, and the
contribution they make to the
stories, knowledge, and life in
our regions.

We pay our respect to Elders
past and present and extend
that respect to all Aboriginal
and Torres Strait Islander
peoples today.

We value the opportunity to
work with these Elders, and
other Aboriginal and Torres
Strait Islander people, on this
and all projects that improve
community outcomes.



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Glossary

Term	Definition
ABS	Australian Bureau of Statistics.
ACAT	ACT Civil and Administrative Tribunal.
Apparent block density	For each block of land, the estimated number of dwellings divided by the area measured in square metres (sqm) recorded in the ACT BLOCK CURRENT file divided by 10,000 sqm. The result is dwellings per hectare on the BLOCK.
Baseline	Conditions that exist in a current state. This might be, for example, controls under the <i>Territory Plan 2023</i> , current market prices, or existing lease conditions. Alternative 'current state,' 'time (t)0'.
Case Study	Development feasibility is assessed using two case study approaches: at a precinct scale through a 'Developability Index,' and precinct 'cases studies' which relate to specific blocks within a precinct. Also 'precinct case study.'
Counterfactual	Conditions which exist after a change has been made, compared to a baseline. The difference between baseline and counterfactual is an impact from a change. Alternative 'future state,' 'time (t) +n' (where n is some measure of time).
CSTM	Canberra Strategic Transport Model.
Economic Rent	A technical economics concept that measures the excess payment to a factor of production (land, labour, or capital) above the minimum amount required to keep that factor in its current use. More simply it is a return from owning something valuable, like land or a skill, which is above what the valuable thing costs to use or maintain, which is received without any extra work. See also 'windfall.' The context in this project is a lease variation and monopoly land supply.
EPSDD	Environment, Planning and Sustainable Development Directorate.
Externality	An economics concept, which is a cost or benefit that is caused by one party but incurred or received by another. Externalities can be negative or positive. A negative externality is the imposition of a cost by one party on another. A positive externality is when a party receives a benefit from actions taken by another.
Feasibility	How easy or difficult it is for a leaseholder to achieve a missing middle development on a specific block. In this project feasibility relates to the achievability of a development. Feasibility is not <i>viability</i> for the purposes of this report (see definition).
Feasibility framework	A six-stage process that describes a range of planning, non-planning and regulatory and enabling levers that impact on a decision to undertake a development. The feasibility framework guides the developability index and precinct case studies.
Greenfield	Undeveloped land which may host residential or other productive uses, often located on the edge of existing urban areas.
Ha	Hectares (10,000 sqm).
In-fill sites	Potentially underutilised sites in built up areas with potential to accommodate additional development. These sites may or may not be already developed. Alternatives in generic usage include 'brown field' or 'grey field.'
Lease Variation Charge	A tax incurred when applying for some changes to lease purposes and related matters in Crown Leases in the ACT.



Term	Definition
Limit	In the context of the <i>Lease Variation Charge</i> , refers to a lease which has a defined limit to the number of dwellings in a lease purpose clause.
Missing Middle	The District Strategies definition: missing middle ‘can be defined in many ways, primarily referring to low rise medium-density housing types that fall between smaller apartments and larger freestanding homes. Missing middle housing includes duplexes (two attached or semi-attached dwellings), townhouses (dwellings in a multi-unit complex), terrace houses (dwellings built in a continuous row), dual occupancies (two dwellings on one block of land), and manor homes (comprise 3–4 small low-rise dwellings)’.
No Limit	In the context of the <i>Lease Variation Charge</i> , refers to a lease which requires variation to define a limit for the number of dwellings in a purpose clause.
Non-Planning factors or levers	Non-planning levers are the elements outside of statutory and strategic planning that impact on the feasibility of development. Primarily these levers are market, financial and economic factors, taxes, and wider community issues. Non-planning factors include some matters that are regulatory or enabling levers.
Opportunity Cost	A concept in economics that measures the value of resources that must be given up when acquiring goods or services. It is the value of the next-highest-valued alternative use of a resource. For example, the opportunity cost of greenfield development is the wider value of land in alternative uses.
Planning factors or levers	Within the feasibility framework, planning levers cover the laws, regulations and guides specifically related to statutory and strategic land use planning in the ACT. Planning factors include some matters that are regulatory or enabling levers.
Precinct	The precinct concept is not defined in ACT legislation, except in reference to specific concepts (entertainment, innovation). Generally, for this project, precinct means a suburb selected to test development feasibility consistent with the project statement of requirements. Also ‘Precinct case study area.’
Pre-Tax Return	The difference between total project end value, and the sum of the costs required to achieve the end value.
Project team	Those who are managing project delivery on behalf of EPSDD and the consultants in Purdon who are developing project deliverables.
Regulatory and enabling levers	Feasibility framework factors that intersect the planning and non-planning categories, where the primary components require the activities, but they are not specifically in those categories.
RZ [1 AND 2]	Residential zone, RZ1 ‘Suburban’ and RZ2 ‘Suburban Core’.
sqm	Square metres.
Urban	The same meaning as the ‘type’ definition in the ACT geospatial catalogue ‘ACT BLOCK CURRENT’ file.
Viability	While a development may be technically <i>feasible</i> , it may not be viable. Viability occurs when the return to a project exceeds a benchmark return on investment. This project reports viability in the context of feasibility, but a technically feasible project is not automatically a viable project.
Windfall	See economic rent. Effectively a return which is ‘unearned.’ The context in this project is a lease variation.

KEY FINDINGS





Executive Summary

Purdon were engaged to assist the Australian Capital Territory (ACT) Government to better understand the feasibility of integrating missing middle development in lower density residential land use zones (RZ) RZ1 and RZ2.

Part 1: Project Context

The project

The objective of this project is to assess opportunities and constraints to achieving missing middle housing.

This assessment covers three time periods for missing middle developments in RZ1 and RZ2 zones: under planning systems in place up to the *Territory Plan 2023*, based on the *Territory Plan 2023*, and in the future under existing conditions or where changes are recommended to increase development feasibility.

This project supports District Strategy implementation Action 2.3 to 'investigate the RZ2 Suburban Core Zone to determine why the existing built form does not demonstrate the intended variation of housing typologies between RZ1 and RZ2 zone'.

The project focus is on the developability of land, and excludes detailed assessment of liveability and other strategic planning concepts.

Opportunities and challenges

The ACT faces strong population growth, fewer greenfield development opportunities than historically, and a policy target of achieving 70% of new dwelling supply from in-fill land.

Insights developed to inform the project illustrate that by 2060 the ACT will need between 314,000 and 340,000 new dwellings (based on ACT population forecasts and household formation assumptions).

Compared to 2022-23 this growth requires an additional 117,000 to 145,000 dwellings, of which 82,000 to 101,000 will need to be from in-fill developments.

Missing middle dwellings will form part of the in-fill response.

The missing middle

The ACT defines the missing middle to include low rise medium density dwellings which are up to 3 storeys.

Based on ABS dwelling structure definitions there were around 49,100 missing middle dwellings in the ACT in 2021, accounting for 26% of total dwellings.

Woden Valley, South Canberra, North Canberra, and Molonglo support around a third of stock in missing middle structures. Belconnen and Gungahlin are at around one quarter. Missing middle penetration is lowest in Tuggeranong and Weston Creek.

One question for this project was whether the changes introduced in the *Territory Plan 2023* have had an impact on missing middle development.

Analysis of longer-term development application (DA) and building approval (BA) data show these indicators have been on a persistent downward trend in the ACT. While it is early in the implementation of the *Territory Plan 2023*, the overall downward trend suggests there is no evidence yet of increased missing middle development. More specifically, there is no marked uptick in either approval type between November 2023 and September 2024.

Part 2: Zones and precincts

RZ1 'Suburban' and RZ2 'Suburban Core' are low density residential ACT land use zones.

The zones currently permit some missing middle dwelling types. In RZ1 options include dual occupancies (secondary dwellings on a single title, or unit titled dual occupancies in some case). In RZ2 options include a range of uses such as attached or detached multi-unit dwellings, apartments, and co-housing (in addition to the options in RZ1).

The ACT maintains policies, design guides and technical specification documents to guide permissible usage in all land zones. These guide leaseholders about expected 'policy outcomes,' 'assessment outcomes,' and 'assessment requirements.'

At face value the expected outcomes for RZ1 and RZ2 zones are straight forward. However, elements of guidance documents create complexity in understanding the rights in these zones.



For example, the block type (standard, non-standard and surrendered), site coverage rules (compact, small, large, multi-unit), potential uses (single dwelling, multi-unit housing, supportive housing), and minimum block areas (for subdivision, certain housing types) interact to create multiple subzones.

In RZ1 there are at least 15 different RZ1 subzones, and in RZ2 there are nine different subzones.

Changes introduced in the *Territory Plan 2023* contributed to lowering some barriers to increasing missing middle development in the ACT.

Some of these include allowing unit titled dual occupancies in RZ1, changing to site coverage from plot ratio in both zones, , increasing dwellings permitted in RZ2, and allowing apartments in RZ2 zones (among others).

These changes increase flexibility and allow for more diverse development options.

Land available

RZ1 and RZ2 zoned land within the ACT urban footprint is significant. Of all urban classified hectares, RZ1 accounts for 28.9%, and RZ2 4.8%. RZ1 accounts for 73.8% of the count of ACT blocks, and RZ2 a further 11.1%.

Overall, there are around 101,000 RZ1 blocks and 15,100 RZ2 blocks.

The bulk of RZ1 blocks have an area between 700 and 1,200 sqm. RZ1 has more than 1,000 hectares of land in blocks with an area greater than 1,450 sqm. Most RZ2 blocks have an area between 700 and 950 sqm, with a substantial grouping above 1,450 sqm.

There is a significant stock of RZ1 and RZ2 blocks of appropriate scale to contribute to meeting the housing challenge through improved densities.

A key feature of increased utilisation of RZ1 and RZ2 land is that the blocks are contained within existing physical, social, and living infrastructure ecosystems.

Additional development on existing RZ1 and RZ2 zoned blocks will not encroach on the significant natural assets in the Territory.

Precinct case study selection

To realistically assess the feasibility of historical and future missing middle development in RZ1 and RZ2

zones, the project scope sought assessments based on five precinct case study areas.

The project definition of a precinct is an ACT 'Division' (or suburb).

The five precincts agreed for case study assessment include Chifley (Woden), Fisher (Weston Creek), Macquarie (Belconnen), Monash (Tuggeranong), and Narrabundah (Inner South).

The potential for realising increased missing middle development in the five precincts is significant.

In the precincts 52% of RZ1 zoned blocks have an area greater than 800 sqm, while a further 24.8% are between 700 and 800 sqm. For RZ2 in the precincts, 80% are greater than 700 sqm in area. Across the five precincts, there are 171 blocks greater than 1,450 sqm. Most of these blocks have single detached dwellings, and most may be eligible to pursue increased dwelling densities under current settings.

A key point affecting feasibility assessments is that each of the precincts is unique, and any decision to undertake a development will be impacted by local opportunities and constraints.

The diversity of the precincts makes it difficult to offer generalised diagnostics about why some areas have or might develop and others have or may not develop.

Part 3: Feasibility framework

To analyse opportunities and constraints to the realisation of increased missing middle development a development feasibility framework is used. This framework applies to any development, at any scale.

The feasibility framework defines the development journey from concept through to outcome, and considers planning, non-planning and regulatory and enabling levers across the concept, design, approval, development, closure, and post-occupancy stages.

The framework identifies a comprehensive array of matters which will impact on development feasibility:

- Planning factors that are related to the strategic and statutory planning system, and determine what type of development is technically feasible (or permissible).
- Non-planning factors including market and economic matters (prices, values, finance, and



taxes), and determine whether a permissible option is viable.

- Issues which intersect the planning and non-planning factors, are grouped as regulatory and enabling factors. These affect permissibility and viability.

The interaction between these factors determines development feasibility and viability.

Choices and time frames

Leaseholders of RZ1 and RZ2 blocks have a discrete set of choices, including doing nothing, selling land to someone else to develop, building a better house, adding a secondary dwelling, adding an additional dwelling (with or without unit title), or developing to the maximum extent possible under existing rules.

Leases in RZ1 and RZ2 zoned land are typically held by individuals, and builders and smaller scale developers.

RZ1 and RZ2 zoned land does not offer development opportunities sufficient to attract professional large-scale developers.

Leaseholders who are not professional developers will have a lower willingness to accept risk, ability to assess feasibility, commit to the time frames involved in delivering medium density developments, and have difficulty accessing enabling services (financing, supporting experts, builders, and development managers for example).

This ownership dimension affects the ability to achieve missing middle development as the leaseholders are less experienced, potentially less skilled and are more likely to be risk averse.

Planning levers

Planning levers that affect developability include:

- The crown lease: a lease defines development rights available to leaseholders. If a lease does not permit development that is permitted within a zone, or requires a change to define the number of dwellings permitted on a lease, the lease must be varied, requiring an application process and a lease variation charge (LVC). The LVC depends on the type of change in lease.
- Urban character and history: achieving missing middle development within existing patterns of subdivision requires bringing modern development ideas into locations established

under previous planning system settings.

Effectively, it seeks to reverse engineer modern concepts and standards into leases created under at least nine different planning regimes.

- Planning controls: established in legislation, regulation, policies, design guides and technical specification these determine permissible development. Generally, accessing rights that could increase dwelling density, compared to single dwelling development, increases the complexity of DAs, and the number of processes required (e.g. in addition to DA, there may be a lease variation, unit title, or ACAT process).
- Delays and time frames: Each planning control process includes an assessment timeframe, there may be third party review, and there is a risk of multiple requests for information processes. Each of these introduces a risk of delay and increased costs, which affects development feasibility.

Regulatory or enabling levers

There are a range of levers that fit in either the planning or non-planning categories which are called 'regulatory or enabling.' These levers are essential inputs to approval processes, building design, construction pathways, the settlement process and post-occupancy issues.

Regulatory or enabling levers that materially affect developability include:

- Professional services and endorsements: as project complexity increases from a single dwelling to multiple dwellings there is an increase in the number of experts (e.g. engineers, traffic consulting, surveyors, arborists) and associated approvals (e.g. Transport Canberra and City Services, Conservator for Flora and Fauna, utility providers). For example, a multi-unit development would create around 45 separate clearances, and need support from around 10 professions.
- Related ACT legislation: there are at least eight legislative frameworks in addition to *The Planning Act 2023* that guide construction requirements, waste, verges, transport, stormwater, utilities, and developer licensing.
- National Construction Code: the NCC is a performance-based code which sets the minimum required level for the safety, health, amenity, accessibility and sustainability of certain buildings, and is a key factor in achieving occupancy



certificates, certifications, and affects new dwelling designs.

Each of these levers are important contributors to building quality and safety, and ensuring community expectations are met. However, each lever adds cost and delay risks to projects, more so when moving from single to multiple dwelling developments.

Non-planning levers

Non-planning levers strongly affect financial returns, and are more likely to influence leaseholder decisions to pursue a development.

Non-planning factors start with a choice to pursue change, which depends on prices and values, and covers a range of market and regulatory activities.

Major non-planning levers include site constraints, existing land use, development costs (including materials and labour), holding costs, finance and related interest payments, government regulation, taxes and fees, and community culture.

Most non-planning levers are outside of the control of the ACT government.

Non-planning levers that affect developability include:

- Price and value: the primary hurdle in measuring feasibility is that any development must achieve a final market price (or end project value) greater than the base land value plus project costs and a return that adequately compensates for the risk taken to develop.
- Access and cost of finance: missing middle developments are more complicated than standard single dwellings which affects the ability of non-professional RZ1 and RZ2 leaseholders to access finance. In recent years, the cost of finance has escalated lowering returns to development.
- Input costs: construction costs are influenced by globally determined materials prices, and nationally determined trade labour prices. In recent years construction costs have escalated dramatically. There are also significant construction job skill shortages in the ACT.
- Taxes: the ACT maintains several types of land based taxation, and any development profits are likely to be taxed by the Australian Government. Taxes affect project feasibility, either through the impact on prices or costs, or by decreasing the net return on investment (ROI).

- The LVC is a tax unique to the ACT. Leaseholders cannot access zone rights if they are not permitted by their lease. Leaseholders may apply for additional rights, and this will incur an LVC in addition to any actual development costs. The LVC acts as an in-fill tax, and lowers the potential ROI from development, much like other inputs costs.
- Community culture: planning matters can attract significant public interest in the ACT. There appears to be community support for sensible missing middle style development. However, the system currently allows third parties to influence outcomes, mostly in multi-unit settings, including through appealing decisions to the ACT Civil and Administrative Tribunal (ACAT). Delays increase costs, and disputes may affect design and technical feasibility.

A key issue affecting feasibility, drawn from these analyses, is that each precinct has a unique market. For example, market prices for property, which affect project input costs and project returns, are formed in a local context, based on local factors. Conversely, development costs are formed at an international, national and ACT scale.

This means that despite technical feasibility, some developments may not be viable because of differences between local and other contexts in which values are formed. In the short term, locations with higher prices, for example, have a higher likelihood of achieving viable project returns.

Part 4: Feasibility assessment

Building on the feasibility framework, two methods have been applied to assess the opportunities and constraints to increasing missing middle development.

The first is a *precinct scale* assessment based on a 'developability index'. This method uses a multicriteria analysis tool to rank a range of feasibility framework levers, according to how they impact on the developability of a parcel of land.

The index includes 14 characteristics: corner block, existing use, block size, block complexity, existing dwelling count, existing density, street frontage, canopy, slope, orientation, unimproved value per sqm compared to the suburb average, and distance to Town, Group and Local Centre. A higher score in each characteristic suggests higher developability of a block.



The index does not include qualitative factors, such as liveability or urban amenity.

To enrich the precinct scale analysis the second method develops *block scale* case studies based on specific RZ1 and RZ2 land in the precincts.

The case studies evaluate the impact of land use, planning, professional costs and fees, development costs, taxation, and financing components to derive estimated projects rates of return.

Developability index results

The developability index results, focussing specifically on-site characteristics (not current planning controls) indicate that:

- Out of 6,121 blocks in the sample, 12% have high to very high developability, 64% have moderate developability, and around 24.4% have low to very low developability.
- In RZ1 zoned land 7.8% of blocks have high to very high developability, 63.9% moderate developability and 28.3% low to very low.
- RZ2 achieved better outcomes, with 25.7% scoring high to very high results, 62.6% moderate results, and 11.7% had low to very low developability.
- Developability index results are generally higher in Macquarie and Chifley. Only Macquarie has blocks that are very highly developable, while Fisher and Narrabundah have blocks with very low scores.

These results demonstrate that it is reasonable and conservative to estimate around 35% of blocks in the case study precincts are attractive for missing middle style development if it is technically feasible.

Other factors that the analysis revealed in relation to increasing development include:

- When land is nearby all types of centres (local, group and town) together, this materially increases the developability score (as each is scored separately).
- In the short-term blocks with higher existing density are scored lower than those with low density (e.g. multi-unit compared to house) as the latter are easier to develop. However, over time, if housing demand increases the scarcity of in-fill blocks, the higher density blocks could become more attractive for redevelopment.

- The developability index did not include existing land zoning as a precondition for developability, it focussed exclusively on the use of the land based on site characteristics. Overlaying current zoning on the mapped results show current zoning is not aligned with better developability. For example, there is highly developable land zoned RZ1, which might yield more missing middle development under RZ2 or higher zoning.
- Subdivision and consolidation, especially in RZ1, would allow for more flexibility and a wider diversity of options in highly developable locations that may not currently be available.
- Developability scores for some blocks, and combinations of blocks, suggest even missing middle outcomes would not unlock full development potential. For example, along the eastern edge of Chifley, around the group centre in Macquarie, and at the edge of Griffith and Narrabundah local centres land quality may be more suited to higher density zoning.
- The developability score is affected by current block sizes, which are based on historical patterns of subdivision. If controls linked to block size were removed or adjusted to allow for development rights on smaller lots this would necessitate a change in the developability scores, and potentially increase the number of blocks with higher developability scores.

Case study results

The case studies covered three broad scenarios:

- A path of least resistance that achieves some additional development (i.e. it does not maximise development potential of the block but provides for a simple and quick development process).
- A middle pathway that applies the *Territory Plan 2023* rules as best as possible.
- A missing middle reform scenario that assesses site potential without considering existing zoning constraints, or at least challenges the boundaries of the current regime.

The scenario outcomes are based on an ROI before any Australian Government taxation is incurred.

Initially 30 precinct case studies were devised: five precincts, two zones and three case studies per zone. In practice, when factoring in different potential LVC approaches, the volume increased to 55 cases.



After doing a first pass assessment of the case studies, 15 scenarios had to be excluded because of existing constraints—either having existing improvements that impede expansion, or simply lacking permission under existing planning settings to develop based on the scenario definition.

This project has adopted a benchmark project ROI of 17-25% based on current industry settings. If a project is technically feasible, but has an ROI lower than the benchmark, it is unlikely to be viable.

Of the 40 case studies, 32 generated a positive ROI, and 8 returned a negative ROI. Using a land cost inclusive base line, 15 scenarios returned more than the benchmark ROI of 17%.

The highest result was achieved in an RZ2 missing middle reform case study in Narrabundah. This scenario cannot be delivered under current planning controls as it is 3 storeys.

Of the 8 case studies recording a negative ROI, four were in the missing middle reform scenario category.

Positive ROIs are generally associated with smaller scale lower risk projects, however there are significant positive gains in scenarios requiring reforms to achieve missing middle.

For example, of all 32 cases with positive ROI, 16 are in RZ1 and RZ2 case studies that cannot currently be achieved, or would face significant approval challenges under current settings.

Other factors that the analysis revealed in relation to increasing missing middle development included:

- Finding no formal relationship between dwelling yield and ROI.
- Case study project costs have a clear order of impact. Construction costs dominate. The second ranked cost is either the combination of all professional fees and charges, or interest on finance over the project duration. In all cases LVC is last in the cost ranking.
- While LVC is not a significant project cost, for projects where it is payable, LVC lowers the ROI relative to a case of no LVC.
- In each case where a loss is reported, the project costs include an LVC payment. On the basis LVC aims to tax windfall gains on changes in rights,

taxing projects where accessing the rights does not lead to a positive ROI seems perverse.

- Current settings do not support achieving missing middle returns in a significant number of cases. Rules in both RZ1 and RZ2 would need to be adjusted if the development potential is to be realised in a feasible way.
- Block size rules can limit development feasibility, especially when paired with block type and site coverage. For example:
 - all RZ1 blocks in the case studies are 'large' limiting site coverage to 40% (single) or 45% (unit titled subdivision), whereas subdivision may create 'mid-sized' separate titled blocks akin to those in newer ACT suburbs that can access up to 60% site coverage (single).
 - For RZ2 blocks, multi-unit housing is constrained to a site coverage of 45% of the 'original block size', which affects the ability to maximise development in subdivisions.
- Allowing for subdivision and consolidation can lead to improved outcomes including better combined gross floor area, wider street frontages, separate titles (not unit titles) and more opportunity to capture solar orientation.
- Rigid rules may not provide the right incentives to develop toward higher and better valued land uses. For example, site coverage is based on fixed block size, block type, and zoning, which do not allow for higher proportions on the sites investigated and not at all in older suburbs which typically have larger average block sizes.

Discussion and recommendations

This executive summary sets out the high-level narrative and general findings for the project.

Specific observations are made to draw attention to significant matters outlined with the report.

Together, the executive summary, observations and the detailed analysis within the report inform recommendations that are within the remit of the ACT Government to action, and that address challenges to facilitate the desired outcome of increasing missing middle development in RZ1 and RZ2 zoned land.

The project evidence depends on a range of resources, assumptions, and limitations. It is important to consider the issues identified in Annex 3 when reviewing this report.



Observations

Observations draw attention to issues affecting the integration of missing middle in RZ1 and RZ2 zones in the ACT identified within the report. With more context and evidence these may form the basis of future recommendations.

Observation 1: Population growth will support dwelling demand for the foreseeable future. Where the population growth occurs will depend on land use patterns. Technical forecasts suggest Tuggeranong and Weston Creek should have limited demand. Overall, the population is ageing which will adjust the product mix demanded. Growth and ageing will support different dwelling typologies, especially those in the missing middle mix.

Observation 2: If the in-fill target of 82,000 dwellings is met, the need for 4,100 ha of greenfield development could theoretically be avoided (assuming 20 dw/ha). The range of avoided hectares would be between 1,367 to 8,200 hectares (based on missing middle densities of between 10 to 60 dw/ha).

Observation 3: For this project Missing Middle means low rise medium density development dwelling types which are up to 3 storeys in the ACT context.

Observation 4: Using a statistical measure missing middle stock accounted for around 27% of ACT dwellings in 2021-22. This is up from round 25% in 2011. The distribution is uneven, but some districts are exceeding a third of dwellings in the missing middle typology. Weston Creek and Tuggeranong have the least. Most of the missing middle dwellings are between one and three bedrooms, with one and two bedrooms more likely in apartment types, and 2-3 bedrooms more likely in semi-detached structures.

Observation 5: A key question for the project was the degree to which changes introduced in the *Territory Plan 2023* have had an impact on development activity, including the missing middle. There has been a broad downward trend in development application activity, and in building approvals data, including over the period since November 2023. While the changes in the Territory Plan could not be considered a cause of this downturn, due to their recency, there is limited evidence the changes have supported additional development. Specifically, there is no *increase* in development or building approvals broadly, and certainly no marked uptick from November 2023 to September 2024.

Observation 6: The current language in residential zone policy objectives does not support missing middle as a desired zone outcome, especially in RZ1. Missing middle options start to become clearer in the RZ3 zone which is out of scope in this project.

Observation 7: Despite having single definitions RZ1 has at least 15 different subcategories, and RZ2 has at least nine subcategories. Immediate simplification could be achieved without definitions like 'non-standard' block or 'supported accommodation,' or by aligning block size limits associated with controls.

Observation 8: The current complexity within RZ1 and RZ2 rights makes the system difficult to navigate, and disincentivises development by increasing the need for additional expertise and longer assessment timeframes due to increased controls that need to be reviewed in preparing approval requests.

Observation 9: Up to 95% of RZ1 land contains single detached dwellings, and potentially 85% of RZ2 the same.

Observation 10: There is significant potential in the RZ1 and RZ2 zones for further missing middle development. This development would have minimal impact on existing off-block physical and living infrastructure including street canopy. Improved block usage would not compete with other commercial and residential zones targeting higher densities. Additional utilisation of these blocks may increase utilisation of existing social infrastructure.

Observation 11: Missing middle potential in the five cases study precincts is significant. Across all precincts 40% of RZ1 land and 12% of RZ2 land is greater than 800 sqm in area. There are 149 blocks greater than 1,450 sqm. Most existing usage is single detached dwellings.

Observation 12: Detached RZ1 block density in the case study precincts is around 10-15 dw/ha, and for RZ2 sits in a similar range to RZ1 but with wider ranges in some locations. Density increases with different usages achieving, for example, 17-27 dw/ha in dual occupancy and as high as 30 dw/ha in unit titles blocks.



Observation 13: Apart from having close commencement dates each precinct has unique local constraints and opportunities. There are some similarities like significant green and open space, a combination of hilly and flat areas, and generally ageing populations. Further, Narrabundah and Macquarie have features that suggest differences within precincts, given their proximity to larger group and town centres. However, it would be erroneous to conclude each precinct is uniform, meaning development feasibility in any precinct will be directly impacted by local factors.

Observation 14: Any change in the potential bundle of rights made available through changes in the Territory Plan are not reflected in a Crown Lease unless a Lease Variation Development Application is approved, and the change is registered at the Land Titles Office. A lease purpose clause, defining what can be achieved on the leased land, may have been created inconsistently, creating unclear differences in rights between leases, even within similar locations, and at different point in time. These inconsistencies can impact on decisions to pursue additional rights because of the lease variation requirement.

Observation 15: Newer ACT Government suburbs have a majority of RZ1 blocks with an area less than 700 sqm, meaning they cannot access additional missing middle style rights under current controls. Conversely, the majority of RZ1 land in the older precincts are well above 700 sqm. These blocks could theoretically access missing middle rights, but only using unit title, as subdivision is precluded under current settings. This illustrates an inequity in how land can be used between older and newer suburbs.

Observation 16: The character of suburbs reflects the impact of *initial* planning and development conditions, and changes over time. Strict requirements to maintain character may impact the feasibility of achieving changes to modern standards, especially for leases in suburbs developed prior to self-government. This is especially the case in RZ1 or RZ2 zones in these suburbs, as block dimensions and land use distributions do not reflect modern patterns of subdivision and land use.

Observation 17: Existing planning levers that enable easier development almost exclusively serve

single dwelling housing as opposed to multi-unit housing development.

Observation 18: Market prices are formed in a local context, based on location factors. Development costs and regulations are formed nationally and at a Territory scale. This will affect development returns and project feasibility.

Observation 19: In setting guidelines for materials and building quality, there is a risk policy settings may increase the costs of construction which impact on project feasibility. There is a trade-off between the costs, quality and whole of life outcomes. These trade-offs should be assessed in regulatory impact assessment of any new guidelines or requirements.

Observation 20: Smaller scale developments in RZ1 and RZ2 zones have significantly different risks and incentives when compared to larger scale higher density developments. The leaseholders are not likely to be professional developers. The current LVC is complicated, reflects theoretical valuation gains rather than actual gains, and has an increased chance of preventing underutilised RZ1 and RZ2 land being bought into higher valued uses, especially in the context of leaseholder risk tolerance. A different approach to capturing 'windfall gains' in developments in these zones might be appropriate, where the tax is linked to revealed market outcomes rather than rigid fixed tax rates disconnected from actual market outcomes.

Observation 21: It is unclear whether the economic rent argument used to justify the LVC is sustainable, especially in RZ1 and RZ2, if compared to a wider impact assessment that includes externalities and opportunity costs, where all benefits and costs from a leaseholder not proceeding with a development are measured.

Observation 22: Assessing the feasibility of any development is a complicated task. Recommendations made in this project are focussed on planning, non-planning and regulatory and enabling levers which are directly able to be controlled by the ACT Government, and contribute towards achieving an outcome focused land development system. Factors not in the control of the ACT Government are observed, and are consequential, however they are excluded from further analysis.



Observation 23: Genuine feasibility and viability assessment on a block or combination of blocks would need lease details, information about leaseholders' preferences, and reflect the opportunities and constraints for the specific parcel of land. The precinct case studies are necessarily high-level, and general, providing information on the size and direction of potential returns as opposed to specific investment returns. The case study results should not be seen as investment advice.

Observation 24: The professional developer industry tends to operate with an expectation of 17-25% return on project investment. The leaseholders, and development options in RZ1 and RZ2, may have lower thresholds and be motivated by factors other than profit maximisation.

Observation 25: The development attractiveness of blocks has been estimated using a developability index methodology. At a precinct scale most of the blocks have 'moderate' developability, with small but significant pockets of high and very high developability. Based on the analysis, and other government research, a conservative estimate is that around 35% of blocks in all case study precincts have attractive developability characteristics.

Observation 26: While current zoning is not a component of the developability index method, when zoning is overlaid on the developability results zone boundaries could be adjusted to maximise the potential for leases to be varied to a higher and better valued outcome, including shifting some blocks or combinations of blocks into higher density zoning.

Observation 27: When viewed at a precinct scale matters that would improve developability that are within the control of the ACT Government are less rigid block size controls, the ability to

consolidate and subdivide in all zones, allowing adjustments to block frontage/verge crossing definitions (for corner blocks), and simplifying controls in unit titled blocks to improve incentives for more complex redevelopments.

Observation 28: After selecting case study sites, and before estimating case study results, two fundamental issues arose: some cases had land that meets existing rules for additional dwellings however existing improvements congest the land making uplift unfeasible, and some missing middle scenarios require development rights that do not exist under current zone rules (for example block size limits, subdivision and consolidation constraints, building to three storeys). These issues excluded 15 case studies. For example, If the 800 sqm limit on unit titled additional dwellings in RZ1 was relaxed four of the 15 excluded scenarios could have been tested.

Observation 29: Several key assumptions in the case studies are at the low to mid end of the range of possible values, and could be considered 'optimistic'. Case study results are estimated in pre-tax terms. There would certainly be some income, GST, and CGT consequences. The reported results must be seen in this light—they overestimate returns on optimistic inputs, and do not translate to increased wealth. They set a magnitude and direction to be compared to industry ROI benchmarks to understand potential gross returns from the case studies.

Observation 30: From 55 case studies only 32 have positive returns, and 15 achieve a gross ROI above the 17% benchmark. Of the 32 positive results 16 are based on missing middle reform cases that cannot be delivered under current planning settings.



Recommendations

Recommendations are made on matters that are within the remit of the ACT Government to action, and that support achieving the outcome of improved integration of the missing middle in the ACT. These are based on the research and engagement summarised in this report.

Any recommendation, if accepted, may require consequential changes to legislation, regulation, policy, or related documentation. These additional changes would include dealing with any unintended consequences that cannot be foreseen at this point. The recommendations do not include estimated costs of implementation or other financial impacts.

These changes are a matter for the 'owner' of these processes within the ACT Government and are not set out in this report.

Recommendations: Planning

Despite planning levers being only one component of the feasibility framework, the ACT Government can control most planning matters. For example, controls and requirements are set out in the Planning Act, Territory Plan (including district and zone policies), design guides, technical specifications, and related regulations. Amendments to these can be made in accordance with powers under the Planning Act, or by amendment to this and related legislation in the ACT Legislative Assembly.

Two types of recommendations are offered. First are those which support the strategic intent to increase development of missing middle dwellings in RZ1 and RZ2. The proposed changes will need further policy work, and will take effort to achieve. The second are recommendations which will support the strategic intent, but are relatively easier to implement.

Strategic recommendations

Problem statement	Recommendation	Expected impact	Supporting evidence
Missing middle design, and increased density, requires flexibility in land size, which is currently not available on larger blocks, especially in RZ1 zones.	Amend controls 'Subdivision and consolidation of residential blocks, except in RZ1', 'Consolidation of blocks— RZ1' to enable all leases in RZ1 and RZ2 to be consolidated and to access development rights equivalent to RZ2 at least.	Increase flexibility and diversity in design options for leaseholders to achieve modest density increases, especially in RZ1 zones. All other assessment outcomes, assessment requirements, technical specifications, and design guides will remain to assure compliant planning outcomes.	Evidence that supports the recommendations for consolidation and subdivision are related, and reported as one. Current settings allow a limited range of consolidation options for RZ1 blocks, limiting the range of options available to achieve higher



Problem statement	Recommendation	Expected impact	Supporting evidence
Missing middle design, and increased density, requires flexibility in land size, which is currently not available on larger blocks, especially in RZ1 zones. Further, current RZ1 settings restrict end ownership options (dual occupancy on one title, or unit title).	Amend controls 'Subdivision and consolidation of residential blocks, except in RZ1', 'Consolidation of blocks– RZ1' and 'Residential subdivision generally' to enable all leases in RZ1 and RZ2 to be allowed to be subdivided and to access development rights equivalent to RZ2 at least.	In relation to subdivision, enabling leaseholders of larger sized blocks, in particular in RZ1, more flexibility to achieve missing middle options, including single titles, than are available under current controls. All other assessment outcomes, assessment requirements, technical specifications, and design guides will remain to assure compliant planning outcomes. Not allowing subdivision would make all RZ1 missing middle require unit title processes and expenses, and lock in an ownership inequity when compared with newer suburbs.	densities (especially in conjunction with subdivision restrictions). Current settings do not allow subdivision of RZ1 blocks other than using Unit Title. Unit titling adds additional costs, and longer-term management complexity which lowers returns, and adds risks to development. This is not to say subdivision is cost free, but there is no option for leaseholders to evaluate viability using subdivision on current controls. The precinct case studies show the potential value from consolidation (RZ1 Chifley). For more information see Observation 7, Observation 8, Observation 11, Observation 15, Observation 16, and Observation 27. Evidence supporting the issues are in sections 2.1 RZ1 and RZ2 Settings, 2.3.3 Precinct land structure, 3.3.2 Urban Character and History, developability index section 4.1.2 Patterns, and case study section 4.2.5 Common themes.



Problem statement	Recommendation	Expected impact	Supporting evidence
Rigid land size controls are inconsistent with the flexibility required to increase density, and current controls contribute to a complexity of zone definitions.	Amend controls relating to 'Housing density and minimum block areas,' and 'minimum block sizes' to remove minimum block size controls in RZ1 and RZ2, or If the minimum sizes are not removed completely, then amend controls relating to 'Housing density and minimum block areas' for RZ1 land to allow additional dwelling development (dual occupancy or greater) on blocks larger than 700 sqm.	This change would allow leaseholders to pursue the highest and best valued use of land, including missing middle style developments, based on the outcomes approach enabled by other assessment outcomes, assessment requirements, technical specifications, and design guides. If the minimums are not removed, lowering to 700 sqm will align controls between different types of blocks in RZ1 (except secondary dwellings), and RZ2. If no change occurs controls will lock in existing size distortions within and between RZ1 and RZ2 settings, and negatively impact on achieving more potential missing middle development.	Rigid minimum sizes do not allow flexibility to achieve the highest and best values use for land at the margins (for example, land 799 sqm, compared to 801 sqm). Across the ACT there are 20,000 blocks in RZ1 which may be able to access additional rights if the size constraint lowers to 700 sqm. For more information see Observation 7, Observation 15, Observation 16, Observation 27, and Observation 28. Evidence supporting the issues are in section 2.2 Volume of RZ1 and RZ2, 2.3.3 Precinct land structure, 3.3.2 Urban Character and History developability index section 4.1.2 Patterns, and case study section 4.2.5 Common themes.



Problem statement	Recommendation	Expected impact	Supporting evidence
Rigid site coverage controls are inconsistent with the flexibility required to increase density, and current controls favour newer parts of Canberra where smaller blocks are more regular.	Amend controls relating to 'Site coverage' for land zoned RZ1 and RZ2. In order of priority, the amendment should: Remove links to a block type (large, mid-sized, compact, or multi-unit housing), and Allow a site coverage percentage between 40% and 70%, or If the flexible range is not agreed, set a minimum level around 50%.	This change will interact with the subdivision, consolidation, and minimum block size recommendations to increase flexibility in design and building diversity to underpin a wide range of missing middle style developments. The flexibility will be controlled by the outcomes approach enabled by other assessment outcomes, assessment requirements, technical specifications, and design guides. Making no adjustment leaves complexity within the zone definitions, and rigidity in controls.	Shifting from plot ratio to site coverage has already enhanced the incentives for missing middle development by allowing more design flexibility. However, the percentages in the controls are complex and varied. Almost all land in older suburbs will be 'large' or multi-unit limiting the coverage to 40-45%. A site coverage range would improve flexibility to optimise land use for missing middle outcomes. A close second best would be to nudge the coverage ratio closer to the single dwelling values for RZ3-5 to align densities. For more information see Observation 7, Observation 8, Observation 10, Observation 12, Observation 16, and Observation 26. Evidence supporting the issues are in section 2.1.3 Complexity in zones, 2.3.3 Precinct land structure, 3.3.2 Urban Character and History, developability index section 4.1.2 Patterns, and case study section 4.2.5 Common themes



Problem statement	Recommendation	Expected impact	Supporting evidence
The ACT definition of missing middle supports development to 3 storeys, but RZ2 which mostly allows for missing middle typologies, is restricted to 2 storeys.	Amend the 'number of storeys' control for land zoned RZ2 to allow for 3 storey developments.	Facilitate a wider range of missing middle typologies, especially apartments.	The ACT definition of missing middle includes development up to 3 storeys. Controls currently allow for a maximum of 2 storeys, preventing the development of some missing middle in RZ2. For more information see Observation 3, Observation 7, Observation 8 and section 2.1.2 Zone goals: baseline.
Underdeveloped multi-unit sites on RZ2 cannot be redeveloped without all owners' corporation members agreeing. This is onerous, and inconsistent with settings in other Australian jurisdictions.	Allow applications for cancellation of a Units Plan to be approved by the Authority following a special resolution (75%) of the Owners Corporation, rather than a unanimous resolution (100%), noting that any changes to the voting requirements must consider options to protect vulnerable owners.	Increase the chance for marginal multi-unit developments on RZ2 zoned land to be redeveloped to increase density, and improve land utilisation.	Under current rules, if a unit-titled development is underutilised 100% of members of the owner's corporation need to decide to cancel a lease. This is a significant hurdle. Precinct analyses show there are parcels of RZ2 which are currently multi-unit sites, but which are potentially underutilised compared to the potential higher densities that might be achieved through redevelopment. See: Observation 27, section 2.3.2 Precinct profiles, and developability index section 4.1.2 Patterns.



Supporting recommendations

Problem statement	Recommendation	Expected impact	Supporting evidence
The RZ1 policy outcome does not support missing middle type incentives.	Remove RZ1 Suburban Zone Policy Outcome 3 'Limit the extent of change that can occur particularly with regard to the residential density and original pattern of subdivision'.	Send a signal to leaseholders that the Government is open to increased development of missing middle dwellings in RZ1.	Evidence for these policy changes is connected. The volume of potential low to medium density missing middle development on existing RZ1 and RZ2 blocks is potentially significant. The policy outcome language does not signal that this development is desired. Existing patterns of subdivision may preclude modest missing middle development. See: Observation 6, and sections 2.1 RZ1 and RZ2 Settings and 3.3.2 Urban Character and History.
The RZ2 policy outcome does not support missing middle type incentives.	Remove RZ2 Suburban Core Zone Policy Outcome 3 'Provide opportunities for redevelopment by enabling changes to the residential density and original pattern of subdivision' and replace with 'Provide opportunities for redevelopment by enabling change'.	Send a signal to leaseholders that the Government is open to increased development of missing middle dwellings in RZ2.	
Current enabling planning levers favour single dwelling development, and increase the complexity of achieving missing middle development which are typically multi-unit structures.	Consider a modified DA pathway for missing middle designs in RZ1 and RZ2 zones that enables faster approval, and removes potential approval delays (like the models in NSW and Victoria, where appropriate to the ACT).	Lower costs and delays for multi-unit dwelling developments that meet missing middle demand.	Shifting from single dwelling development to multi-unit development increases the volume of expertise, cost, and risk. Other jurisdictions have de-risked this to some extent by having approvable designs. See: Observation 17, and sections 3.3.3 Potentially constraining planning levers and 3.3.4 Potentially enabling planning levers for context.



Recommendations: Non-Planning

The ACT Government has limited influence over most non-planning levers that might improve the feasibility of missing middle development in RZ1 and RZ2 zoned land. The main levers are land supply and pricing, and taxation. Land supply reforms are not in-scope for this project. Recommendations for in-scope levers are set out below.

Problem statement	Recommendation	Expected impact	Supporting evidence
Stamp Duty is a regressive tax that is being phased out in the ACT. In circumstance where land is transferred for missing middle development, removing the tax may increase the incentives to develop.	It is recommended transfer duty ('Stamp Duty') is removed from the sale of land intended to facilitate a missing middle development outcome. Attached to this benefit it is recommended a penalty be included that would recover stamp duty and a penalty if a building approval on an exempt transaction is not applied for within 12 months.	Encourage the sale of land suitable for missing middle development. There will be an impact on stamp duty revenue from this recommendation.	The case studies did not model stamp duty. If land is to be purchased to support a missing middle development, stamp duty adds to the overall cost base. With a tax reform program to remove stamp duty by 2032 underway, this incentive may be a quick win to release land. The penalty component intends to disincentivise land banking.



Problem statement	Recommendation	Expected impact	Supporting evidence
At the development scale for land in RZ1 and RZ2 settings, and for the leaseholders who must make a decision to develop in these settings, the Lease Variation Charge is a disincentive to make a development decision.	It is recommended lease variation charge for missing middle style developments in RZ1 and RZ2 land is changed. The recommended options, in order of preference, are: - Remove LVC for missing middle type developments in RZ1 and RZ2 zones, or - Change the method of taxation for missing middle type developments in RZ1 and RZ2 zones to an outcome based 'super profits' type tax which applies to measured development value gains, adjusted for costs and a reasonable profit margin, or - Introduce an LVC rebate mechanisms or remission for missing middle type developments in RZ1 and RZ2 zones. The amount should be linked to the change in value from development ensuring, at least, any project that generates a loss is compensated to the value of the loss, and providing a rebate to profitable developments where a benchmark return is not achieved. In other cases, the amount would be discretionary based on government policy aims, or - Standardise and lower LVC for missing middle type developments in RZ1 and RZ2 zones such that the tax per dwelling is modest and equal regardless of location and existing lease conditions. These options are structured in order, so if the preferred option is not accepted, then the next best option is considered.	The effect of the recommendations are to remove, adjust, reduce, or simplify the LVC. All options create a clear positive market signal that development of missing middle dwellings in RZ1 and RZ2 is encouraged by the ACT Government. The impact of selecting the options identified are to increase the relative return from development to the leaseholder, and encouraging more rapid development of missing middle dwellings, completely, or at least in higher priced locations. Removing LVC also removes the perception, and actual risk, that the tax is considered the cause of developments not occurring. There will be an impact on LVC revenue from this recommendation.	The lease variation charge acts as an in-fill tax. The LVC is not a significant component of the cost structure to deliver missing middle developments. RZ1 and RZ2 leaseholders are less experienced, potentially less skilled and are more likely to be risk averse. The tax is not well suited to the type of stakeholder, the scale of missing middle projects in RZ1 and RZ2 , and poses a risk non-professional leaseholders may choose not to pursue projects. Relevant report sections include: 3.5.1 Price and value, 3.5.4 Taxes, 4.2.4 Broad results, and 4.2.5 Common themes. Supporting observations include: Observation 14, Observation 20, and Observation 21. Also, Recommendation 1 will assist understand the incentives. The structure of the recommendations reflects that change in this policy setting is difficult and will require considerable discussion to ensure it is not a disincentive to achieve the missing middle policy outcome.



Recommendations for further work

Throughout the report some matters that may require additional work were identified. The recommendations for this work are below.

Problem statement	Recommendation	Expected impact	Supporting evidence
Leaseholders in RZ1 and RZ2 are likely to have significantly different motivating factors compared to professional developers. These motivation assumptions are subjective, and the knowledge gap makes opportunity and constraint identification difficult.	Recommendation 1: Understanding the feasibility of achieving missing middle development from current baselines would benefit from additional research into the characteristics of potential representative stakeholders in RZ1 and RZ2 zones. It is recommended a follow up project is undertaken to analyse potential missing middle stakeholder cohorts to understand their motives and to target incentives to achieve additional development.	Increased policy intelligence to enable better targeted policy changes and incentives to achieve the objective of increasing missing middle development in RZ1 and RZ2. This recommendation may require additional resourcing to implement.	There is anecdotal evidence about RZ1 and RZ2 leaseholders. Understanding the actual owner types would help frame incentives, and understand motives for different cohorts. This recommendation is informed by section 3.2 Choices and time, and Observation 23.
Planning levers, in particular approval timeframes, impact on the timing of developments, which has a feedback effect on costs.	Recommendation 2: Current approval timeframes add delays to project timeframes which affects project feasibility. It is recommended that EPSDD market test the development application process to assure the development market that all timeframes, processes and costs are fair, reasonable, and competitive.	Market testing and adjustments to development approvals to increase the productivity of the planning levers. This recommendation may require additional resourcing to implement.	On current settings there are significant delays to the approval of DAs. Delays lower the feasibility of developments. See: Section 1.2.4 Development and modelling assumptions at 4.2.3.4 Development.



Problem statement	Recommendation	Expected impact	Supporting evidence
Regulatory and enabling levers have a significant impact on the cost and timing of developments.	Recommendation 3: Current regulatory and enabling levers require the use of a range of expertise and achieving third party endorsements. Most are complicated and add cost and potential delays into development processes. These issues may not be understood by leaseholders who are not professional property developers. It is recommended EPSDD undertake benchmarking of ACT Government owned and controlled red tape involved in development and building approvals processes to assure the development market that all timeframes, processes, and costs are fair, reasonable, and competitive.	Market testing and adjustments to regulatory and enabling levers to increase the productivity of development approvals across a wide spectrum. This recommendation may require additional resourcing to implement.	Moving from single dwelling to multi-unit development increases the number of regulatory and enabling processes dramatically. These costs, and the potential for delays lower the feasibility of developments. See: Section 3.4.1 Professionals, endorsements, & acceptance, modelling assumptions at 4.2.3.3 Fees and costs and case study section 4.2.5 Common themes.
There is no current or prospective public record of the success or otherwise of reforms, which means policy cannot be evaluated effectively.	Recommendation 4: Consistent with an outcome-based system it is recommended the ACT Government adopt a monitoring and evaluation framework, utilising and integrating planning, building and revenue data, to measure and report on actual additional development realised through the RZ1 and RZ2 reforms in the Territory Plan 2023, as well as any new agreed reforms from this and concurrent projects. The measures monitored should include dwelling demolition, dwelling creation, dwelling location, change in apparent density, and be reported annually, in a report like the Land and Property report.	An annual update on progress towards missing middle development caused by ACT Government policy changes. This recommendation may require additional resourcing to implement.	A set of reforms of the scale contemplated in this project, and the concurrent projects, will have a range of community impacts. It is better practice to embed a monitoring and evaluation framework to measure success and adjust settings based on evidence. There are no supporting components in the report justifying this recommendation, it is based on good policy design.

PROJECT CONTEXT





1.1 PROJECT CONTEXT

The Australian Capital Territory (ACT) Environment, Planning and Sustainable Development Directorate (EPSDD, the client) engaged Purdon Planning Pty Ltd (Purdon) to deliver a Planning and Economic Feasibility Analysis to support integrating the ‘Missing Middle’ in *Territory Plan 2023 identified* residential zoned (RZ) land in the ACT (specifically RZ1 and RZ2 zones).

1.1.1 Objective

There are two key contractual objectives defined for this project:

assist EPSDD to identify opportunities and constraints to increasing the volume of medium density development on land currently zoned RZ1 or RZ2.

provide advice and recommendations for planning and non-planning mechanisms (including incentives) to encourage appropriate development in the appropriate areas on RZ1 and RZ2 land to support the challenge expressed in the broad context.

The working objective is to assess the opportunities and constraints to delivering missing middle dwellings based on settings that existed up to the *Territory Plan 2023* and since, and what changes from these planning systems may be needed to increase missing middle development outcomes into the future.

1.1.2 Project Scope

A summary of the project scope, excluding project management aspects, is in Table 1. These scope elements have substantial descriptive enrichments and guidance notes in the pre-contractual statement of requirements, and contractual documents, which are not reproduced in this table.

Table 1: Project Scope

Stage	Scope
Stage 2: Research, case study analysis & scope of changes	• Review ACT Government data and background information. • Identify five case study areas to interrogate the uptake in RZ1 and RZ2 and provide a comparative analysis.
Stage 3 : Analysis, opportunities and constraints	• Undertake a feasibility analysis to comprehend the uptake of the ‘missing middle’ in RZ1 and RZ2 zoning under the new planning conditions for the ACT. • Participate and present findings at a workshop to ACT Government stakeholders.
Stage 4: Draft recommendations and report	• Provide draft recommendations based on the outcomes of the information gathering, technical investigations and analysis in Stages 1 to 3. • Provide draft recommendations to identify additional possible planning and non-planning levers and incentives that could contribute to an increase in ‘missing middle’ housing diversity and supply in RZ1 and RZ2. • Provide a draft report incorporating recommendations and outcomes from previous stages. The report should include data analysis and options to convey the issues, options and recommendations. • Participate and present findings at a workshop to ACT Government stakeholders. Stakeholders will provide feedback to be incorporated into report, with consolidated feedback to be co-ordinated by EPSDD.



Stage	Scope
Stage 5: Final recommendations and report	• Provide final report and recommendations incorporating outcomes from previous stages. • The report will include data analysis and modelling, provide options and recommendations and identify planning and non-planning levers, mechanisms and incentives with specific consideration to ACT Government policy and statutory planning. • Present findings to Executives to stress test and clarify recommendations and observations.

To identify potential reforms to enhance the potential for missing middle, the contract observes the recommendations ought to:

Identify intervention measures needed to integrate 'missing middle' housing with appropriate density in the ACT, for each of the study areas and generally within RZ1 and RZ2 areas. This may include, but not be limited to, changes to zoning, planning controls, governance, block division/amalgamation, and strategic acquisition opportunities.

Recommend planning levers and mechanisms within RZ1 and RZ2 that can generate increased residential diversity and supply in RZ1 and RZ2. Consider changes to dwelling replacement, number of dwellings, number of storeys and new site coverage requirements etc.

Recommend incentives to encourage redevelopment in RZ1 and RZ2 including consideration of supply and demand, cost of land and construction, lease variation charges (LVC), lease conditions and ACT government fees, charges and other considerations.

The project has taken this guidance, and includes analyses, scenarios and recommendations which are not available under current settings.

During the delivery of the project multiple ACT Government stakeholders have been involved in providing valuable information, data, and stakeholder feedback. A summary of stakeholders who have been engaged is in Annex 4.

1.1.3 Responding to new *District Strategies*

This project contributes to commitments made in the District Strategy implementation plan released with the *Territory Plan 2023*.

The project addresses Action 2.3 'investigate the RZ2 Suburban Core Zone to determine why the existing built form does not demonstrate the intended variation of housing typologies between RZ1 and RZ2 zone'.¹

Indirectly, the evidence developed in this project, and observations in this report, will contribute to several other actions because of the integrated nature of the ACT leasehold and planning systems, including:

- Action 2.5 'Investigate potential urban regeneration areas by undertaking further detailed analysis of the potential suitability of different parts of Canberra for increased housing density and diversity including consideration of the transect, and other approaches to inform urban character.'²
- Action 7.1 'Undertake a detailed investigation of ACT local centres and retail planning. This study is related to the above ACT RZ2 Suburban Core Zone Study, since many of the RZ2 zones surround local centres and may benefit from their intensification.'³

¹ ACT Government, "District Strategies 2023: Volume Three, Indicative Implementation Plan." p. 17

² ACT Government. p. 17

³ ACT Government. p. 18



- Action 8.1 'Facilitate significant redevelopment and urban improvement.'⁴

District Strategies also identify 'potential urban regeneration areas' (PURA).⁵ At face value, the concept for the PURA is like that being investigated as part of this project. These parcels are distinct from the other in-fill potential land defined as 'change areas,' and 'key sites' in the District Strategies.

Potential urban regeneration areas will be areas located mostly within the existing urban footprint and which make the best use of opportunities associated with existing land, buildings and infrastructure.

1.1.4 Concurrent work

In addition to this project EPSDD have other projects underway which impact on missing middle and gentle urbanism concepts, including:

- *Missing middle suitability criteria*: identifying the optimal locations and mixtures of increased missing middle dwelling densities across residential zoned areas.
- Developing a missing middle design guide.⁶
- *Demonstration Housing Project*: testing and showcasing how the ACT can best deliver a compact, sustainable, accessible, and active city through innovative planning, design, and delivery. Site and non-site-based projects which seek to deliver best practice.⁷
- *Southern Gateway Planning and Design Framework*: Land use framework for the City to Woden Light Rail Corridor.⁸

Stakeholders from those projects have been involved in the development of this report. However, direct engagement with the project teams for these concurrent projects was not in scope for this project. Any issues of conflict, or differences in information, observations or recommendations are beyond the control of the project team.

1.1.5 Broader national framework

In addition to this and the concurrent projects the ACT is participating in major national reforms processes in relation to housing and planning. The most significant of these include:

- *National Housing Accord (2022)*: a consensus action plan to address housing affordability,
- *National Housing Target (baseline, plus incentive)*: a goal to increase dwelling supply by 1.2 million over 5 years from July 2024.
- *New Home Bonus* to incentivise development above baseline growth.
- *National Planning Reform*, announced as a blueprint to address perceived shortfalls in statutory planning systems.
- *National Urban Plan* (expected late 2023-24) expected to bolster cities and urban environment engagement by the Australian Government.

During the life of this project, for example, the ACT reported on progress towards improved planning reforms, which included the implementation of the *Territory Plan 2023* as a measure of success.⁹

⁴ ACT Government. p. 18

⁵ ACT Government, "District Strategies 2023: Volume Five, Glossary of Terms."

⁶ Steele (Minister for Planning), "Statement of Planning Priorities 2024-25."

⁷ <https://www.planning.act.gov.au/projects-priorities/demonstration-housing-project>

⁸ <https://www.planning.act.gov.au/projects-priorities/southern-gateway-planning-framework>

⁹ ACT Government, "National Planning Reform Blueprint and Progress Report: ACT."



1.1.6 Report structure

This report provides a summary of all major milestones and deliverables for the project. The report is structured into six components:

- *Key findings*: provides an executive summary and overview of key observations and recommendations.
- *PART 1* provides the project context, including the description of the scope of the project, and the challenges and opportunities that inform the rationale for the project.
- *PART 2* outlines insights and settings in the target RZ1 and RZ2 zones, and sets out the case study precinct selection method and high-level precinct insights.
- *PART 3* sets out a development feasibility framework for assessing feasibility in this project, including the planning, non-planning, and regulatory and enabling levers affecting development feasibility.
- *PART 4* reports the results of feasibility assessments delivered in this project, including a high-level precinct scale assessment of developability, and a series of precinct case studies assessing specific feasibility constraints and opportunities.
- The final part provides a set of detailed annexes that support the report narratives, as well as details on key resources used in developing the project findings and recommendations.

There are a complicated, and occasionally complex, array of factors that inform the feasibility of achieving enhanced missing middle outcomes in the ACT. The key findings section provides a general overview; however, the report must be considered as a whole to understand the basis for the reported recommendations and observations.

1.1.7 Limitations

The nature of this project—combining disparate spatial, market and official resources to determine feasibility across multiple temporal settings—generates difficulties in provided data and analytics to inform decisions. The three dominant issues are the availability, quality, and comparability of information. There are also idiosyncratic limitations that affect the project inputs and results.

Limitations are set out in detail in Annex 3. These limitations must be taken into consideration when reading and interpreting this report.



1.2 OPPORTUNITIES AND CHALLENGES

The ACT is facing strong long term population growth with few potential greenfield development opportunities. The Government has also set a target of achieving 70% of new dwelling supply from urban in-fill—within the existing urban footprint.

The broadest expression of the land use policy challenge facing the ACT was expressed in research informing District Strategies launched with the *Territory Plan 2023*:

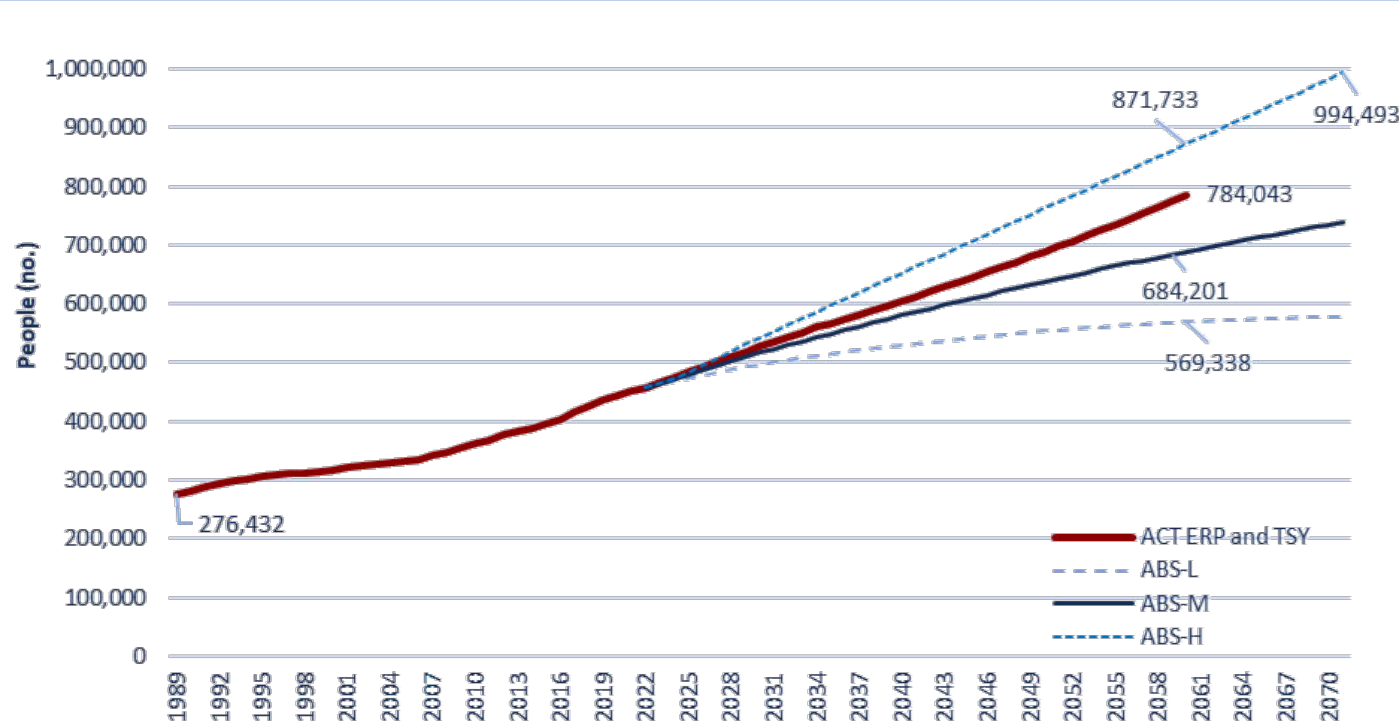
The ACT has only a limited amount of available land left for new suburbs and there must be gradual transformation in the current suburbs to support future growth. If these changes are not made, housing will be more unaffordable and services will be harder to access, which will be detrimental to the ACT economy and way of life. Actions must start now to build a Canberra that provides a good foundation for its current and future residents.¹⁰

Key determinants in this policy challenge are population level and growth, dwelling demand, and development experience. Understanding some features of these determinants helps to understand baseline conditions affecting missing middle adoption in the ACT.

1.2.1 Population

Formal ACT Government forecasts illustrate an expected population exceeding 784,000 by 2060. Compared with 2023-24 this represents an increase in population of around 308,000 people. Compared with the Australian population this growth will see an increase from 1.76% in 2023-24 to 1.98% in 2060. Figure 1 contrasts this forecast with 2023 Australian Bureau of Statistics high (ABS-H), medium (ABS-M) and low (ABS-L) scenarios. While the projections are from different sources, the ABS illustrates high and low side risks, and a longer time frame.

Figure 1: Population and projections



Source: Purdon analysis of ACT Government, *Latest ACT Population Projections, 2022*, ABS, *3101.0 National, state and territory population, and ABS, Population Projections, Australia, 2022 (base)–2071*. See Annex 5: Resources for full references.

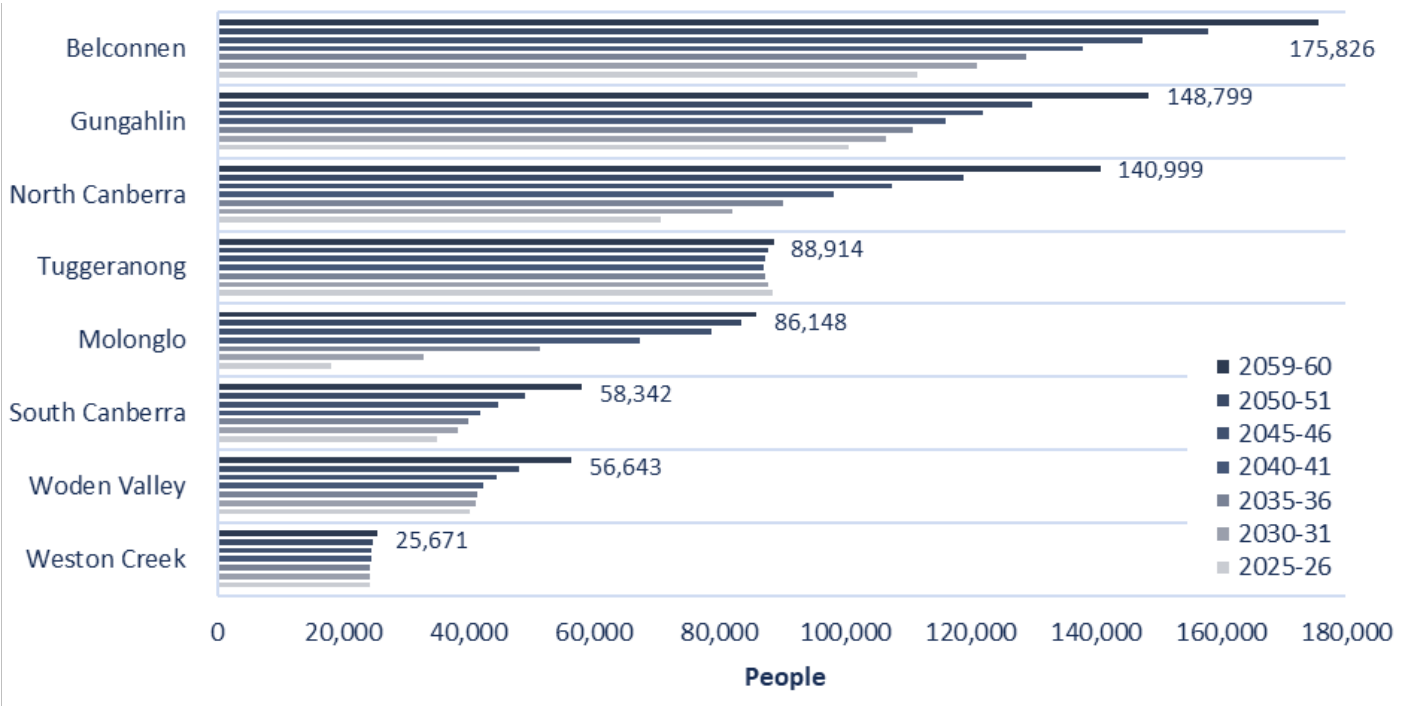
¹⁰ ACT Government, “District Strategies 2023: Volume One, Metropolitan Context and Big Drivers.” p. 5.



On the high side it is clear the ACT could see a million people within a 50-year time frame. Alternatively, if projections do not materialise population could stabilise at a significantly lower level. All the forecasts depend on net inward migration for growth. There is a risk Australian Government policy in this area could affect the forecast levels, but historically ACT population outcomes have exceeded forecasts by a wide margin.

The ACT forecasts are based on a net birth and migration methodology, and existing location patterns. These location patterns are summarised at an SA3 scale (approximately ‘Districts’) in Figure 2. The Treasury forecasts suggest little to no growth in Tuggeranong and Weston Creek, modest growth in Woden Valley and South Canberra and aggressive growth in Molonglo, North Canberra, Gungahlin, and Belconnen. There is considerable variation on patterns when assessed at the suburb scale (not reported). Intuitively, these forecasts should inform expected dwelling demand, however while the aggregate Treasury forecast is used for planning purposes, different models are used within ACT Government to estimate dwelling demand based on land use patterns.

Figure 2: District population patterns



Source: Purdon analysis of ACT Government, Latest ACT Population Projections, 2022.

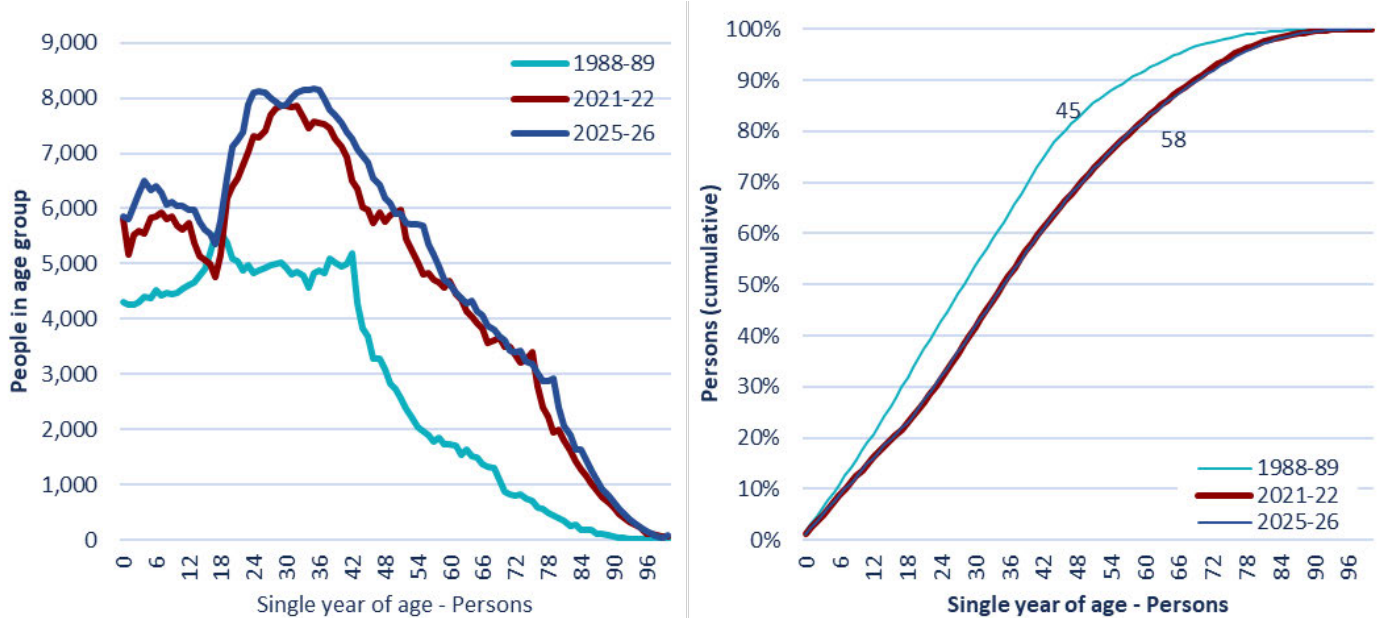
Population growth is also affected by changes in age profiles. There are myriad ways this could be presented, and this project has adopted high level single year of age distributions, presented in Figure 3. Comparing recent profiles to those from the start of self-government demonstrates there are more people across all age groups above 18 years, and substantially more aged above 42 years. In the right panel cumulative distribution illustrate the ageing situation in relative terms. At self-government 80% of the population was aged 45 or less, while in 2021-22 the equivalent percentile age increased to 58. All percentiles have shifted right demonstrating ageing (noting there is little distributional change between 2021-22 and 2025-26 despite increased numbers).

Population is a key demand side factor in housing supply. For the feasibility of missing middle, it is observed:

Observation 1: Population growth will support dwelling demand for the foreseeable future. Where the population growth occurs will depend on land use patterns. Technical forecasts suggest Tuggeranong and Weston Creek should have limited demand. Overall, the population is ageing which will adjust the product mix demanded. Growth and ageing will support different dwelling typologies, especially those in the missing middle mix.



Figure 3: Population age profiles



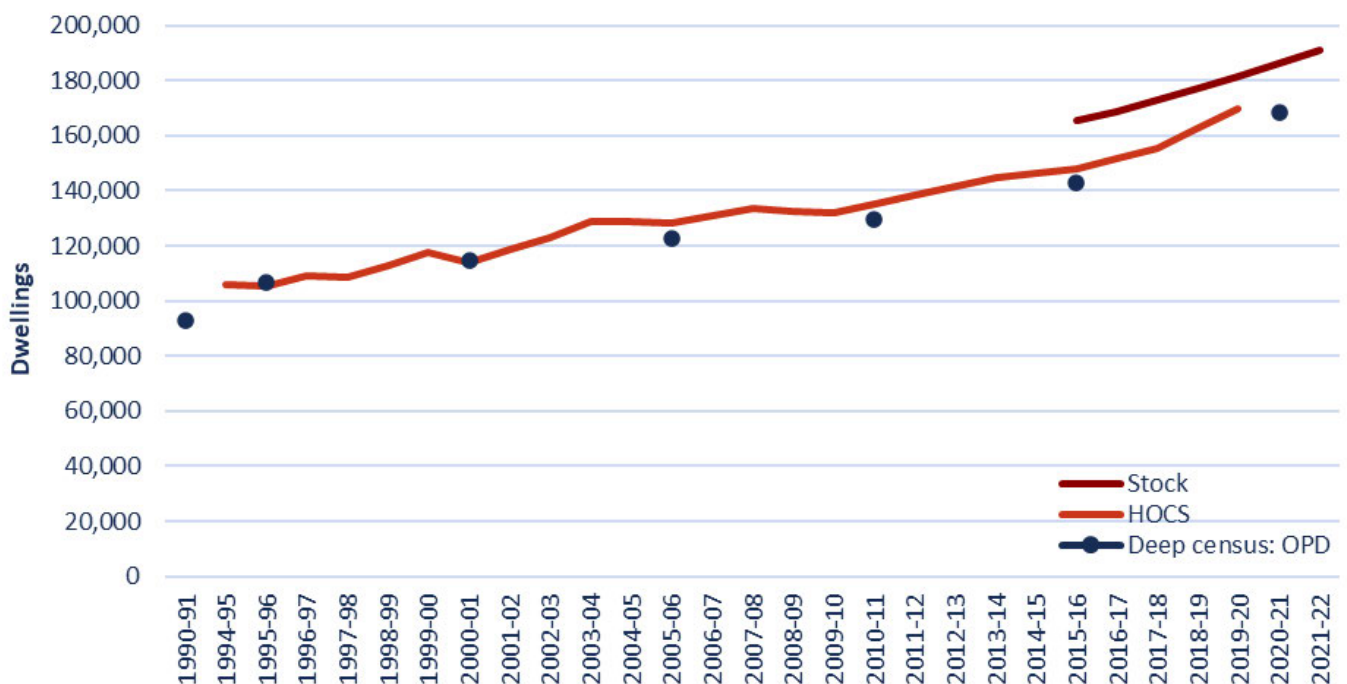
Source: Purdon analysis of ACT Government, Latest ACT Population Projections, 2022, and ABS, 3101.0 National, state and territory population.

1.2.2 Housing

Demand for housing is dependent on a range of factors. At an aggregate level, this report considers the primary housing demand drivers to be population growth and household formation patterns.

The number of dwellings in the ACT has followed population trends broadly. There is no single authoritative point of truth on the number or type of dwellings in the ACT, and a few measures are summarised in Figure 4. There appear to be around 187,000 dwellings in the ACT as at 2021-22.

Figure 4: Estimated total dwellings



Source: Purdon analysis of ABS, Estimated dwelling stock, ABS, Data by region, ABS, Census: Time series profile for ACT SA2, ABS, Administrative data snapshot of population and housing-experimental housing data, and ABS, Housing Occupancy and Costs. See Annex 5: Resources.



A critical factor underpinning the demand for all development types is the demand for new and different dwelling types going forward.

The ACT Government has adopted a broad target of needing an extra 100,000 new dwellings by 2050, and have illustrated the supply potential of Districts between 117,800 and 148,500 dwellings over the same time frame.¹¹ The expectations are extracted into Figure 5. Despite population figures not shifting significantly for Tuggeranong and Weston Creek the ACT estimates for growth from 'potential urban regeneration areas' show both districts contributing significantly to the overall dwelling target.

Figure 5: District Strategy opportunity assessment [2050]

District	Expected development under existing plans	Potential capacity in Category 1-3 change areas and selected key sites	Potential capacity in potential urban regeneration areas (based on urban character)	Total	District % share of total
Belconnen	12,500-14,000	1,500-2,000	14,000-15,500	28,000-31,500	21-24%
Gungahlin	3,500-4,000	N/A	2,000-2,500	5,500-6,500	4-5%
Inner North and City	7,000-7,500	1,500-11,000	6,000-7,000	14,500-25,500	12-17%
Inner South	3,500-4,000	1,000-5,500	3,500-4,000	8,000-13,500	7-9%
Molonglo Valley	20,000-24,000	N/A	N/A	20,000-24,000	16-17%
Tuggeranong	300-500	3,500-4,000	12,500-14,000	16,350-18,500	12-14%
Weston Creek	1,000-1,500	N/A	3,500-4,000	4,500-5,500	3-4%
Woden	4,000-5,000	12,000-13,000	5,000-5,500	21,000-23,500	15-17%
Total	51,800-60,500	19,500-35,500	45,500-52,500	117,800-148,500	100%

Note in source: Estimates were rounded and are indicative only. Housing analysis was not undertaken for East Canberra. Note: Totals are as presented, any errors are at source. Source: Copied from ACT Government, District Strategies 2023: Volume One, Metropolitan Context and Big Drivers, 11 Sep 23, p. 31.

While it is beyond the scope of this project, information about the drivers of expected dwelling demand over the complete population forecast period are required, in part to assess whether there is a need to make changes to achieve a different dwelling mix or additional density.

Dwelling demand is estimated in this project by comparing the estimated 2022-23 dwelling baseline to ACT population forecasts for Districts, and then applies household formation assumptions of between 2.3 and 2.5. This simple calculation suggests by 2060 the ACT will need about 314,000 to 340,000 new dwellings, an increase of around 117,000 to 145,000 on 2022-23, of which 82,000 to 101,000 will need to come from in-fill (on a 70% target).

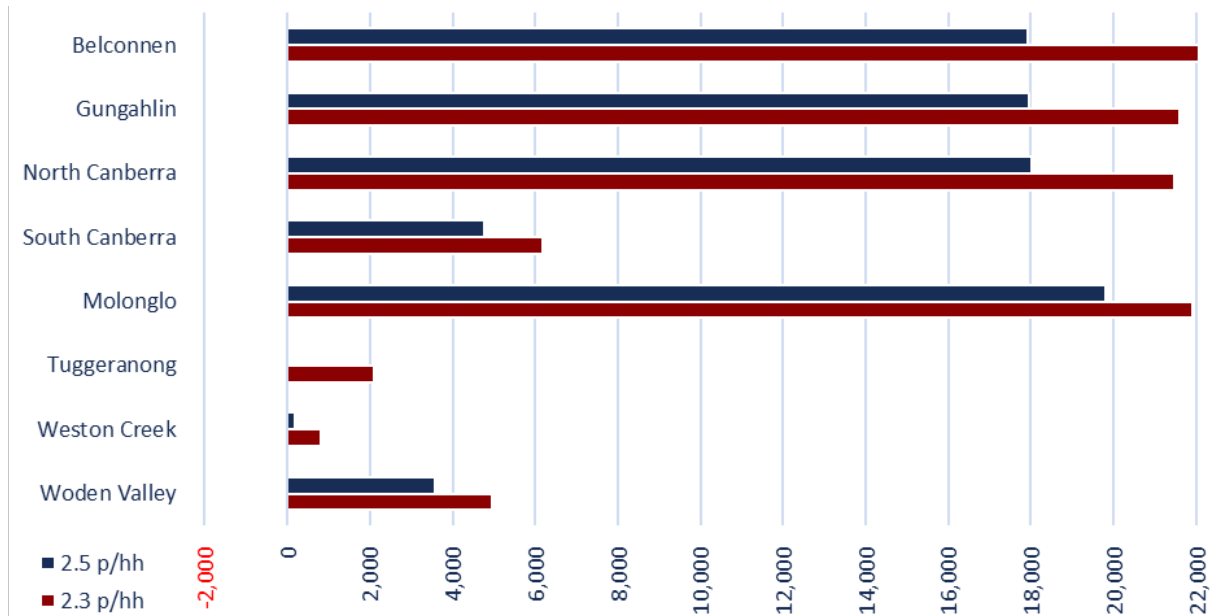
As this project approach uses Treasury population forecasts, the estimated demand for Tuggeranong and Weston Creek are not realistic. The District Strategy approach noted that the determination of potential regional demand was a function of the forecasts, and other factors including deterministic ideas of where development 'should go', accounting for 'capacity constraints', and 'desired planning outcomes'.¹² Notwithstanding the distribution issue, it is clear the in-fill target places significant pressure on existing land use patterns, emphasising the role for increased density available in missing middle style developments.

¹¹ ACT Government. pp. 30-33.

¹² ACT Government, 30.



Figure 6: Estimated in-fill demand [2060]



Source: Purdon estimates. Based on applying defined household formation ratios to SA3 level population forecasts from Treasury 2022 forecasts.

Achieving development on in-fill land has the potential to prevent the need for additional greenfield development. If the ACT achieves the in-fill targets only at the lower end of the estimated range— 82,000 dwellings— then around 4,100 hectares of greenfield development could be prevented (in a range between 1,367 to 8,200 hectares based on different density assumptions).¹³ This has significant potential economic, social, and environmental benefits for the ACT Government and community. Conversely, failing to achieve the in-fill targets has the potential to accrue significant opportunity costs.

Observation 2: If the in-fill target of 82,000 dwellings is met, the need for 4,100 ha of greenfield development could theoretically be avoided (assuming 20 dw/ha). The range of avoided hectares would be between 1,367 to 8,200 hectares (based on missing middle densities of between 10 to 60 dw/ha).

1.2.3 The Missing Middle

While this project is focussed on the RZ1 and RZ2 zones in the ACT, it is also investigating the capacity of the land to accommodate ‘missing middle’ typologies. The ‘Missing Middle’ concept emerged in literature after the publication of *Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities, and Developers* (D. Parolek, K Parolek, and P. Crawford, 2008). In practice the concept is used in many different location contexts and has a range of potential meanings. It is important to identify the meaning adopted for this project.

Conceptually, the ACT Government has expressed a definition in the new *District Strategies*:

¹³ Based on dwelling ratios derived from The Town Paper Publisher, “SmartCode v. 9.2.” p. SC42. Specifically transect based densities: T3 of 2-6 units per acre, T4 at 4-12 units per acre and T5 of 6-24 units per acre. Converted to ha using a ratio of 2.5x, yielding 5-15 dw/ha, 10-30 dw/ha and 15-60 dw/ha respectively. Most likely is based on mid-point of T4, low end is maximum T5 and high end is base T4.



Missing middle housing: Can be defined in many ways, primarily referring to low rise medium-density housing types that fall between smaller apartments and larger freestanding homes. Missing middle housing includes duplexes (two attached or semi-attached dwellings), townhouses (dwellings in a multi-unit complex), terrace houses (dwellings built in a continuous row), dual occupancies (two dwellings on one block of land), and manor homes (comprise 3–4 small low-rise dwellings).¹⁴



Some of the ideas about urban form associated with the missing middle can be seen from early ACT and NSW Government policy work to respond to the concept, illustrated in Figure 7. In general, the concept has come to mean low rise, medium density type dwellings, in a range of combinations from dual occupancy up to townhouses and mid-rise apartments.

Figure 7: Early missing middle concepts

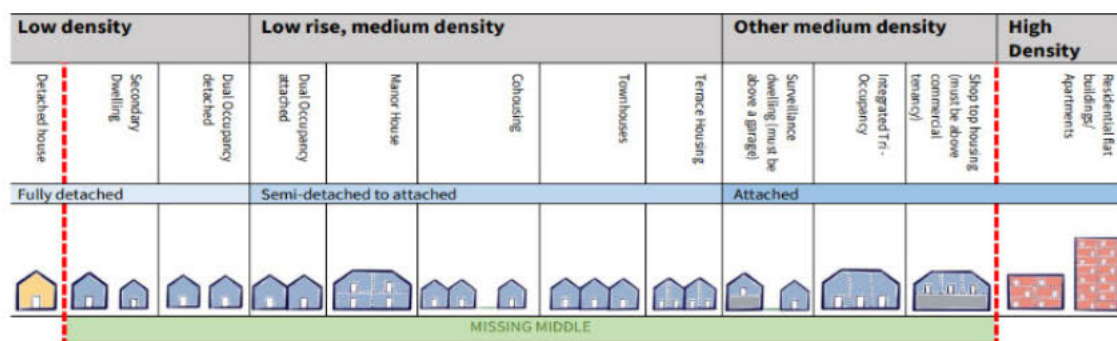


Figure 1: Illustrates a broad spectrum of densities and associated housing typologies.



Source: ACT Government, *Dwelling Supply Options Paper*, 2023, and NSW Architect, *Good Design for Housing*.

The ACT has recognised a gap in the missing middle typology for some time. For example, prior to the *ACT Planning Strategy 2018* the Government noted in the *2016 Statement of Ambition*¹⁵:

In the *ACT Planning Strategy 2018* it was noted ‘there is a “missing middle” of moderately priced medium-density homes. This missing middle would help provide housing options for different family



In Canberra, higher density does not mean high rise

Densities and built form will be in character with their contexts. The government is focused on high quality, well designed, higher intensity and mixed-use development within the city centre and group centres. We stress: the movement towards infill and medium-density development, such as terraces and townhouses within suburban settings, will always reflect Canberra's suburban character.

Best practice strategic planning will ensure that urban and population growth are managed effectively, sustainably and fairly. Key renewed precincts such as Braddon, New Acton and Kingston Foreshore show the merits of this approach to planning already – with more vibrant areas to come.

¹⁴ ACT Government, “District Strategies 2023: Volume Five, Glossary of Terms.”

¹⁵ ACT Government, *Canberra: A Statement of Ambition*, 2016, p. 26. https://www.cmtedd.act.gov.au/__data/assets/pdf_file/0006/865482/Canberra-A-Statement-of-Ambition.pdf



configurations, people who are ageing in place or people who have accessibility requirements, thereby contributing to diversity and equity.’¹⁶

The concept was further evolved in many of the inputs to the development of *Territory Plan 2023* and the new District Strategies.

Even with this history the concept, controls. and definition are evolving in the ACT (see for example section 1.1.4 *Concurrent work*). The key takeaway for this project is that the research and analysis has been developed around discussions with the project team, and in existing documentation, on this concept for missing middle in the ACT:

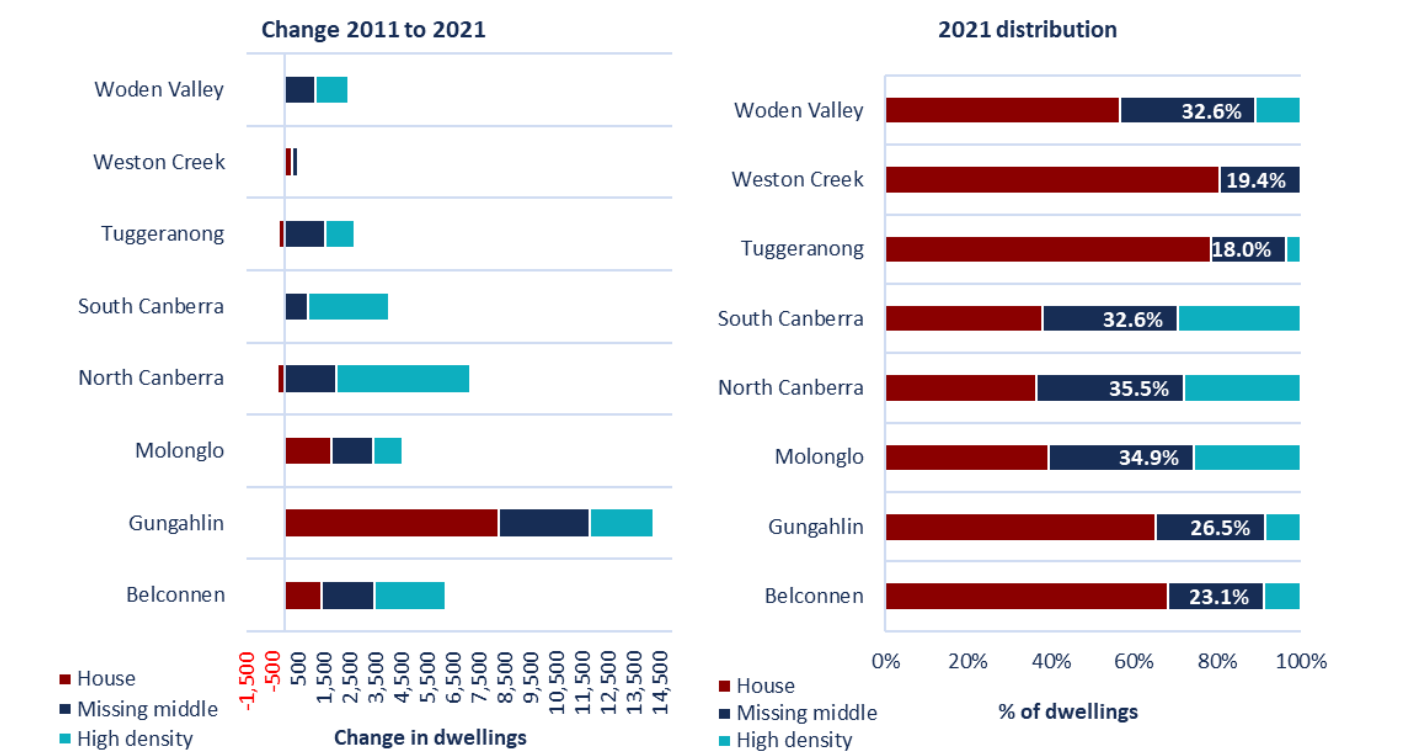
Observation 3: For this project Missing Middle means low rise medium density development dwelling types which are up to 3 storeys in the ACT context.

1.2.3.1 *Missing middle statistical approach*

The missing middle concept does not have official status in official or spatial data sources making it difficult to clearly express how much missing middle stock has been developed over time. To work around this, a ‘statistical’ definition of the missing middle has been used based on ABS dwelling structure reports. The ABS report on dwelling structures including ‘separate house’ (house), ‘Semi-detached, row or terrace house, townhouse etc’ (semis) in either one storey or two storeys and more; and ‘Flat, units or apartments’ (apartments) attached to a house or in 1-2 storey, 3 storey, or 4 storey or above configurations. Using these structures the report estimates a statistical measure of the missing middle as all semis plus apartments up to 3 storeys (included those attached to houses). Apartments that are 4 storeys and above are reported as ‘high density’.

In 2021 there were around 49,100 missing middle dwellings from a sample of 186,300 dwellings (around 26% of the ACT). Figure 8 shows the approximate district distribution in 2021, and the changes in type between 2011 and 2021.

Figure 8: Evolution of missing middle 2011 to 2021



Note: Sample excludes small and offshore locations, and other dwelling typologies such as caravan and improvised home. Source: Purdon analysis of ABS Tablebuilder, counting dwellings, place of enumeration SA3 by Dwelling Structure (2011 and 2016).

¹⁶ ACT Government, “ACT Housing Strategy.” p. 16.

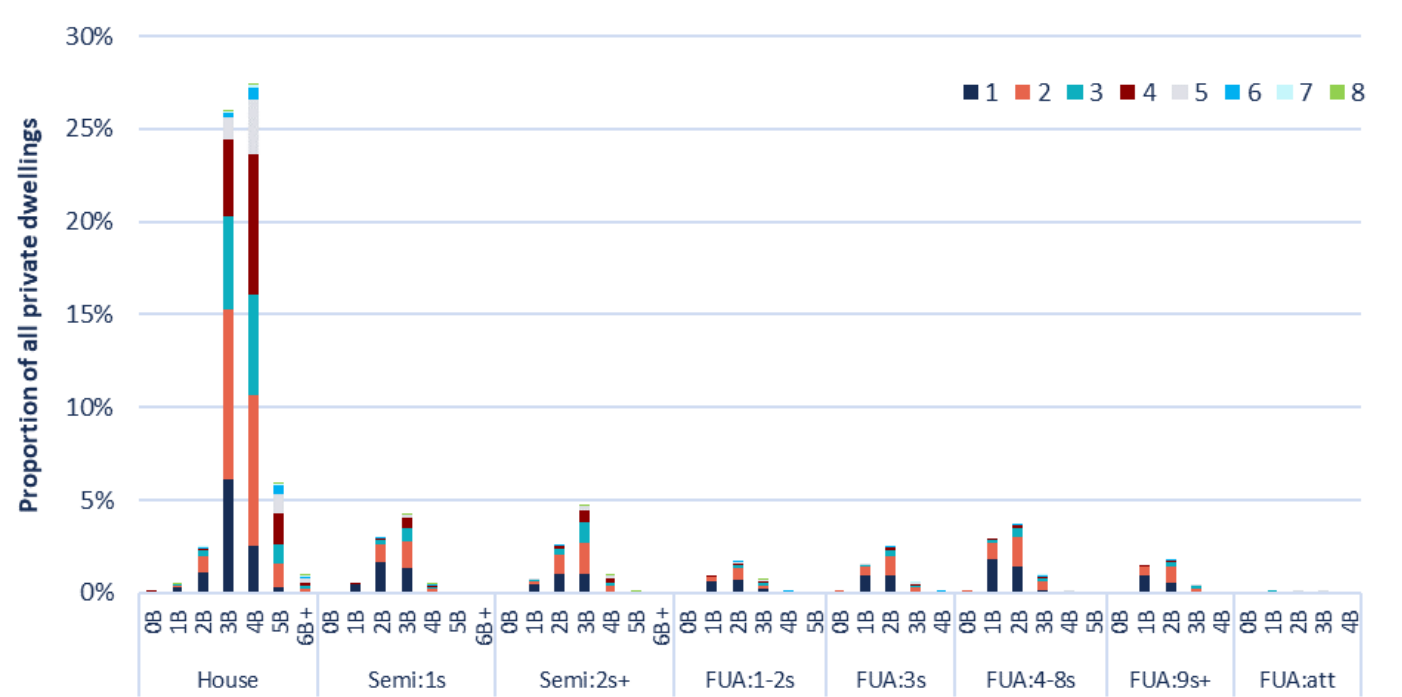


Missing middle penetration is lowest in Tuggeranong and Weston Creek. Woden Valley, South Canberra, North Canberra, and Molonglo support around a third of stock in missing middle formats. Belconnen and Gungahlin are at around one quarter. From 2011 to 2021 all districts have seen a volumetric uplift in missing middle structures, with North Canberra and Gungahlin standing out.

For higher density structures each District has seen strong growth. Analysis undertaken in a different context suggests this growth reflects increased development in higher density zones in town and group centre locations, including apartment complexes above 9 storeys. .

A deeper dive into the data, from a sample of 166,514 ACT dwellings from Census 2021, allows a breakdown of stock by number of people, bedrooms and typologies reported in Figure 9. This illustrates missing middle style dwellings account for 25.4% of stock, with 17.2% being semi-detached, and 8.2% in apartments up to 3 storeys. High density structures account for 11.2%, and low-density houses account for 63.5% of stock. It is clear 3 to 5-bedroom houses dominate dwelling structure in the ACT. In the missing middle two and three bedroom semi structures dominate, while for apartment types there are very few above two bedrooms. There is a clear preponderance of dwellings occupying one or two people while having additional bedrooms, suggesting some stickiness in dwelling choices.

Figure 9: Distribution of private dwellings [Census 2021]



Note: The 1-8 scale refers to the number of people usually resident. FUA in this figure means 'flats, units and apartments'
Source: Purdon analysis of ABS Tablebuilder: Dwelling Structure and Number of Bedrooms in Private Dwelling by SA4 and Number of Persons Usually Resident in Dwelling.

Observation 4: Using a statistical measure missing middle stock accounted for around 27% of ACT dwellings in 2021-22. This is up from round 25% in 2011. The distribution is uneven, but some districts are exceeding a third of dwellings in the missing middle typology. Weston Creek and Tuggeranong have the least. Most of the missing middle dwellings are between one and three bedrooms, with one and two bedrooms more likely in apartment types, and 2-3 bedrooms more likely in semi-detached structures.

1.2.4 Development

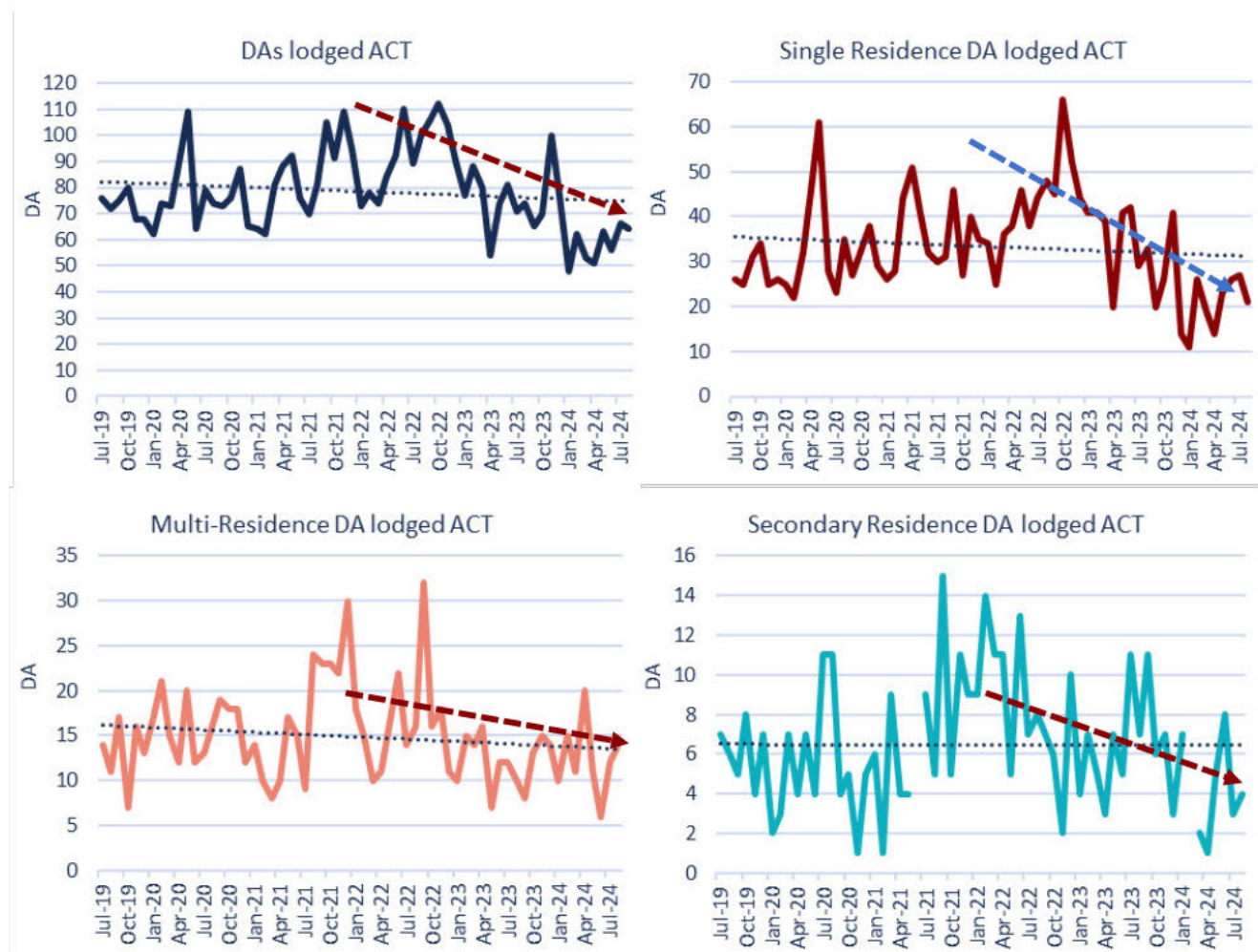
A key question for this project is the degree to which planning and non-planning factors have influenced missing middle development. Included in this question is identifying any evidence of additional development from new rights made available in the *Territory Plan 2023*.



A key early indicator of potential developments is the pipeline of development applications (DAs). Figure 10 illustrates a range of metrics on ACT DAs from public sources. Over the period reported there is a flat trend in total DAs, with wide variability. Over the period from around August 2022 there has been a declining trend in total approvals. The declining trend is more pronounced for single residential DAs, and less pronounced but declining in multi-unit approvals. Secondary residence DAs are low single digits on a month-to-month basis and have a downward trend in more recent times.

This data does not capture developments which are exempt from needing a DA, typically single detached dwellings. While that data would be interesting, it would not assist understanding missing middle growth. However, there is no evidence within this data of increased activity at all, and certainly not since November 2023.

Figure 10: Long run DA data ACT



Source: Purdon analysis of ACT EPSDD, Development Statistics, 2019-20 to 2024-25, <https://www.planning.act.gov.au/applications-and-assessments/development-applications/development-statistics>.

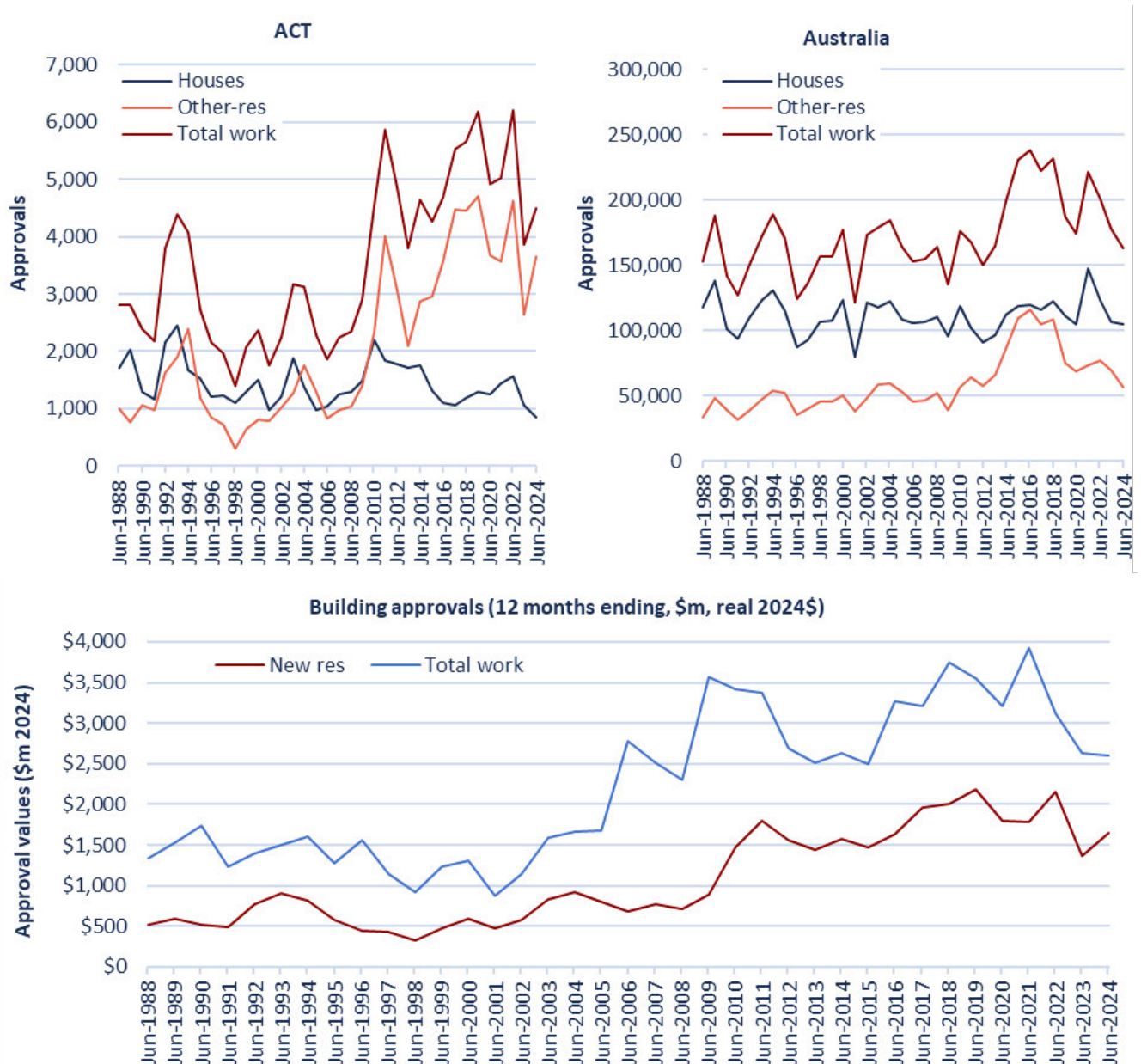
Building approvals are reported by the ABS, and provide a rich picture of potential development activity. Figure 11 compares the ACT to Australia for house, other-residential and total approvals. Other residential in this context includes semi-detached and apartment type structures. ACT approvals were 4,502 for the 12 months ending June 2024. This is lower than the 5-year average of 4,900, 10-year average of 5,080, and 15-year average of 4,967. House approvals are especially low when compared to say the 15-year average—852 compared to 1,427. Consistent with housing structure data BAs have been dominated by ‘other residential’ (units).

The trend is consistent with the direction of BAs at the Australian level. For example, there is a general trend decline in Australian approvals starting in June 2017, and a similar bifurcation between houses and other residential.



In terms of value, for the ACT economy over the 12 months to June 2024 residential building approvals were worth \$1.647 billion, and non-residential approval were \$862 million, making total approvals worth \$2.6 billion. The time series are reported in the lower panel of Figure 11. This is consistently lower than each of the five, ten and 15-year trend levels. To some degree this suggests there is capacity in the construction industry, especially if historical trends have formed the basis of staffing and business structures.

Figure 11: Building approvals [ACT v Aus]



Source: Purdon analysis of ABS, 8731.0 Building Approvals, Australia, <https://www.abs.gov.au/statistics/industry/building-and-construction/building-approvals-australia>

Observation 5: A key question for the project was the degree to which changes introduced in the *Territory Plan 2023* have had an impact on development activity, including the missing middle. There has been a broad downward trend in development application activity, and in building approvals data, including over the period since November 2023. While the changes in the Territory Plan could not be considered a cause of this downturn, due to their recency, there is limited evidence the changes have supported additional development. Specifically, there is no *increase* in development or building approvals broadly, and certainly no marked uptick from November 2023 to September 2024.

ZONES & PRECINCTS





2.1 RZ1 AND RZ2 SETTINGS

The project scope is focussed on two zones in the ACT land use planning hierarchy. These include residential zone (RZ) 1 'Suburban' and RZ2 'Suburban Core'.

2.1.1 Broad planning framework

The broad planning framework is covered under the *Residential Zones Policy*; however, other relevant policies impact on what can and cannot be achieved in these zones, including the *Lease Variation Policy* and the *Subdivision Policy*. Each policy is made up of:

- **Policy outcomes:** describing good development goals which *must* be met (where applicable) via suitable response to the assessment outcomes and requirements.
- **Assessment outcomes:** designed to address policy outcomes these *must* be met where applicable. Outcome compliance is guided via relevant *Design Guides* and *Technical Specifications*.
- **Assessment requirements:** set specific mandatory development controls for specific zones or types of development.
- **Technical specifications:** are intended to be used as *possible* solutions to addressing assessment outcomes. Compliance with the *Technical Specifications* does not mean compliance with an Assessment Outcome.
- When triggered, **Design Guidelines** *must* be considered (separate to the Outcome) and are intended to provide flexibility in addressing assessment outcomes.

The *Territory Plan 2023* relies on other documentation depending on the scale and use of development in these zones. Missing middle typologies would be considered Multi Unit housing, which is a development type that requires adherence to the *Housing Design Guide* as notified by the Minister pursuant to Section 50 of the *Planning Act 2023*. The *Housing Design Guide* also requires compliance with sections of the *Urban Design Guide*, in effect meaning any likely development of missing middle typologies is required to consider:

- *Residential Zones Policy*.
- *Lease Variation Policy*.
- *Subdivision Policy*.
- *Housing Design Guide*.
- *Urban Design Guide*.

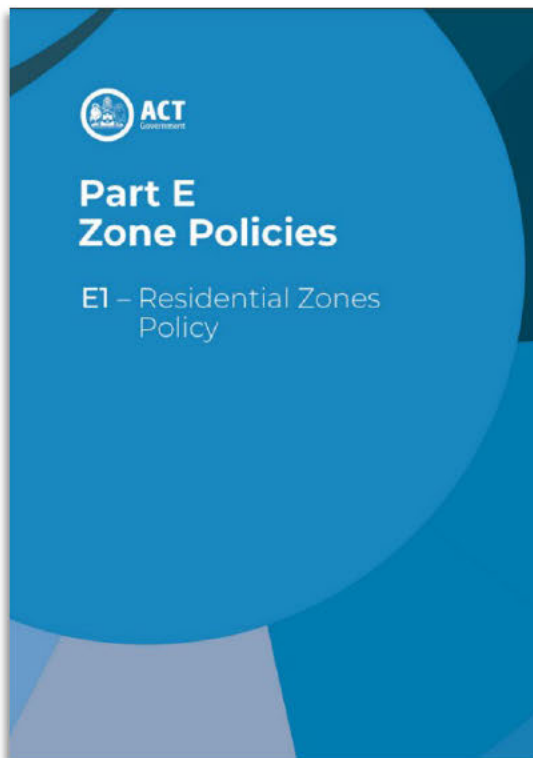
In addition, other entities and Directorates have approval processes that impact on design and approvals (and therefore the feasibility of development). These settings may change when the concurrent missing middle design guide is completed.

2.1.2 Zone goals: baseline

All residential zones in the ACT have consistent *Policy Outcomes*:

- Residential zones are primarily for residential developments but permit other development that complement residential uses and streetscapes.
- Development should be of a scale and nature that recognises and responds to the zone hierarchy.
- Facilitate development that is resilient to climate change, is sensitive to biodiversity, has good solar access, is energy efficient and promotes sustainable water use and water sensitive urban design, as well as encouraging active living and active travel.

The policy sets out clear guidance on the expectations for target zones.



RZ1	• Achieve and/or maintain low density residential neighbourhoods in suburban areas. • Provide for a range of housing choices that meet changing household and community needs. • Limit the extent of change that can occur particularly with regard to the residential density and original pattern of subdivision. • Ensure development respects valued features of the neighbourhood and landscape character of the area and does not have unreasonable negative impacts on neighbouring properties.
RZ2	• Facilitate development or redevelopment of sites within reasonable proximity to local services to achieve a mix of low to medium density housing. • Provide for a range of housing choices where the housing is low rise and contains a mix of single dwelling and multi-unit housing. • Provide opportunities for redevelopment by enabling a limited extent of change in density.

Observation 6: The current language in residential zone policy objectives does not support missing middle as a desired zone outcome, especially in RZ1. Missing middle options start to become clearer in the RZ3 zone which is out of scope in this project.

2.1.3 Complexity in zones

Despite commonly referring to RZ1 and RZ2 as single zones it is evident both zones are significantly more complicated, almost complex, with a range of definitions linked to distinctive features of the land and controls. Anecdotally, this must cause confusion for some stakeholders.

Table 2 and Table 3 disaggregate the bundle of rights created within the zones, based on policies, and related guidance material. What is immediately evident is the RZ1 zone, conservatively, has at least 15 subcategories. For RZ2 there are fewer subcategories, however there are at least 9. Perhaps this complexity is a design feature, and may not affect individuals assessing their needs, however it is confusing and complicates the meaning of the zones.

Observation 7: Despite having single definitions RZ1 has at least 15 different subcategories, and RZ2 has at least nine subcategories. Immediate simplification could be achieved without definitions like ‘non-standard’ block or ‘supported accommodation,’ or by aligning block size limits associated with controls.

Further, a review of legislative instruments listed for the *Planning Act 2023* reveals no less than 86 separate items.¹⁷

Observation 8: The current complexity within RZ1 and RZ2 rights makes the system difficult to navigate, and disincentivises development by increasing the need for additional expertise and longer assessment timeframes due to increased controls that need to be reviewed in preparing approval requests.

¹⁷ Cursory assessment of the list at: <https://www.legislation.act.gov.au/a/2023-18/>



Table 2: Complexity in RZ1 Zoning

Item	Standard Block						Non-Standard Block						Surrendered Block					
Development type/use	Single dwelling housing		Multi-unit housing	Supportive/ community housing			Single dwelling housing		Multi-unit housing	Supportive/ community housing			Single dwelling housing		Multi-unit housing	Supportive/ community housing		
Block area restriction	Permitted on blocks of all areas		Permitted only on blocks $\geq 800\text{sqm}$	Permitted on blocks of all areas			Permitted on blocks of all areas		Permitted only on blocks $\geq 800\text{sqm}$	Permitted on blocks of all areas			Permitted on blocks of all areas		Permitted only on blocks $\geq 700\text{sqm}$	Permitted on blocks of all areas		
Permitted dwellings	One		Two (second limited to 120sqm GFA)	One if $<600\text{sqm}$, PLUS one additional dwelling for every 250sqm $\geq 600\text{sqm}$			One		No limit (except for where the crown lease explicitly permits 2 dwellings)	One if $<600\text{sqm}$, PLUS one additional dwelling for every 250sqm $\geq 600\text{sqm}$			One		Max 2	One if $<600\text{sqm}$, PLUS one additional dwelling for every 250sqm $\geq 600\text{sqm}$		
Consolidation	No		No	Yes (limited to two blocks)			Yes		Yes	Yes			Yes		Yes	Yes		
Subdivision	No		Unit title	No			No		Unit title	No			No		Unit title	No		
Size of Block	Compact $\leq 250\text{sqm}$	Mid-sized ≥ 250 , $<500\text{sqm}$	Large $\geq 500\text{sqm}$		MU/SD housing	Other housing types	Compact $\leq 250\text{sqm}$	Mid-sized ≥ 250 , $<500\text{sqm}$	Large $\geq 500\text{sqm}$		MU/SD housing	Other housing types	Compact $\leq 250\text{sqm}$	Mid-sized ≥ 250 , $<500\text{sqm}$	Large $\geq 500\text{sqm}$		MU/SD housing	Other housing types
Site Coverage	Max 70%	Max 60%	Max 50%	Max 45%	As per MU/SD	No limit	Max 70%	Max 60%	Max 50%	Max 45%	As per MU/SD	No limit	Max 70%	Max 60%	Max 50%	Max 45%	As per MU/SD	No limit
Secondary residence (90 sqm GFA)	No	No	One	No	No		No	No	One	No	No		No	No	One	No	No	

Note: Standard Block means 'a block with one of the following characteristics: a) originally leased or used for the purpose of one or two dwellings, b) created by a consolidation or subdivision of blocks, at least one of which is covered by a)', Surrendered Residential Block means 'a block that has been included on the Affected Residential Property Register and that has been either: surrendered to the ACT Government; or it is a dual occupancy unit-title block that has been acquired, in full or in part, by the ACT Government under the Loose Fill Asbestos Insulation', Eradication Scheme Buyback Program. Based on Territory Plan 2023, Part G: Dictionary, pp. 25-26.



Table 3: Complexity in RZ2 Zoning

Item	Standard Block					Non-Standard Block			
Development type/use	Single dwelling housing			Multi-unit housing	Multi-unit adaptable housing	Single dwelling housing			Multi-unit housing
Block area restriction	Permitted on blocks of all areas			Permitted only on blocks =>700sqm	Permitted on blocks of all areas	Permitted on blocks of all areas			Permitted on blocks of all areas
Permitted dwellings	1 dwelling			Two dwellings permitted for blocks =>700sqm PLUS 1 additional dwelling permitted for every 250sqm OVER 700sqm	1 dwelling for blocks <600sqm. Two dwellings for blocks =>600sqm PLUS 1 additional dwelling permitted for every 250sqm OVER 600sqm	1 dwelling			No limit
Consolidation	Yes			Yes	Yes	Yes			Yes
Subdivision	Yes			Yes	Yes	Yes			Yes
Size of Block	Compact <=250sqm	Mid-sized 250<=500sqm	Large >500sqm			Compact <=250sqm	Mid-sized >250<=500sqm	Large >500sqm	
Site Coverage	Max 70%	Max 60%	Max 50%	Maximum 45%	No limit	Max 70%	Max 60%	Max 50%	Maximum 45%
Secondary residence (90sqm GFA)	No	No	Yes, limited to one per block	No	No	No	No	Yes, limited to one per block	No



2.1.4 Changes already enabled

Despite definitional issues and zone complexity, the *Territory Plan 2023* did make shifts in favour of getting better utilisation of land in the RZ1 and RZ2 zones. The before and after changes of note are in Table 4. Key takeaways are:

- Allowing Unit Titled dual occupancies in RZ1 under certain conditions.
- Allowing apartments in RZ2, and allowing subdivision in RZ2 without an associated Design and Siting Development, enabling non-professional leaseholders to sell cleared sites to builders, reducing hurdles to redevelopment in RZ2.
- Plot Ratio was removed in favour of site coverage which enables more creative and flexible design outcomes, whilst ensuring more open space is available on each development site.

Other changes were made however they are not significant to improving missing middle development.¹⁸ Further, in announcing the reforms, the ACT Government allowed for a partial waiver of LVC for some RZ1 projects.¹⁹

Table 4: Zone Updates *Territory Plan 2023*

Zone	<i>Territory Plan 2008 (as at 2023 change)</i>	<i>Territory Plan 2023</i>
RZ1	• Plot ratio (standard large block) 50% GFA • Plot ratio (non-standard) 65% GFA • 500—700 sqm allowed secondary residence with no unit titling (90 sqm max) • Height limit: 8.5m	• Site coverage [single dwelling: 40-70% depending on size, multi-unit: 45% of base sqm] • >800 sqm additional dwelling with Unit Titling • 120 sqm limit for additional dwelling (ex-garage)
RZ2	• Plot ratio (standard large blocks): 50% GFA • Plot ratio (non-standard) 65% GFA • Height limit: 8.5m • Excludes apartments as a use • No subdivision without development	• Site coverage [single dwelling: 40-70% depending on size, multi-unit: 45% of base sqm] • Includes Apartments • RZ2 to RZ5 can be subdivided without a development having to be constructed

Note: Table excludes special provisions for 'supportive housing and community housing' which typically has more development rights, and issues with standard and non-standard blocks. In RZ2 multi-unit adaptable housing also gains additional development rights which are not reported. Redevelopment rights are also excluded.

Some of the factors which did not change from the *Territory Plan 2008 (as at 2023)* to the *Territory Plan 2023*, and are included in the feasibility analyses in this project are summarised in Table 5. Some of the persistent rules that affect the ability to increase density, including in missing middle typologies:

- In RZ1 changes added more block size complexity, did not adjust settings around consolidation or subdivision, and maintained an exclusion for apartment types.
- In RZ2 saw no changes in density limits linked to block sizes, or storey limits, and dwelling maximums based on street frontage were retained.

On balance, the changes made should create some incentive to deliver additional developments—unit titled dual occupancies in selected RZ1, and apartments in RZ2—however there remain significant gaps that would enable additional missing middle development in these zones.

¹⁸ Refer to: <https://www.planning.act.gov.au/professionals/our-planning-system/the-territory-plan#frequently-asked-questions>

¹⁹ ACT Revenue Office, "RZ1 LVC Partial Waiver."



Table 5: Consistent rules in zones

RZ1	RZ2
• No subdivision (except under Unit Title). • Difficult to consolidate, with many restrictions. • Apartments not permitted. • Storey Limit [2 Storey]. • <500 sqm no secondary residence or additional dwelling. • 500-800 sqm, not fluffy, secondary residence 90 sqm limit. • 700-800 sqm and Fluffy additional dwelling with Unit Titling.	• Dual occupancy with subdivision permitted. • Can consolidate with rights. • Storey Limit [2 Storey]. • Density limits: 1 dw up to 700 sqm, +1 for each additional 250 sqm. • Constraint of max 3 dwellings if street front is less than 20m wide.

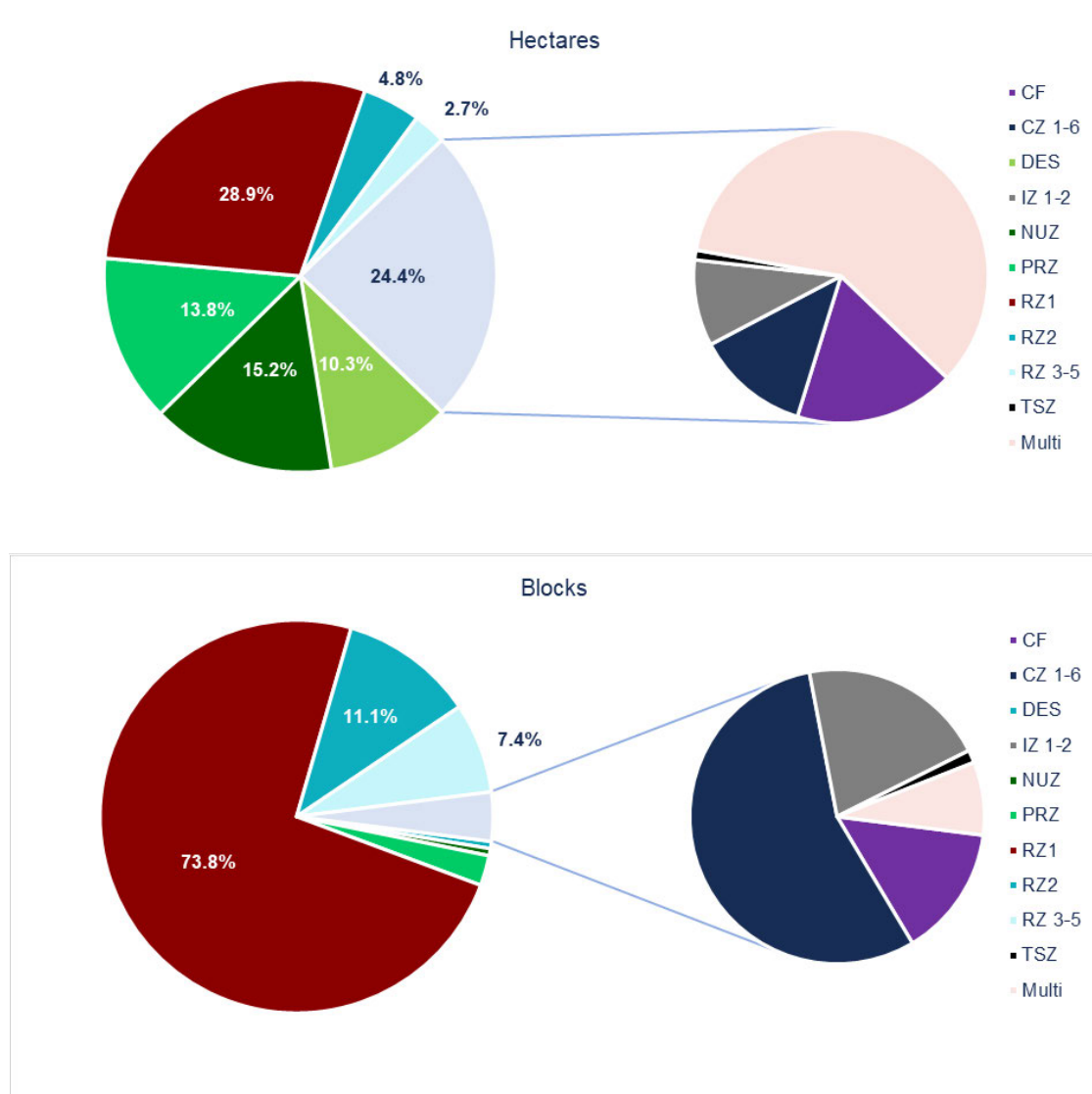


2.2 VOLUME OF RZ1 AND RZ2

Of all land in the ACT which is classified as 'urban' (not rural) RZ1 and RZ2 land is more abundant than any other zone.²⁰ Figure 12 disaggregates urban zoned land into total hectares and total blocks. RZ1 accounts for 28.9% of all hectares, and RZ2 a further 4.8%, combined they account for a bit more than one third of all ACT urban hectares. RZ1 accounts for 73.8% of urban blocks, and RZ2 a further 11.1%, for a combined total of 84.9%.

Attempting to achieve in-fill without considering better utilisation of RZ1 and RZ2 land would limit a significant potential development footprint.

Figure 12: Broad urban land use distribution



Source: Purdon analysis of <ACT geospatial catalogue.

What this analysis demonstrates is that the average land parcel in RZ1 and RZ2 are smaller than other zones. The project sample covers 100,974 RZ1 blocks and 15,130 RZ2 blocks (n=116,104). The average size for RZ1 land is 822 sqm, and 906 sqm for RZ2. In terms of the *Territory Plan 2023* settings 45,505 blocks are greater than 800 sqm (6,760 in RZ2). For RZ2, where development rights improve above 700 sqm, there are 10,208 blocks (65,534 RZ1 blocks). In the event RZ2 rights were extended to RZ1, or the dual occupancy RZ1 rights were available at land sizes 700 sqm and above, this would impact 20,000 blocks.

²⁰ The geospatial file ACT BLOCKS CURRENT includes 'urban' and 'rural' classifications. Rural classified blocks are excluded from this project.

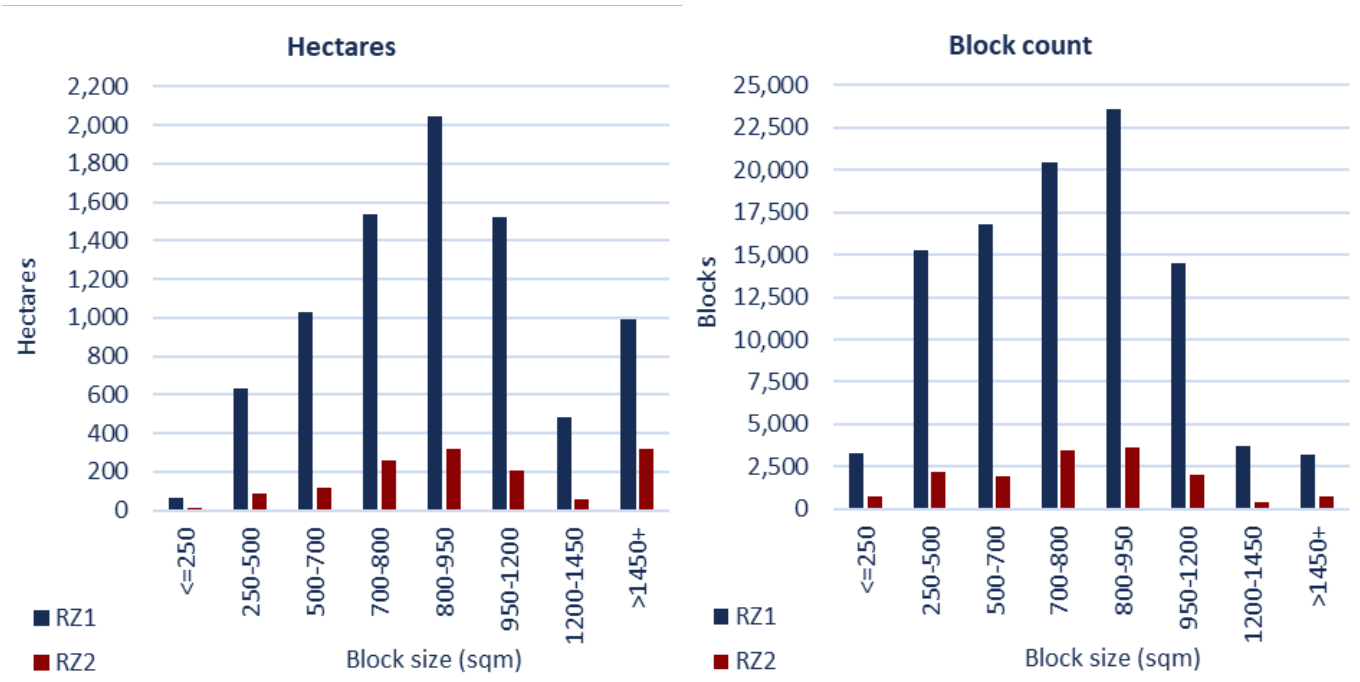


Block size distribution is useful to understand for the feasibility analyses. Figure 13 disaggregates hectares and block counts into zones and recorded block sizes.

In both hectare and block terms the bulk of RZ1 land is between 700 sqm and 1,200 sqm. RZ1 has more than 1,000 hectares of land in parcels greater than 1,450 sqm (more than 2,000 blocks). While changes in 2023 to allow unit titled dual occupancy on land greater than 800 sqm fits nicely with a high volume of blocks above 800 sqm, not aligning the right to a 700 sqm limit as for Mr Fluffy surrendered blocks excluded around 1,500 hectares from being able to generate a separate titled missing middle solution.

Most RZ2 blocks are between 700 and 950 sqm, with a substantial amount above 1,450 sqm. Current development controls suggest most blocks have the potential to deliver more dwellings on each site, with fewer than 5,000 below the 700sqm threshold allowing for an additional dwelling. There is significant potential for second round development uplift if larger RZ1 sites were able to access RZ2 development controls, by sheer weight of numbers.

Figure 13: Hectares and count by block size



Source: Purdon analysis of ACT geospatial catalogue.

A key feature of increased utilisation of RZ1 and RZ2 parcels is they are contained within existing physical, social, and living infrastructure ecosystems, as well as existing subdivision patterns. Any developments at a block scale are unlikely to impinge on the significant natural assets in the territory.

Figure 14 and Figure 15 illustrate the spatial distribution of RZ1 and RZ2 land, and all other zones. RZ1 is distributed across all suburbs. RZ2 is concentrated in targeted areas around activity centres in most suburbs.

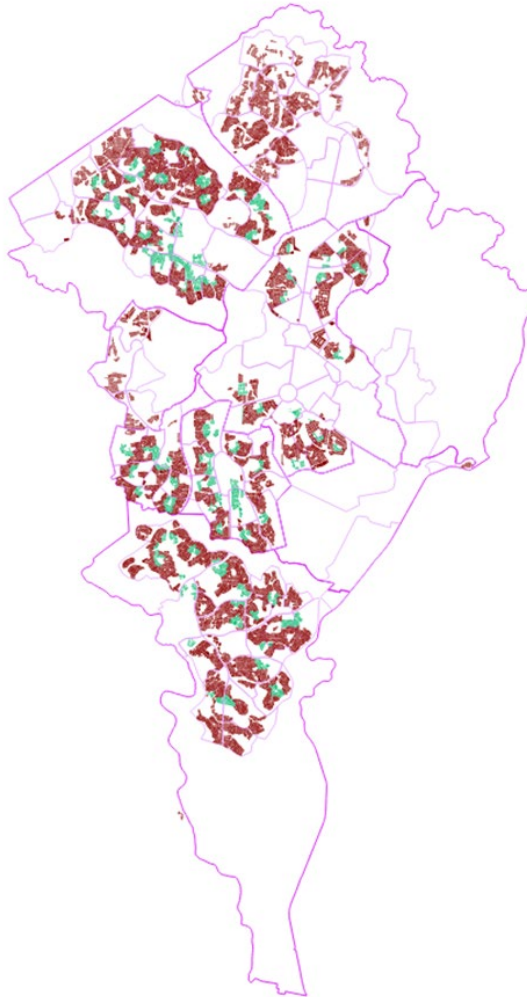
What is clear from separating the other zones is the significant value protected in other zones by focussing in-fill attention on RZ1 and RZ2 blocks. Development in RZ1 and RZ2 prevents any encroachment risk on the 23% of land allocated to open spaces and 'hills, ridges, and buffers', or 8% of designated land.

RZ1 and RZ2 development will not compete with higher density and commercial development in the 6% of land in RZ3-5 and CZ 1-5, and it will assist improving broad based utilisation of the industrial and community zoned land.

Living infrastructure refers to all the interconnected ecosystems within an urban catchment, including the 'green infrastructure' of trees, gardens, green walls and roofs, parks, reserves and open spaces, and the 'blue infrastructure' of our waterbodies including lakes, wetlands and waterways

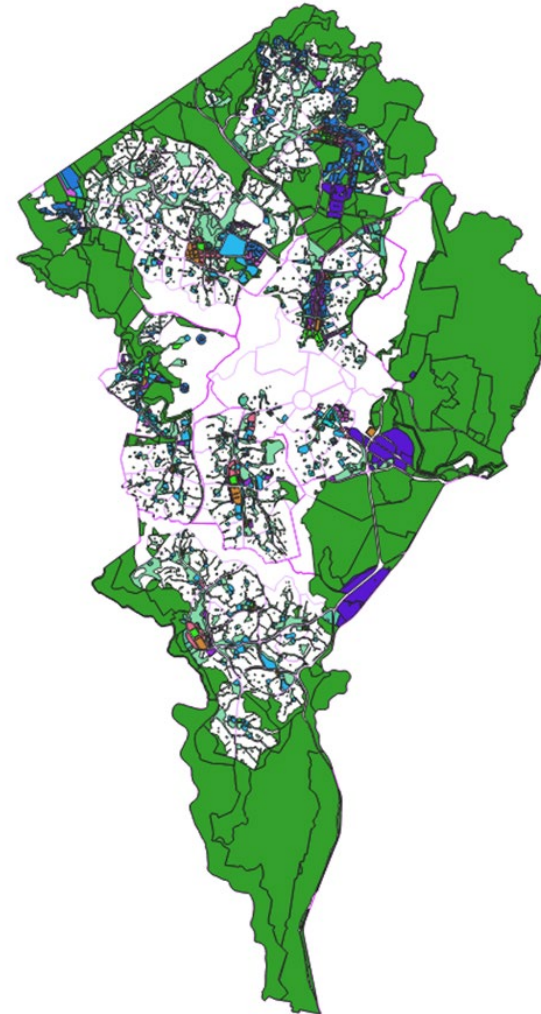


Figure 14: Distribution of RZ1 and 2



Source: Purdon analysis of ACT geospatial catalogue

Figure 15: Land not impacted by RZ1 and 2 changes





2.2.1 Approximate current usage

There is no official record or taxonomy of the use of specific blocks. The project has adopted an approach to deal with this, using address counts from linked data sets (see *Information Quality Statement*). In this report:

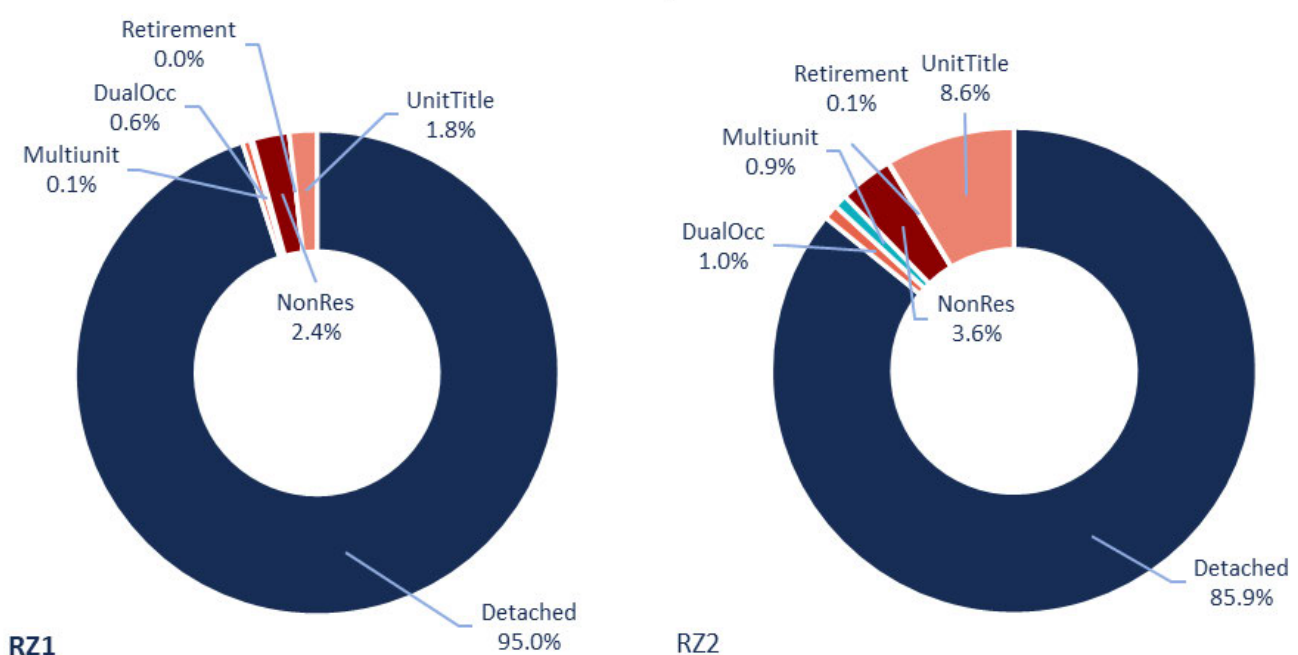
- Detached means a block with a single address, or a corner block with up to two addresses.
- Dual occupancy (DualOcc) means a block that may or may not be a corner block, where there are more than 2 addresses, and where there is no unit title.
- Multiunit means a block that may or may not be a corner block, where there are more than 3 addresses, and where there is no unit title.
- Unit Title means the block has a defined Unit Plan number. There may be dual occupancy, and will be multiunit developments in the Unit Title category.
- Retirement is a block where the ACT ADDRESS file includes a 'retirement' description, and
- Non-residential (NonRes) means any land which is in the zones but for which there is no address in any file (representing walkways, edge blocks and similar 'junk' blocks).

This method is not perfect, potentially allocates uses different to lease clauses, and may inadvertently count addresses with unapproved dwellings. In most analysis the multiunit and retirement land are excluded as they are low quality. In the absence of an official taxonomy, it allows for comparisons on consistent basis within this project.

The estimated usage on these definitions is reported in Figure 16. It is clear a significant volume of land in both RZ1 and RZ2 zones is potentially available for missing middle development. It is also clear that some has been utilised for medium density development, in particular unit tilting in RZ2 land.

Observation 9: Up to 95% of RZ1 land contains single detached dwellings, and potentially 85% of RZ2 the same.

Figure 16: Approximate use of RZ1 and RZ2 hectares



Source: Purdon analysis of ACT geospatial catalogue.



Observation 10: There is significant potential in the RZ1 and RZ2 zones for further missing middle development. This development would have minimal impact on existing off-block physical and living infrastructure including street canopy. Improved block usage would not compete with other commercial and residential zones targeting higher densities. Additional utilisation of these blocks may increase utilisation of existing social infrastructure.

2.3 PRECINCT APPROACH

To provide realistic assessments of the potential feasibility of development in RZ1 and RZ2, a feature of the project scope was to identify case study areas. Specifically, the requirements included identifying:

...5 precinct case study areas to interrogate the uptake in RZ1 and RZ2 zoning of the 'missing middle'. Precinct case study areas should include areas where there has been uptake of the 'missing middle' in the RZ1 and RZ2 zone, and areas with little, to no uptake. This will consider urban form characteristics of intensification including on, individual sites, along streets (long sites) and precincts.

Precinct is not a defined concept in the ACT land system, or other geographical referencing systems, other than in specific contexts (entertainment precinct, employment precinct). This project has adopted the broadest version of this term to look at Divisions ('suburbs'). These are larger than a 'precinct' conceptually, but are well defined in statistical and spatial geography, contain many more unit records (blocks) increasing the sample size for decision making, and are easier to understand in common terminology.

2.3.1 Precinct selection

To determine precincts with interesting and useful characteristics for case study assessments a top-down reductive approach was adopted. This started with assessing broad features of all 140 statistical locations within ABS and ACT spatial definitions of the ACT (broadly statistical area (SA)2, suburb, or division level). From this sample the number of locations was reduced based on a range of location features and challenges. For example, removals included :

- 27 suburbs with no relevant blocks, non-residential settings, or without population forecast information.
- 29 suburbs too early in development, which are recent greenfield areas, or do not seem strategically important.
- 14 suburbs that had either no RZ1 or RZ2.

The excluded locations are reported in Table 28 (page 176). The remaining sample of 70 potential locations was narrowed applying a range of location metrics. To target precincts that would meet the contract requirements the changes between 2011 and 2021 investigated at a suburb scale in the measures included:

- People per hectare (population density). This would signal where density has increased or decreased.
- Households or dwellings per ha (dwelling density). This provides additional signalling about density, specifically looking at dwelling densities.
- Structures: shifts in ABS structures including houses, semis, apartments, and the calculated missing middle aggregate.
- A missing middle ratio, comparing the relative ratio of houses to 'missing middle' statistical equivalent.
- Change in population forecast between 2024 and 2060.
- Hectares (number and proportion) in RZ1 and RZ2.

The analyses revealed 15 interesting locations that have demonstrated significant movement towards missing middle, or the complete opposite. An arbitrary filter of districts was applied too, to ensure the analysis was not biased towards a particular district. By agreement, the division and districts selected for precinct analysis included:

- Chifley, Woden.

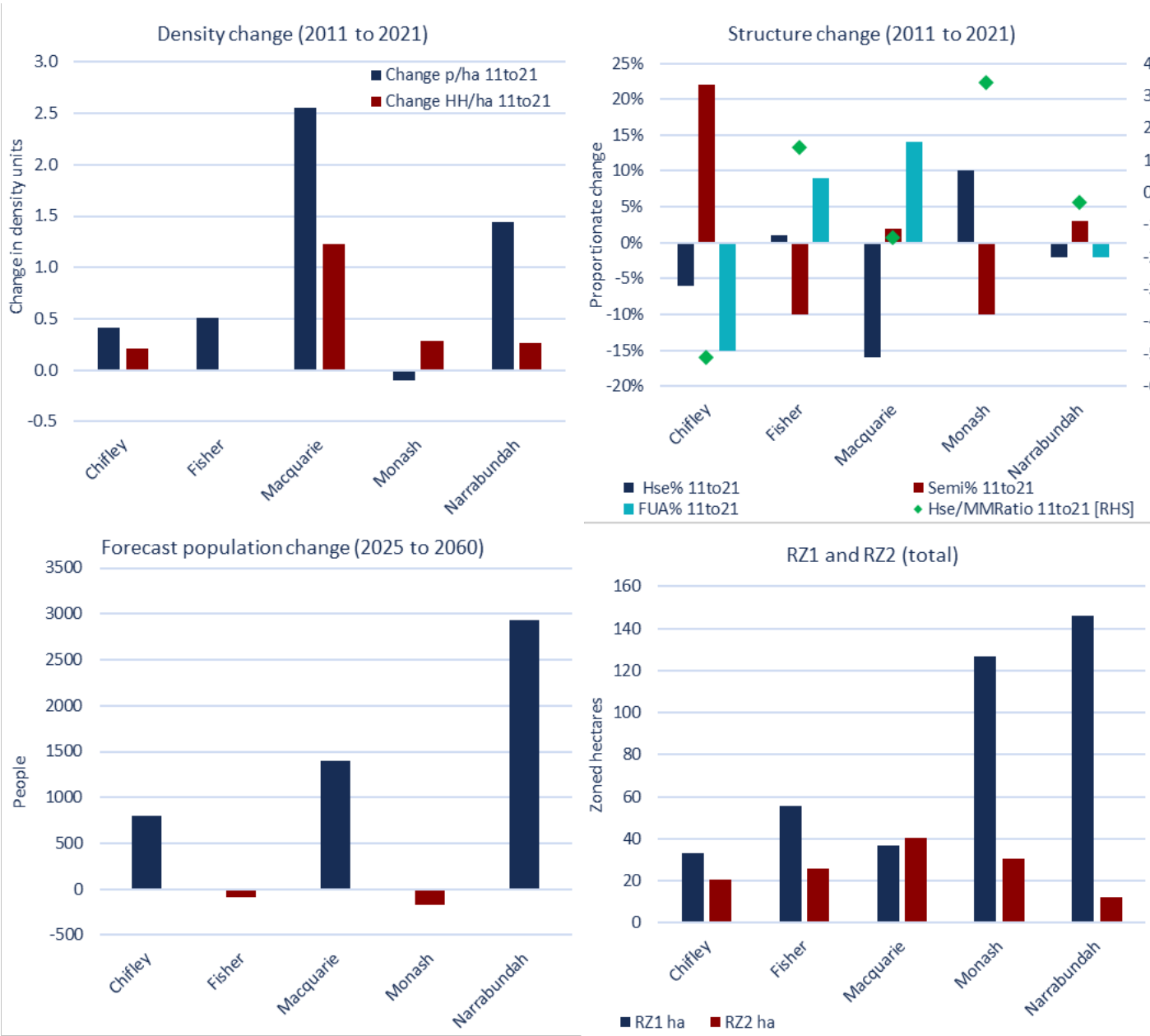


- Fisher, Weston Creek.
- Macquarie, Belconnen.
- Monash, Tuggeranong.
- Narrabundah, Inner South.

The interesting but excluded options included Lyons, Hackett, Page, Chapman, Gowrie, Giralang, Evatt, Bonython, Spence, and Calwell.

The key decision metrics for selecting the five precincts are set out in Figure 17. These include density changes (top left panel), structure changes (top right panel), estimated population change (bottom left panel) and baseline RZ1 and RZ2 hectares (bottom right panel).

Figure 17: Precinct selection metrics



Note: FUA in this context means 'flats units and apartments.' Source: Purdon analysis of ABS Data by Region, Census 2011 and 2016, Estimated dwelling stock, June Quarter 2022; ACT Government, Population Projections: 2022 – 2060, and ACT geospatial catalogue file 'ACT BLOCKS CURRENT'. See also information quality statement.



Factors between 2011 and 2021 which identified these precincts as interesting included:

- Most have similar areas of RZ2 land, with some variations in Macquarie (more) and Narrabundah (less). RZ1 availability is very different.
- Fisher and Monash had high house to missing middle ratios, but also negative population forecasts, and mixed metrics on density changes (less people per hectare change than dwelling per hectare change, or vice versa).
- Chifley has achieved significant growth in semi-detached typologies, including at the expense of apartments.
- Density increased significantly in Narrabundah and Macquarie. These locations also saw an increase in medium density development; however, Macquarie also experienced an increase in high density development.
- A mixed signal on density in Monash (lower population, higher dwelling), accompanied with a shift away from semi-detached structures.

Other general features include the spatial distribution across all major, older, Districts (noting the exception of the Inner North), the difference in apparently similar types of areas (Chifley and Fisher, Narrabundah and Macquarie), the age of the suburbs, and other generally understood features like location to town, group and local centres.

2.3.2 Precinct profiles

Chifley is in Woden Valley. The suburb was gazetted in May 1966.

The suburb is bounded by Hindmarsh Drive, Melrose Drive, and Tuggeranong Parkway (shielded by a large green belt).

Chifley is near to the Woden Town Centre, and Philip commercial district.

A precinct visit revealed an active local centre including cafes, a modest shopping centre, and nearby playground with public facilities. There is a significant open green space connected with the local centre.

There is missing middle development in locations towards Phillip on and around Eggleston Crescent. There are existing sites with aged assets in fantastic locations with RZ2 and above zoning.





Fisher is in Weston Creek, on similar latitude and close to Chifley. Fisher was gazetted in July 1970.

Fisher is aligned with but not connected to the Tuggeranong Parkway, and is bounded by Badimara Street and Namatjira Dr.

A major internal Road, Kalgoorlie Cres, hosts the local centre and feeds most traffic into Badimara St.

A major green spine runs next to the local centre, and connects Kalgoorlie to Badimara. It appears to have poor wayfinding and lighting, and there is significant graffiti.

The local centre is unremarkable, with land for potential expansion, and containing a busy medical practice and limited hours food shops as well as other smaller entities.

A former service station site is near to the local centre but in use as a different business. Some missing middle style development is apparent near the Fisher local centre, and there are large, poorly utilised R22 units near to the centre.

Macquarie is in Belconnen and was gazetted in June 1967.

Macquarie contains the 'Jamison Centre,' which includes major anchor tenants, a range of food and variety stores and has extensive public car parking. There is also a small commercial precinct between the Jamison Centre and Canberra High School, as well as Canberra's only major water theme park. It is also very close to the Belconnen Town Centre.

The suburb is bounded by Belconnen Way, Coulter Drive, Bindubi St, and Redfern St.

While having a local centre it primarily hosts medical facilities and at face value is run down. There is reasonable social infrastructure nearby (school, scout hall, pocket parks).



There is clear evidence of missing middle and higher density development occurring in Macquarie. However, to the south-east the suburb is hilly, and there are generally larger blocks which appear not to be affected by development.



Monash is in Tuggeranong. It was gazetted in August 1975.

The suburb is bound by Drakeford Dr, Erindale Dr, Isabella Dr and Ashley Dr which are major Tuggeranong distribution roads.

The suburb is large, with distinct topography. The land around Monash Hill is very slope constrained, but with fantastic views across Tuggeranong Valley. Further towards the Tuggeranong Town Centre, and back towards the local centre, the land is relatively flat.

There is abundant green space.

It was obvious that retirement accommodation is abundant in Monash, and there a few major faith-based estates.

Upon visiting the local centre it was observed to be in dire disrepair. A supermarket was vacated, and there are aged assets with little activity.

Curiously, a major retirement complex near the local centre has internalised services. Near to the shops is a 'future redevelopment' Community Facility zoned site in the ACT Government portfolio.

Narrabundah is in the Inner South District. It was initially gazetted in September 1928.

Visiting the precinct demonstrated very different and contrasting features in Narrabundah, and it is quite large suburb. A major road system splits the suburb (Jerrabomberra Ave, Captain Cook Cres and Sturt Ave).

To the west of the split is sloping land with high priced detached dwellings and significant living infrastructure, and partly flat land located nearer to the Griffith local centre than the Narrabundah centre. East of the split is relatively flat, with a range of dwelling typologies, a lower socioeconomic environment than to the west, and an active local centre.

There are major community facilities across the suburb (for example Marymead, CommunityServices#1, Winnunga Nimmityjah and a range of clubs). The south of the suburb is occupied by major sporting facilities (gold, velodrome, and baseball).



There is a wide range of high, medium and low-density typologies. Recent missing middle development is abundantly evident.



Detailed spatial profiling is available at *Annex A* to assist interpreting the comparative features of the precincts, including:

- Precinct zoning and blocks.
- Blocks in scope and Block scale density (dw/ha).
- Dwellings.
- Canopy.
- Orientation.
- Slope characteristics.
- Walkability to Local Centres (400m).
- Location to Group Centres (400m, 800m, 1200m).
- Location to Town Centres (400m, 800m, 1200m).
- Access to public transport (400m to stop).

The profiling informs these discussions and underpins feasibility modelling, observations, and recommendations.

2.3.3 Precinct land structure

The precinct sample includes around 6,160 RZ1 and RZ2 blocks, of which 29 are excluded as they have difficult to define usage (multiunit and retirement). The sample has 4,707 blocks zoned RZ1 (76.8%) and 1,424 zoned RZ2 (23.2%).

Based on the address count method blocks with detached dwellings account for 5,763 of the sample (94%), of which 4,540 are in RZ1 (74%) and 1,223 are in RZ2 (19.9%). The remainder are dual occupancy or have a unit title (6%). A complete breakdown by precinct, zone, and estimated usage is presented in Table 6.

Across all blocks the size range 500-800 sqm dominates the sample with 41% (31.3% in RZ1 and 9.2% in RZ2). Of relevance for missing middle feasibility, on current land settings, around 40% of RZ1 land and 12% of RZ2 land are greater than 800 sqm, with 149 blocks greater than 1,450 sqm. Most of these larger blocks currently have detached usage, and may be underutilised in a strict density sense.

Observation 11: Missing middle potential in the five cases study precincts is significant. Across all precincts 40% of RZ1 land and 12% of RZ2 land is greater than 800 sqm in area. There are 149 blocks greater than 1,450 sqm. Most existing usage is single detached dwellings.

Interrogating the Mr Fluffy land register reveals Monash had no properties affected. Chifley had 17 blocks, Fisher had 30 blocks, Macquarie had 15 blocks, and Narrabundah had 20.



Table 6: Precinct land use

Type	Land Size	Chifley		Fisher		Macquarie		Monash		Narrabundah		Total	
	sqm	RZ1	RZ2	RZ1	RZ2	RZ1	RZ2	RZ1	RZ2	RZ1	RZ2	RZ1	RZ2
Detached	250-500	5	15		4		102	63	4	276	6	344	131
	500-800	148	133	316	123	131	133	404	93	895	63	1,894	545
	800-950	166	67	266	85	134	102	459	83	301	22	1,326	359
	950-1200	70	30	174	16	66	48	281	56	169	8	760	158
	1200-1450	19	2	22	4	27	12	40	9	33		141	27
	>1450+	17		19	1	17	1	9	1	13		75	3
	Subtotal	425	247	797	233	375	398	1,256	246	1,687	99	4,540	1,223
Dual Occupancy	250-500												
	500-800	2	1	1	5				1	10	2	13	9
	800-950	9	6	3	6	2	5	1	2	2		17	19
	950-1200	5	2	6		3	2	4	1	5	1	23	6
	1200-1450	1	2				1	1				2	3
	>1450+											0	0
	Subtotal	17	11	10	11	5	8	6	4	17	3	55	37
Unit Title	250-500				3							0	3
	500-800		3	2	6	2	1	1		6	2	11	12
	800-950	4	28	4	11		22		4	9	3	17	68
	950-1200	10	20	3	2	1	10	10	3	8	3	32	38
	1200-1450	3	2	3	1	1	2	2	1	9		18	6
	>1450+	1	14	4	4	3	12	22	1	4	6	34	37
	Subtotal	18	67	16	27	7	47	35	9	36	14	112	164
Total		460	325	823	271	387	453	1,297	259	1,740	116	4,707	1,424

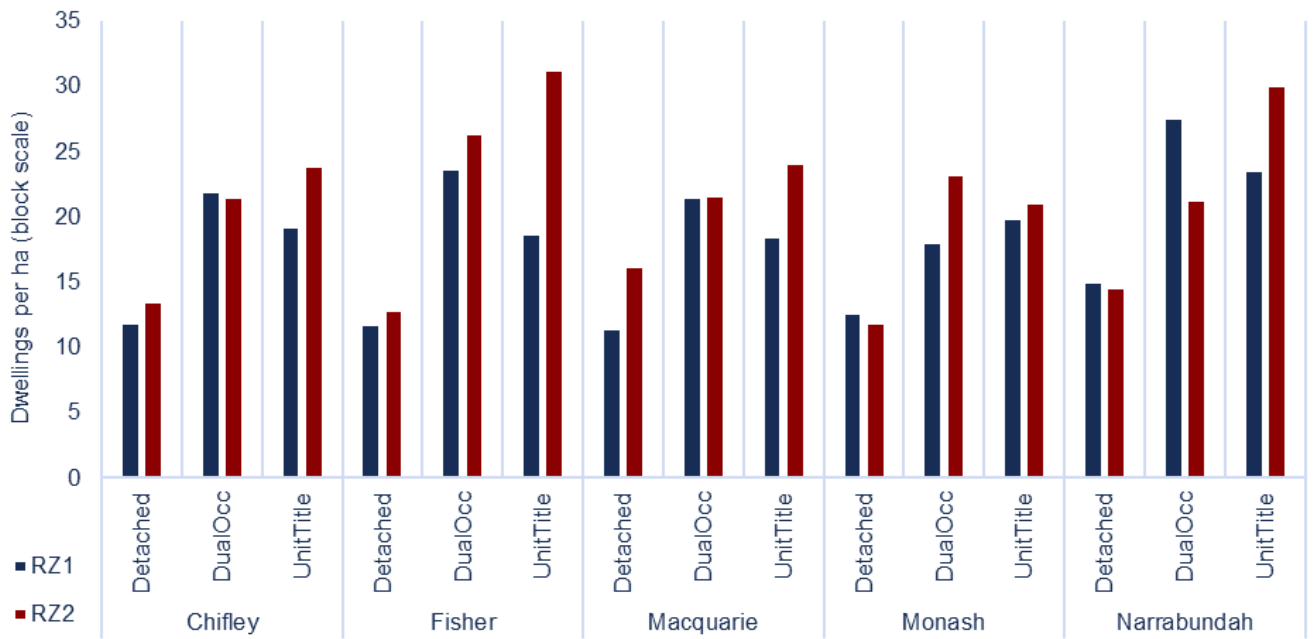
Note: There are a further 29 blocks that appears to be retirement usage or 'multi-unit', which are not reported here. The latter have unusual features.

Source: Purdon analysis of ACT geospatial catalogue.



In Figure 18 the land parcels are disaggregated into precinct, zone, and apparent block density. This measure estimates the number of dwellings (using an address proxy) compared to the block size converted to hectares.

Figure 18: Block scale density averages by type and zone



Source: Purdon analysis of ACT geospatial catalogue.

In general, detached density in RZ1 sits around 10-15 dw/ha, and RZ2 is similar, albeit with different outcomes in different locations (see Macquarie compared to Narrabundah). Densities increase with land utilisation. For example, dual occupancy density sits in a range between 17 and 27 dw/ha, and then unit titled blocks get as high as 30 dw/ha in RZ2 (in Fisher) and are mostly above 20 dw/ha.

Observation 12: Detached RZ1 block density in the case study precincts is around 10-15 dw/ha, and for RZ2 sits in a similar range to RZ1 but with wider ranges in some locations. Density increases with different usages achieving, for example, 17-27 dw/ha in dual occupancy and as high as 30 dw/ha in unit titles blocks.

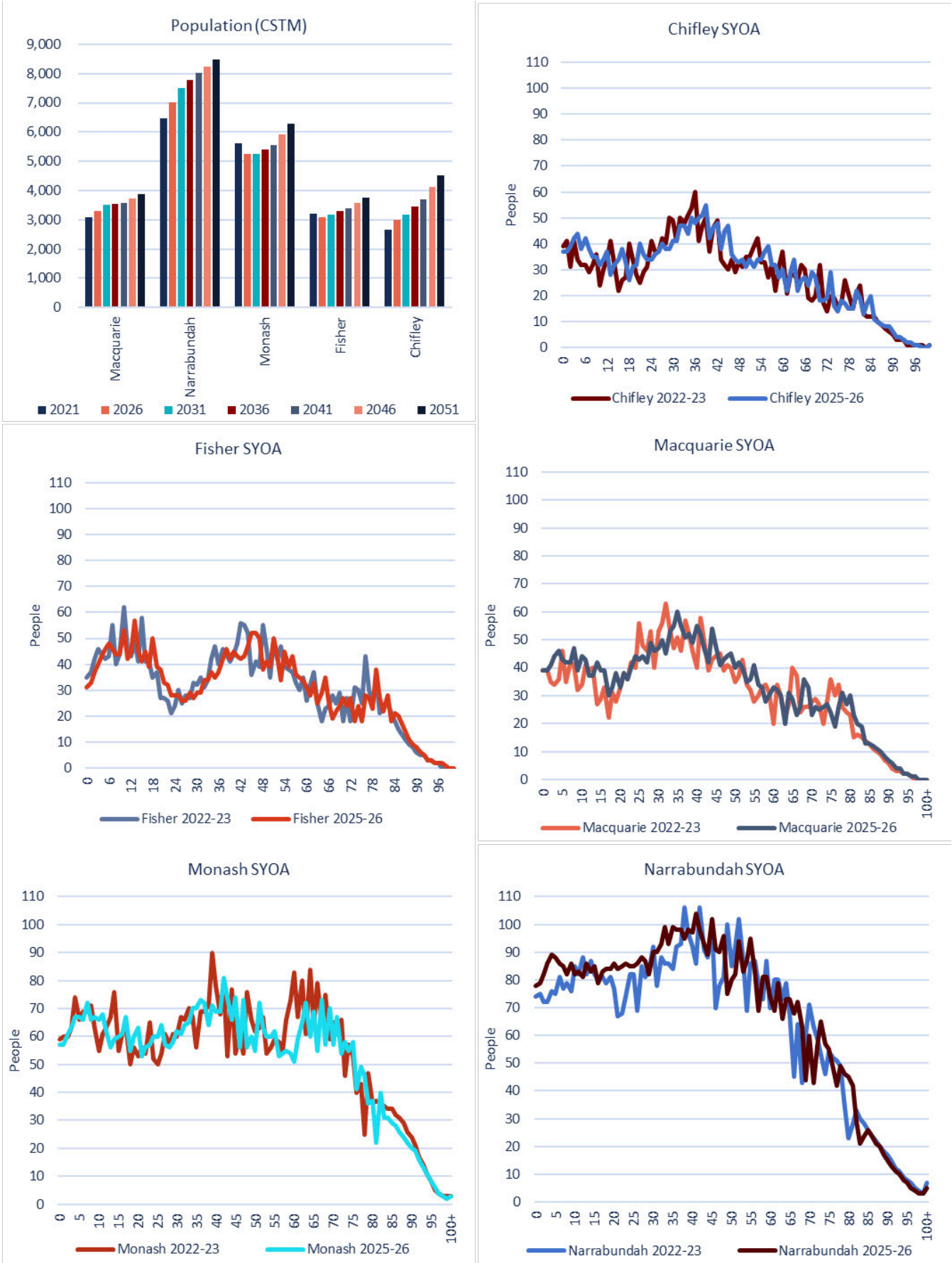
2.3.4 Precinct population

Population profiles differ for each precinct, as illustrated in the dashboard in Figure 19. Population levels are taken from the Canberra Strategic Transport Model (CSTM). This data uses the Treasury forecast to define population levels, but constrains population distribution based on land use and transport parameters.

Consistent with the scale of the suburbs Narrabundah and Monash are larger suburbs. Predicted growth is fastest in Narrabundah and Chifley. Monash is expected to see a dip in population and recover to slightly above current levels by 2046. Unexpectedly, Macquarie has a relatively low growth profile compared to the types of development evident in the suburb from a precinct visit.



Figure 19: Population dynamics



Sources: Purdon analysis of ACT Government Canberra Strategic Transport Model, and ACT Treasury, ACT Population Projections: 2022 – 2060.



The remaining panels in the figure profile the single year of age projections by precinct in 2022-23 and 2025-26. Each profile is distinct.

- Chifley has a mid-40s peak, with some younger people, suggesting a family type distribution. This is similar in Fisher, however the number of people aged up to 12 is relatively higher (perhaps slightly older families).
- Macquarie has a mid-30s peak, and generally fatter tail aged over 60 years.
- Monash is relatively even in ages up to the 60s, with a fat tail above that age. This may reflect the abundance of retirement accommodation, perhaps in combination with older families, couple, and single households.
- Narrabundah has a late 30s peak, significant populations in the 30 to 65 range, and a fat tail in the higher age brackets (including a tick up in 100+). The population pattern reflects the major diversity present across the land use in the suburb. Narrabundah itself could not be considered a single market.

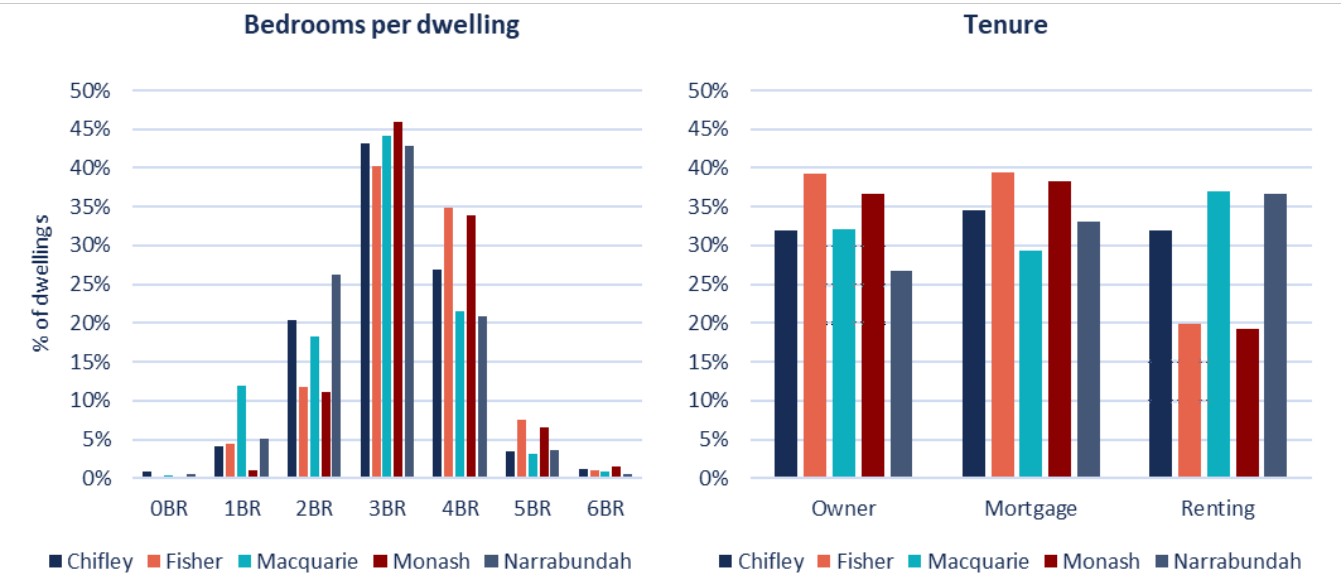
Without question, each precinct has distinct population dynamics which will create unique opportunities and constraints.

2.3.5 Housing market

Broad distributions of dwelling size and tenure are reported in Figure 20. In each of the five precincts two and three bedroom dwellings are prevalent. Macquarie has relatively more one bedroom dwellings than all others. Macquarie, Chifley, and Narrabundah have more two bedroom dwellings, and Fisher and Monash have more 4-bedroom dwellings.

Dwelling tenure is mixed across the precincts. Outright ownership, as well as buying with a mortgage is highest in Fisher and Monash, where renting is also relatively lower. Narrabundah has the lowest level of outright ownership and a high proportion of renters. Macquarie has the highest proportion of renters. The distribution in Chifley is unremarkable and almost equivalent.

Figure 20: Tenure and dwelling features



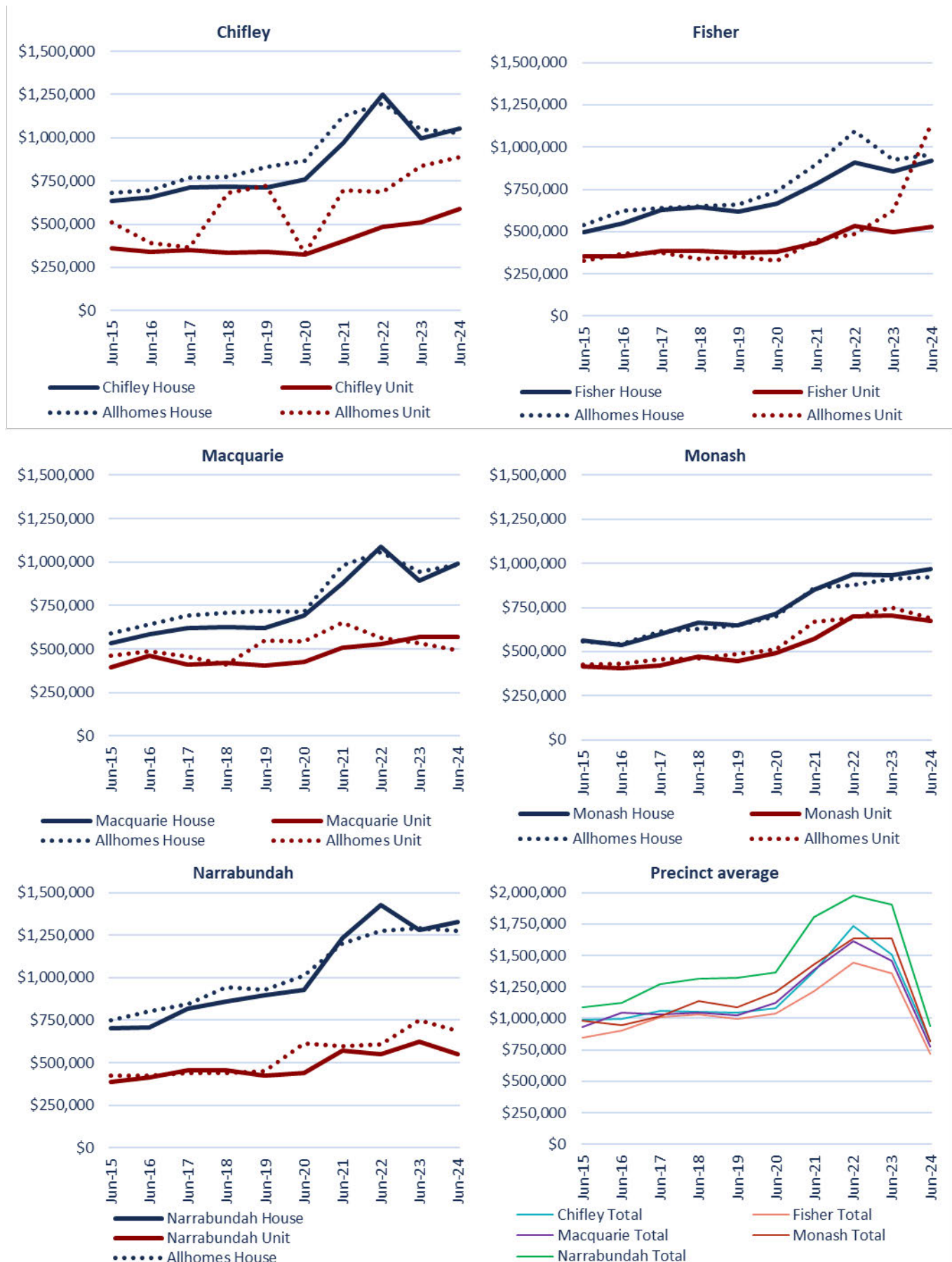
Source: AUO, <https://new.map.auo.org.au>, based on Census 2021 inputs.

These tenure profiles will affect the ability of leaseholders to participate in missing middle developments.

Property pricing illustrates a key localised difference between the precincts. Figure 21 shows median house and unit prices, including data from two private market sources, and a comparison to precinct averages. The price scales in the figure are equivalent to allow for direct comparison between the different graphs.



Figure 21: Comparison of market prices



Source: allhomes, and CoreLogic Suburb Reports.



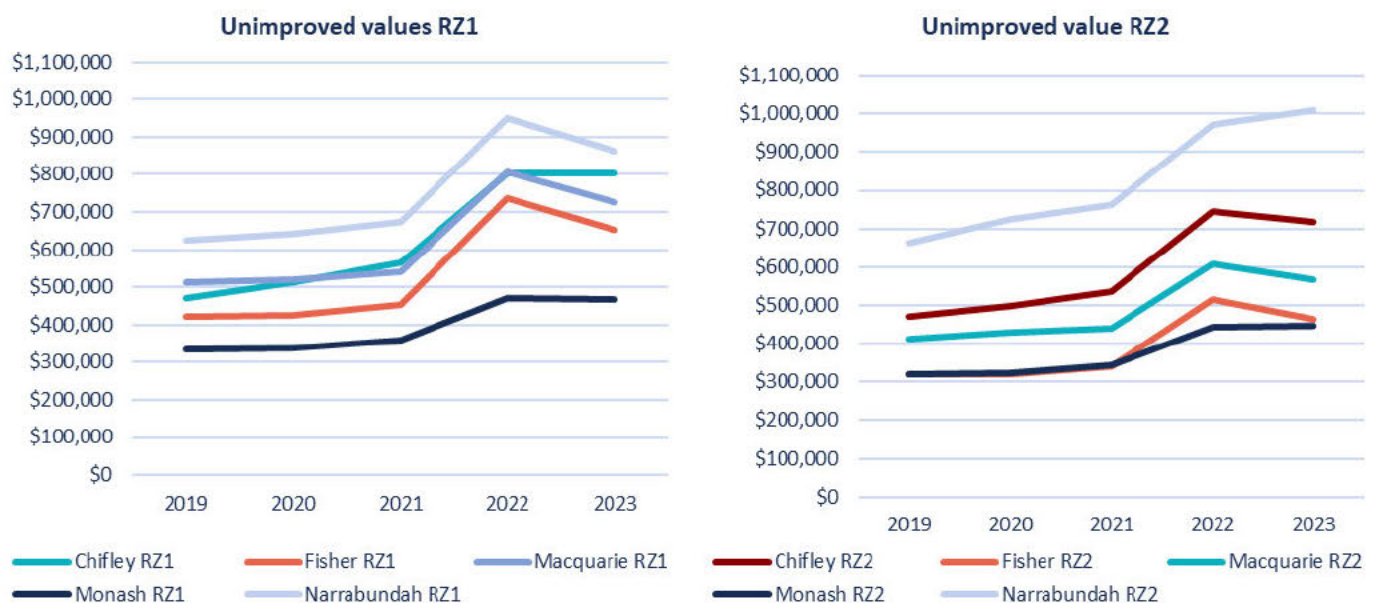
The research suggests that:

- Generally, the highest to lowest house price medians are recorded in Narrabundah, Chifley, Macquarie, Fisher and then Monash.
- Despite clear location factors unit prices are tending to cluster around \$500,000 except in Monash (higher) and possibly Fisher (different source results). This may reflect localised scarcity of units within the precinct.
- Chifley, Monash, and Macquarie are approximately 'million-dollar median' suburbs, whereas Narrabundah is around 25% higher, and Fisher is below at around \$900,000.
- Despite localised results there are some common cyclical movements, this probably reflects the impact of Territory factors on local settings.

The difference in the median price paths between sources also illustrates the issue with private subscription-based data sources, the samples are most likely different, and different methodologies may affect the comparison.

Some of the source uncertainty is removed by looking at the unimproved values and average suburb rates in Figure 22 and Figure 23.

Figure 22: Average of annual unimproved values



Source: ACT Government, "Unimproved Value."

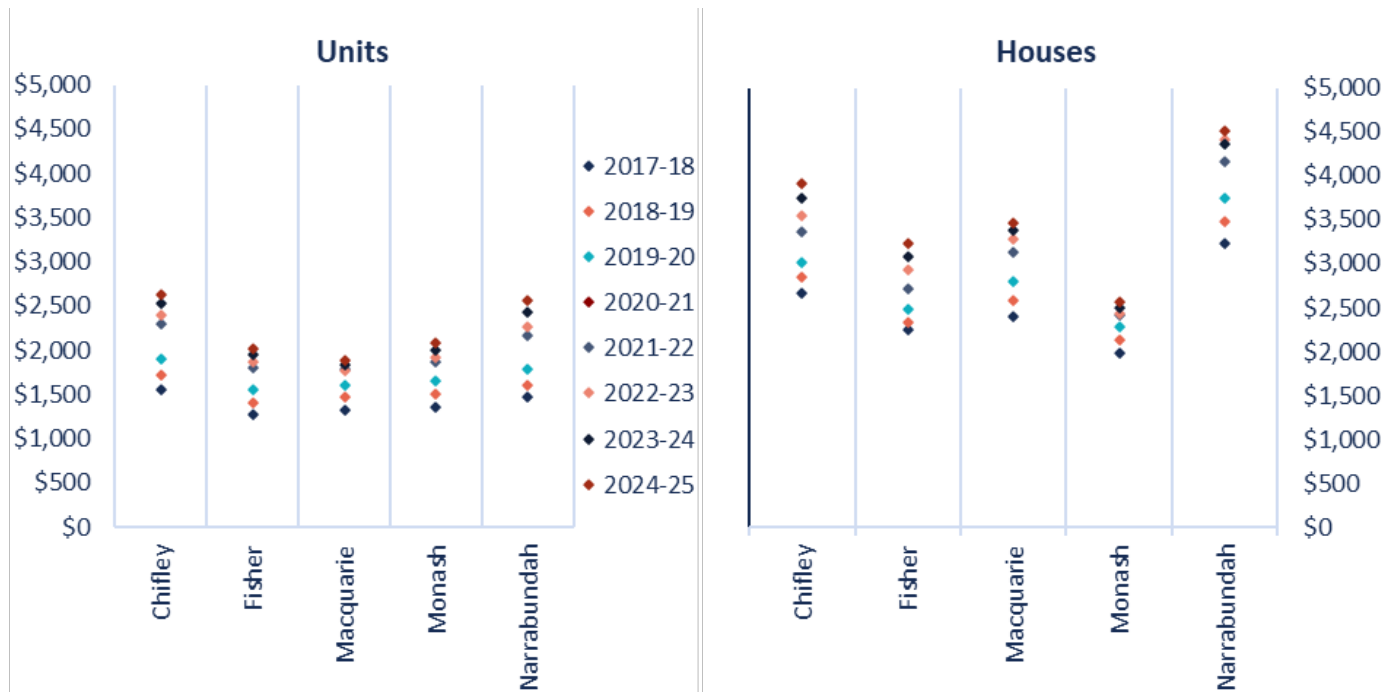
The unimproved value averages confirm the layering of value between locations. Interestingly, they reveal little difference between blocks with RZ1 and RZ2 zoning. The average annual rates bill for units and houses also confirms the broad structure of value, and the rapid increases in rates over recent years.

The pricing difference are a material issue in how viable potential developments could be in these locations, and this is discussed more within the context of the development feasibility framework.

Observation 13: Apart from having close commencement dates each precinct has unique local constraints and opportunities. There are some similarities like significant green and open space, a combination of hilly and flat areas, and generally ageing populations. Further, Narrabundah and Macquarie have features that suggest differences within precincts, given their proximity to larger group and town centres. However, it would be erroneous to conclude each precinct is uniform, meaning development feasibility in any precinct will be directly impacted by local factors.



Figure 23: Average annual rates



Source: Annual capture from Riotact articles, for example: I Bushnell, ACT Budget: See what your rates bill will look like in 2024-25, 26-Jun-24; and ACT Budget: How much your rates will rise suburb by suburb, 1-Jul-23.

2.3.6 Amenity features

Each of the precincts has canopy cover at a level consistent with ACT Government expectations. When assessing canopy cover for the Urban Forest Strategy the ACT Government identified four out of five precincts having between 20 and 30% canopy cover. Monash only achieved 10-20%.²¹ Canopy mapping for the case study precincts is shared in Annex A, and is a factor that impacts development feasibility in subsequent feasibility analyses.

The Australian Urban Observatory undertakes extensive research on the urban quality of locations across Australia. Two of the many indicators prepared are useful to compare urban form aspects of the case study precincts:

- *The liveability index*: a composite score based on 13 measures including street connectivity; dwelling density; access to community, culture and leisure destinations; access to childcare services; access to public schools; access to health services; access to sport and recreation facilities; access to fresh food; access to convenience stores; access to regular public transport; access to large public open space; low housing affordability stress; and local employment opportunities,²² and
- *Social infrastructure index*: calculated based on a range of measures that include Community Centres; Culture and Leisure; Early Years; Education; Health and Social Services; and Sport and Recreation. They include 16 individual service types and are based on the presence of service mix within threshold distances.²³

Figure 24 presents the results for each precinct in this project.

Macquarie is highest ranked for liveability and, with Narrabundah and Chifley, is above average liveability (100). Fisher is below average. Monash is at the average.

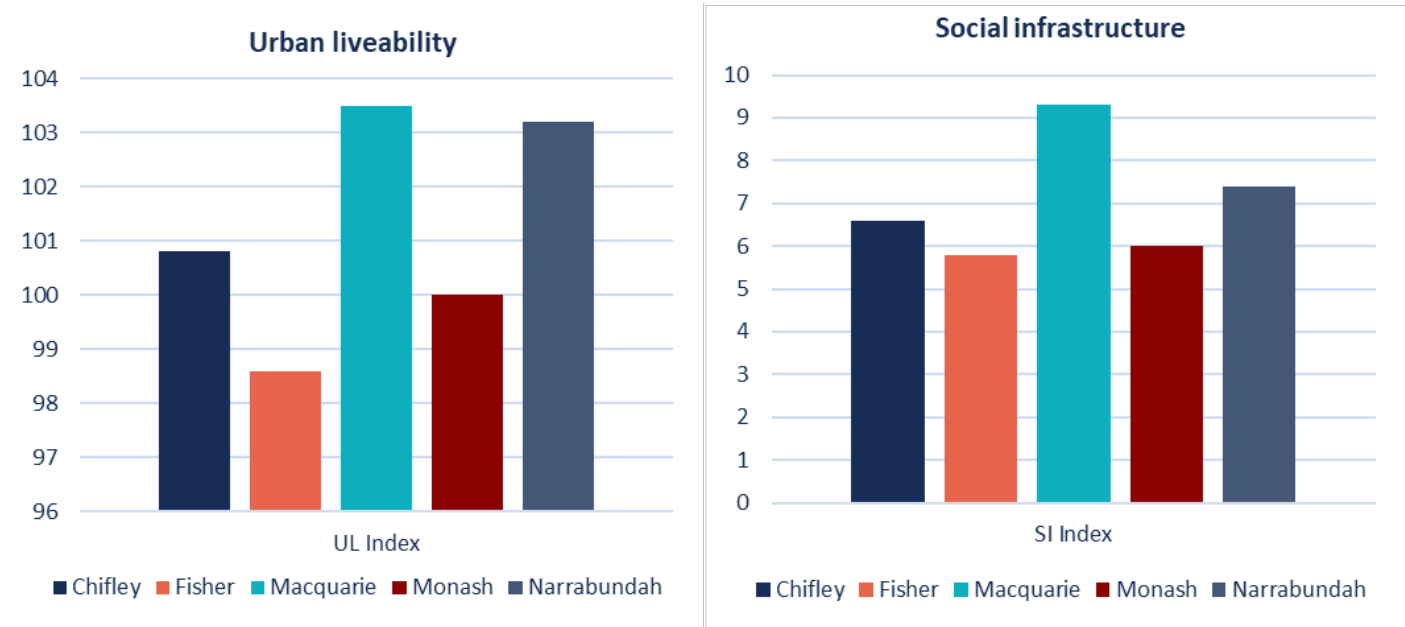
²¹ ACT Government, "Urban Forest Strategy 2021-2045," p. 20.

²² AUO, Liveability, <https://auo.org.au/portal/metadata/urban-liveability-index/>

²³ AUO, Social Infrastructure, <https://auo.org.au/portal/metadata/social-infrastructure-mix-index/>



Figure 24: Australian Urban Observatory scores



Source: AUO, *Liveability 2021* and *Social Infrastructure 2021*, <https://new.map.auo.org.au/>

Social infrastructure is scored out of 16. Macquarie leads the case study precincts, and Narrabundah and Chifley are close second and third. Fisher and Monash are closely related. The specific factors are not reported, but the reports suggest these locations have less access to museums, cinemas, libraries, public swimming pools and some health services weigh on the scores.

FEASIBILITY OF THE
MISSING MIDDLE



3.1 FEASIBILITY FRAMEWORK

To analyse opportunities and constraints to increased missing middle development in RZ1 and RZ2 zones in the case study precincts the project adopts a proprietary development feasibility framework to identify a range of development activities or ‘levers’. In this project the ‘lever’ concept refers to how activities and changes to those activities might affect the duration, cost, or quality of development in missing middle style developments.

The framework defines the stages and activities within the development journey from an idea through to an outcome. The framework is a general representative process. In reality, the stages and activities will be tied to a specific development concept, and the preferences of the leaseholder.

The development feasibility framework is visualised in Figure 25. Going from left to right, it comprises:

- The array of development ideas available to an RZ1 or RZ2 leaseholder assuming they choose to ‘do something’.
- The time frames that each idea could take to deliver on average, based on market experience.
- The six broad stages in the development feasibility framework, starting with a concept, and going through stages towards project closure. This framework also identifies post-occupancy matters as these may affect feasibility.
- The two primary categories of activities, or ‘levers,’ which may be required to achieve an outcome—the strategic and statutory planning system (‘planning’), and the economic, financial, environmental, and social systems (‘non-planning’). The framework also identified a range of regulatory and enabling levers which have planning and non-planning dimensions.

The framework allows for the identification of the range and sequence activities that influence development outcomes, and consequently the feasibility of different missing middle options.

The goal for the remainder of this section is to elaborate on the various levers, and the ways these levers are most likely to materially influence missing middle development feasibility.

3.2 CHOICES AND TIME

Development is conditional on a willingness of leaseholders to pursue an idea for higher and better land usage. In the RZ1 and RZ2 zones decisions to develop, or otherwise, will depend on the scale and scope of a leaseholder’s block, or combination of blocks, the ability of the leaseholder to act on the idea, and their preferences.

Land in low density ACT residential zones, like RZ1 and RZ2, will typically provide leaseholders with the choice to:

- Do nothing.
- Sell to someone who will develop the land.
- Build a better house (renewal without growth).
- Add a ‘secondary dwelling’ (single titled dual occupancy).
- Add an additional dwelling (dual occupancy with or without a unit title).
- Take the risk of developing the land to its highest and best valued use.

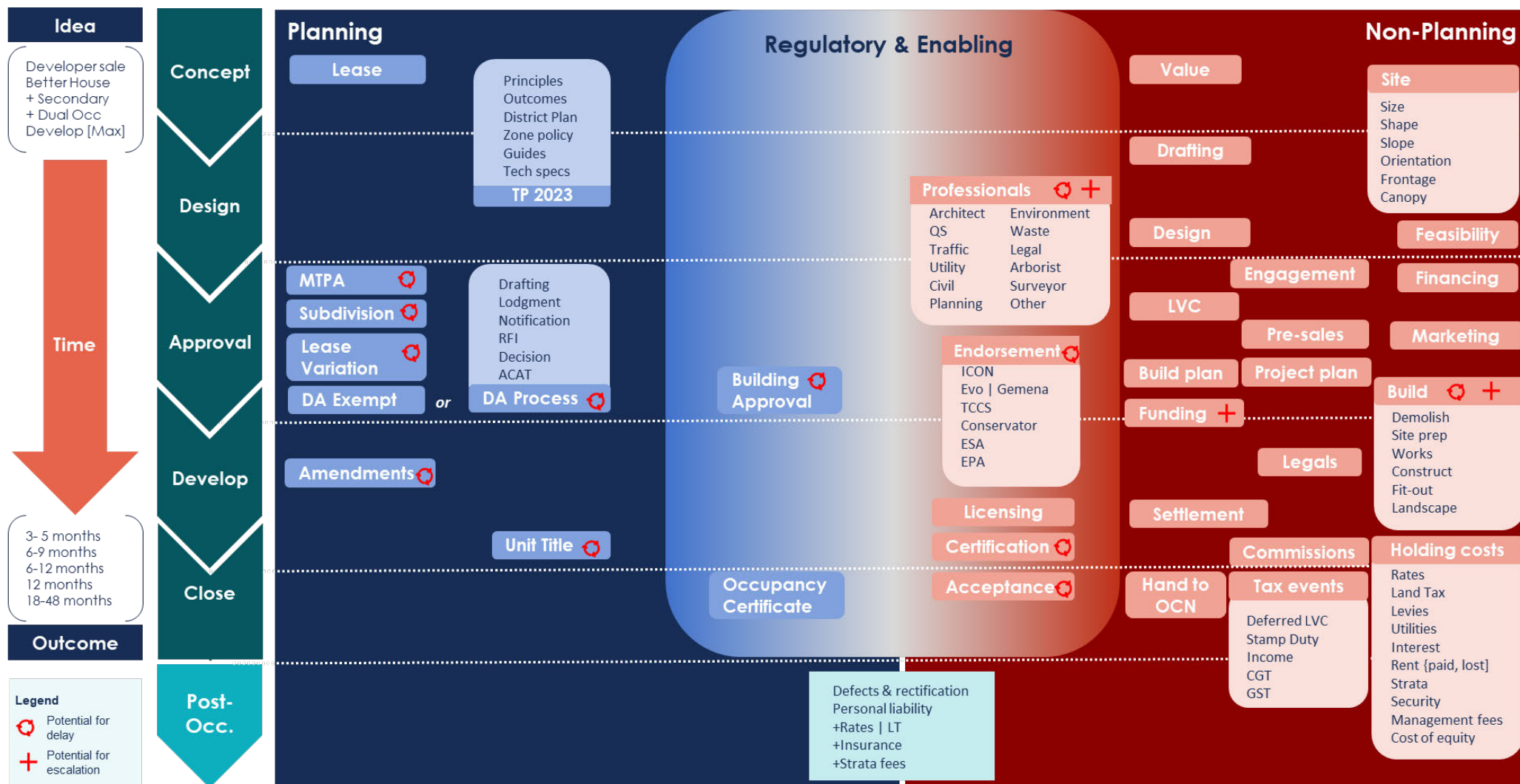
Each option has risks and benefits, the consequence of which will guide the decision of leaseholders to act.

The planning system will determine what solutions are available—technical feasibility, while non-planning factors will determine whether the solution can be delivered—financial feasibility or viability. The interaction of the systems will determine development feasibility and the returns from taking action.

There is no single, simple, answer to why some land will be developed and others not.



Figure 25: Development feasibility framework



Note: Holding costs affect all stages. A short accessibility description is available on page 186.



Not all the activities identified in the framework will apply to each choice. For example, ‘build a better house’ is far less complicated than building units on a small R22 blocks—the first option may have a DA exempt pathway, and the latter is likely to engage all the identified levers. Practically, whether looking at opportunities and constraints from an historical or contemporary perspective, or assessing the potential for future development under changed settings, the framework illustrates there is an inherent trade-off between the simplicity of the choice available, time frames, risks, and potential returns.

The framework identifies broad approximations of the timeframes associated with different choices. Each option requires a different commitment which is commensurate with project complexity. Generally, selling a block will be fastest and least risk, whereas attempting to achieve maximum development will take longest and bear the greatest risks on the basis it engages almost all levers in the feasibility framework. This factor alone may account for low uptake of higher density solutions even where rights to develop exist.

An important consideration determining whether projects can be delivered is the type of leaseholder who will need to decide to act. The experience of the leaseholder delivering development projects will impact on their willingness to accept risk, decide to develop, commit to the timeframes involved, and the ability to access essential supports such as project financing, professional assistance, builders, and development managers.

There is a broad consensus that most RZ1 and RZ2 blocks are held by non-professional, individual or family leaseholders. EPSDD have observed ‘blocks in RZ1 and RZ2 zones are largely held in private ownership. Consideration of financial and/or incentives may be required to encourage landowners to capitalise on the uplift potential of blocks in these zones if changes are proposed to be made’.²⁴ Anecdotally, RZ1 land is more likely to be held by individuals (people or households) who are most likely to be owner occupiers. In RZ2, and perhaps in premium RZ1 settings, potential ownership may expand to include professional property investors, building entities, and perhaps smaller scale professional developer companies.

Limited experience of non-professional developers can lower the understanding of how to deliver missing middle style developments in the RZ1 and RZ2 zones. This means incentives are likely to be quite different in these zones than in zones that attract professional developers accustomed to delivering higher density projects. This issue was drawn out in framing the introduction of the LVC. An economist hired to peer review LVC system design observed two key market segments:

- *Segment A*: major development activity of more than 20 units, and which requires capital ‘to secure the multi-million dollar borrowing necessary for such an undertaking, and the detailed knowledge of the development approval and change of use processes’, and
- *Segment B*: minor developments (dual occupancies to smaller developments of less than 20 units), which is open to much smaller players, for example a builder, where price, cost and tax sensitivities would be much higher than in segment A.²⁵

In general, market feedback suggests *segment A* participants are not attracted to development in the RZ1 and RZ2 land zones. Changes to rights, especially shifting land in these zones towards those with higher density outcomes, may change this over time. Put simply, developments on RZ1 and RZ2 land are unlikely to be of interest to expert profit maximising developers.

There is some evidence about ownership structures in the ACT which assists understand the potential market sophistication among leaseholders. The 2021 Census suggests around 45,170 dwellings were owned outright (24%), 67,800 were owned with a mortgage (36%) and 52,580 were rented (28%).²⁶ The Australian Taxation Office (ATO) reported in 2021-22 that 53,775 individuals (15%) in the ACT included a gross rental income in their tax returns.²⁷ Of tax payers with rental property interests located in the ACT, 69% had interests in one property, 20% had interests in two properties, 7% had interest in three properties, and the remainder (5%) had interests in 4 or more properties.

²⁵ Piggott, “Reforming the Change of Use Charges (CUC) in the ACT: An Independent Economic Assessment.” pp. 8-10.

²⁶ ABS, Census of Population and Housing, 2021, TableBuilder

²⁷ Australian Taxation Office, “Taxation statistics 2021–22.”



There is no information about how many of the properties, or how much income, was generated from properties located within the ACT. The key point is that around 24-60% of households, or 15% of taxpayers, are likely to have available equity and experience in the property sector to potentially understand and engage in development projects.

This issue of the motivation of leaseholders to decide to act, to decide to undertake a development, is perhaps more of an influence on achieving missing middle developments in RZ1 and RZ2 than the planning and non-planning levers.

Only anecdotal evidence is available to describe who may be leaseholders with the right motives and incentives to develop missing middle dwellings, including who owns the land to be redeveloped, what might drive leaseholders to access the rights to develop their land, and which incentives induce them to take risks. There is a role for further analysis to clearly define the 'representative stakeholder' characteristics of leaseholders, including analysing clusters of leaseholders, assessing their desires, and providing an objective evidence base to inform better government decision making about incentives to develop land parcels in the RZ1 and RZ2 zones.

Recommendation 1: Understanding the feasibility of achieving missing middle development from current baselines would benefit from additional research into the characteristics of potential representative stakeholders in RZ1 and RZ2 zones. It is recommended a follow up project is undertaken to analyse potential missing middle stakeholder cohorts to understand their motives and to target incentives to achieve additional development.



3.3 PLANNING LEVERS

The statutory and strategic planning activities within the development feasibility framework cover the rules and regulations that determine permitted land uses. Planning levers start with a primary reference for all ACT landholders—the crown lease—evolve through all aspects of the Territory Plan, connect with national frameworks through building approvals, and conclude with the issuing of a certificate of occupancy. Each of these stages is packed with activities, risks, potential delay points, and significant challenges and opportunities.

3.3.1 Primacy of the Crown Lease

ACT leasehold tenure is different from other planning systems in Australia. The Crown Lease is effectively a contract between the Territory and Tenant (landholder/lessee/leaseholder). A Crown Lease consists of Covenants which can cover any requirement the Territory may wish to make upon the Tenant or itself. This includes, but is not limited to, what can and cannot be developed on the land, timeframes for this development, and any requirement of any agency or entity, provided the Territory Planning Authority (TPA) deem this suitable.

The Crown Lease is a static document, meaning it only applies at the given point in time or as enabled via the title of the site. Any change a leaseholder wishes to make to a lease must be assessed by the TPA, against contemporary requirements within the prevailing Territory Plan. Any assessed increase in the bundle of rights attached to the lease that increases ‘value’ by a variation is taxed by the ACT Government, based on advice from the ACT Valuation Office.

The leasehold system means rights provided at lease creation may not reflect contemporary potential rights under the Territory Plan—there is an asymmetry that leaseholders must resolve before undertaking feasibility assessments. This asymmetry, in historical leases, is compounded by how and when the lease was written, with feedback from the client project team suggesting that leases on the same street can have different rights, merely due to different lease authors at the time of lease creation.

Observation 14: Any change in the potential bundle of rights made available through changes in the Territory Plan are not reflected in a Crown Lease unless a Lease Variation Development Application is approved, and the change is registered at the Land Titles Office. A lease purpose clause, defining what can be achieved on the leased land, may have been created inconsistently, creating unclear differences in rights between leases, even within similar locations, and at different point in time. These inconsistencies can impact on decisions to pursue additional rights because of the lease variation requirement.

3.3.2 Urban Character and History

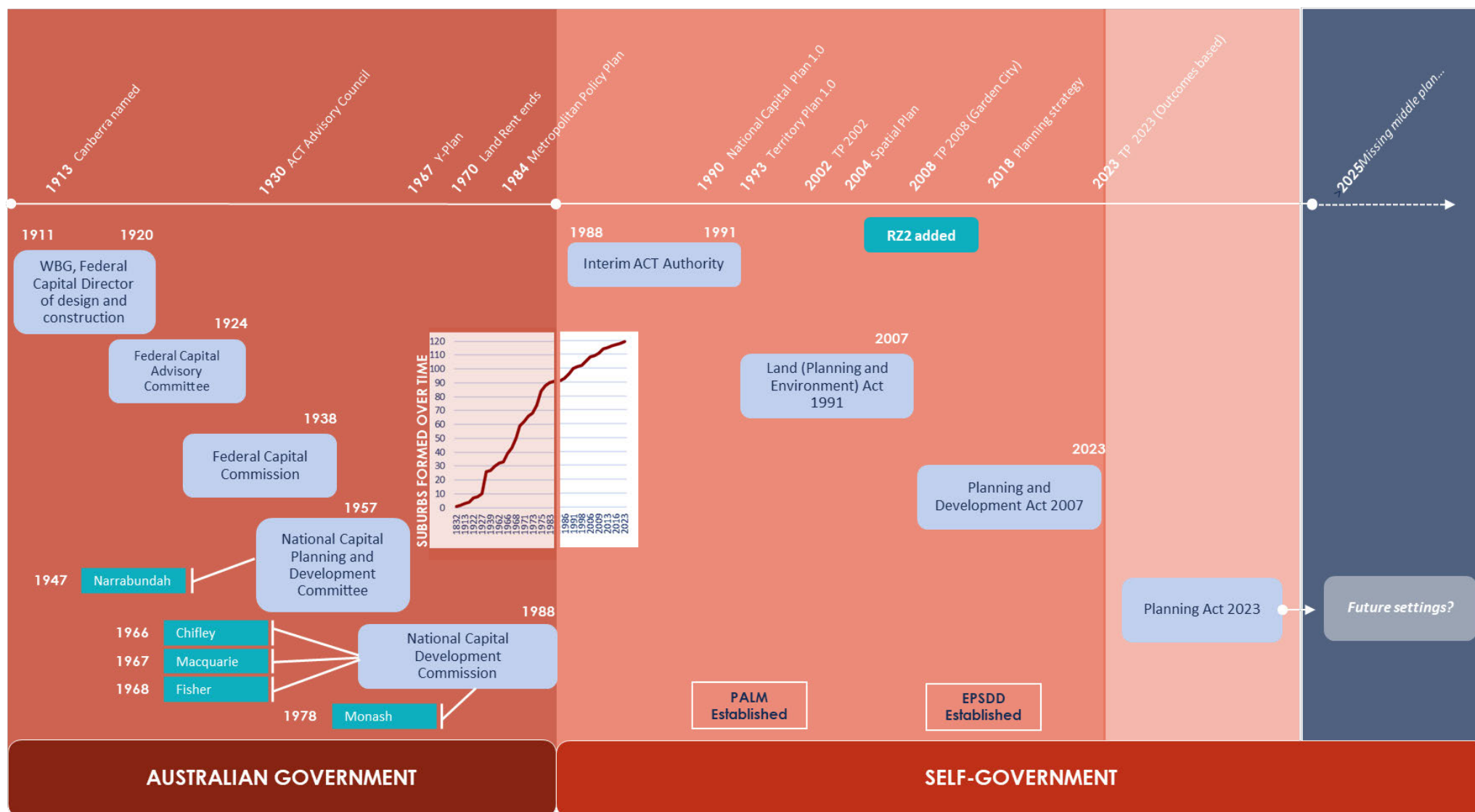
Lease conditions, land use, and subdivision patterns are inextricably linked to the time of initial development, and the planning system settings at that time. This historical connection is enforced in contemporary *Assessment Requirements* and *Zone Outcomes* which specifically limit change to the original patterns of subdivision (see section 2.1.2 Zone goals: baseline, on p. 44). This means leaseholders may be constrained in their ability to achieve higher density outcomes by historical circumstance running into modern concepts.

A timeline of the major planning system stages influencing lease formation and subdivision patterns, including the dates impacting the initial development context for the precinct case study, is presented in Figure 26. The development of Canberra has occurred over two major eras: pre-self-government managed by the Australian Government (1911-1988), and self-government (1989 onwards). Suburban gazettal dates illustrate the vast majority of Canberra was not developed under local governance. Around 96 suburbs were gazetted prior to self-government, while the remaining 30 or so have occurred since self-government.

Over these time frames, including the *Territory Plan 2023*, there are nine distinct planning frameworks which have influenced how Territory land is used. The first five frameworks were under National Capital approaches, and the remaining four have been since self-government.



Figure 26: The challenge of time in land use planning



Note: the timeline is not intended to be to scale, it is illustrative of the sequence only. A short accessibility description is available on pages 186-187.



These frameworks, and the associated timeline, illustrate a range of adjustments, minor and major, which affect the base conditions for leases created in the different eras. Each of these frameworks have some connection to land use today, and has the potential to affect future land use decisions.

For example, in the earliest parts of the time frame Canberra's first suburbs were developed by the public sector to accommodate public workers in detached typologies,²⁸ spatial distribution was influenced by the Y plan in 1967, in the 1960s and 1970s urban form preferences were to achieve a high proportion of public areas relative to private spaces (as much as 45% of a suburb dedicated to urban open spaces, verge, or roadway reserves), and a major shift occurred in 1970 where land rents were abolished in favour of 99-year leases, which also ushered in the era of betterment taxes which are now the lease variation charge.

More recently, changes made through the 2008 *Garden City* amendment removed the ability to achieve dual occupancy and multi-unit developments outcomes across all residential areas of Canberra, instead introducing the idea of residential core areas to achieve moderate residential intensification. The measure was a deliberate choice by government to reduce what would now be considered missing middle style developments.

Under self-government, associated with the monopoly release of new land (leases) through government owned agencies, different patterns emerge. For example, Table 7 compares the proportion of RZ1 blocks in defined size categories in ACT Government developed suburbs to the precinct case study areas. What is clear is that newer suburbs have very little RZ1 that would meet the requirements for missing middle additions (secondary dwellings or dual occupancies) as they are mostly less than 700sqm in area. Conversely, most precinct RZ1 blocks could theoretically access the rights as they are above 800 sqm, however they could not do so with separate titles, as the RZ1 zone precludes subdivision. It is worth noting the ACT Government suburbs do not offer RZ2 zoned land.

Table 7: Comparison of RZ1 areas in new suburbs and precincts

	Suburb	<500sqm	>=500, <700	>=700, <800	>=800, <950	>=950, <1200	>=1,200
ACT Government	Coombs	30%	62%	3%	4%	1%	
	Crace	63%	34%	2%	1%		
	Throsby	85%	11%	3%	2%		
	Wright	48%	48%	2%	1%		
Precincts	Chifley	1%	8%	24%	39%	18%	9%
	Fisher		8%	30%	33%	22%	6%
	Macquarie		3%	32%	35%	18%	13%
	Monash	5%	6%	25%	35%	23%	6%
	Narrabundah	16%	32%	20%	18%	10%	4%

Note: blank cells mean zero. Source: Purdon analysis of ACT geospatial data.

Observation 15: Newer ACT Government suburbs have a majority of RZ1 blocks with an area less than 700 sqm, meaning they cannot access additional missing middle style rights under current controls. Conversely, the majority of RZ1 land in the older precincts are well above 700 sqm. These blocks could theoretically access missing middle rights, but only using unit title, as subdivision is precluded under current settings. This illustrates an inequity in how land can be used between older and newer suburbs.

²⁸ Wright, *Cornerstone of the Capital*.



Each system directly influences how current land use has emerged, contemporary uses, and the incentives to choose to develop. Two key points emerge from the urban form and character planning lever. First, the desire, and in many cases *requirement*, to maintain an original pattern of subdivision has resulted in rigidity in land use, where it is difficult to change single or multiple block configurations. Second, historical lease conditions are unable to respond to contemporary planning concepts, making it necessary to ‘reverse engineer’ ideas like missing middle into leases created in some case before the existence of apartments.

Observation 16: The character of suburbs reflects the impact of *initial* planning and development conditions, and changes over time. Strict requirements to maintain character may impact the feasibility of achieving changes to modern standards, especially for leases in suburbs developed prior to self-government. This is especially the case in RZ1 or RZ2 zones in these suburbs, as block dimensions and land use distributions do not reflect modern patterns of subdivision and land use.

Established patterns of development, and ‘character,’ add layers of complexity to future feasibility of in-fill to missing middle typologies.

3.3.3 Potentially constraining planning levers

Assessment requirements are those **mandatory controls** that apply in the new planning system. For a dual occupancy development these include maximum building height and site coverage (which includes garage).

Assessment **outcomes** that would need to be addressed for a dual occupancy development, which allow for more flexibility in design responses, include boundary setbacks, private open space, planting area, tree canopy cover and car parking.

ACT Government, “ACT Planning System - Frequently Asked Questions,” November 3, 2023, p. 26.

Broadly speaking, planning controls exist to constrain development to ensure private benefits align with community expectations. However, some developments are impacted by additional planning controls which make projects harder to develop, as they add complexity to design, approval requirements, and timeframes. All these issues disincentivise certain types of development. This section is not a complete analysis of all opportunities and constraints, just those which are material in the feasibility assessment sense.

Additional Territory Plan controls

The simplest development option in RZ1 zones is a DA exempt single dwelling. If this option was chosen in an in-fill settings, there is no increase in dwelling supply. Of all the options available to a lessee (as detailed in Table 2), moving from a single dwelling to a dual occupancy introduced a complicated DA process.

A dual-occupancy development will be required to meet the *Housing Design Guide*, *Urban Design Guide*, *Subdivision Policy* and *Lease Variation Policy*, in addition to the *District/Zone Assessment Outcomes*. It may also require unit titling. The additional requirements to achieve a dual occupancy create a disincentive to pursue this type of development as the DA is more complex than other comparable development options.

For example:

- The *Assessment Outcomes* that need to be addressed grow from 27 responses for a single dwelling or secondary residence DA, to 101 Assessment Outcome and Design Guide responses for a dual occupancy.
- The *Assessment Requirements* that apply also grow from 23 responses for a single dwelling or secondary residence DA, to 44 responses for a dual-occupancy DA.

Shifting from a simple scenario to delivering only a dual-occupancy development requires additional expertise (Planning Consultants, Architects, Engineers etc.), and additional timeframes for assessment and approval.

Lease Variation

The Crown Lease is a static document, meaning it only applies at the given point in time or as enabled via the title of the site. Any change a tenant wishes to make to the lease must be assessed by the TPA, against the requirements of



the Territory Plan in force. Any assessed increase in value (by the ACT Valuation Office) because of that change, is then taxed by the ACT. This process does not need to occur in other jurisdictions, nor to existing development types.

Unit Title requirements

A decision to pursue some developments requires the creation of a unit title as opposed to the ability to separately title—for example accessing the opportunity created through the *Territory Plan 2023* to add a separately titled additional dwelling up to 120 sqm in RZ1. These factors are not required for simpler DAs. Specifically, the need to unit title dual occupancies in RZ1 adds a *Unit Title Assessment Report (UTAR)* process to the feasibility assessment, over and above the revised *Deposited Plan (DP)* requirements, which are needed for any subdivision, and a Land Titles Office (LTO) registration process which must occur to cap unit numbers. Once created a unit title has ongoing requirements to register changes to leases at the LTO. In the post occupancy phase, the unit titling process adds an owner's corporation which must be managed. The unit title requirements add additional timeframes, costs, and require specialist expertise compared with other simpler options.

ACAT review

Any DA decision on existing urban land can be reviewed by a third party at the ACT Civil and Administrative Tribunal (ACAT), a right made available under Section 506 of the *Planning Act 2023* (provided the requirements of Schedule 5 are met). Exemptions exist, which enable single dwellings to be exempt from third party review. Any development that seeks to increase density is not afforded protection from third party review, and anecdotally the right to review proposals is one which is used often in small and medium development proposals in residential settings.

The issue of ACAT appeal rights has been observed previously. [REDACTED] 'It was generally felt among developers and planners that appeal rights over development through ACAT are somewhat weighted against development.'²⁹ While providing a useful review mechanism, ACAT reviews increase project duration, which increases project cost.

Timeframes

Within the feasibility framework, the potential for delays is identified in the development application stage. Delays at any point across the framework will increase development costs, and potentially cascade into further delays with project sequencing. Recent experience shows that delays are a reality in the ACT.

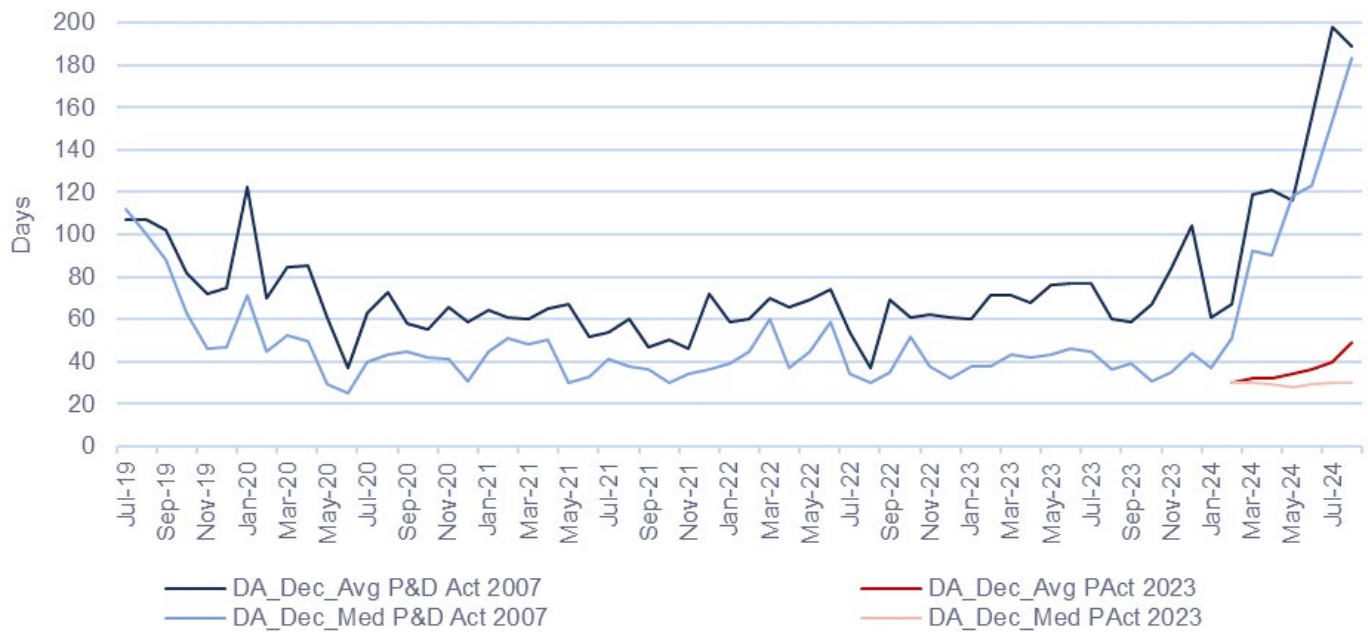
Figure 27 reports publicly available DA time frame data in the ACT. In recent periods there is a significant uptick in timeframes, and while 'old system' timeframes reduced in August 2024, new system time frames crept up. These time frames do not identify related factors like amendment timeframes, or dealing with partial or complete failures and re-submission.

Approval timeframes are something which government can control. The current delays suggest some effort may be needed to increase the attractiveness of development in the Territory.

Recommendation 2: Current approval timeframes add delays to project timeframes which affects project feasibility. It is recommended that EPSDD market test the development application process to assure the development market that all timeframes, processes and costs are fair, reasonable, and competitive.



Figure 27: Development application approval average timeframes



Source: ACT EPSDD, Development Statistics, 2019-20 to 2024-25, <https://www.planning.act.gov.au/applications-and-assessments/development-applications/development-statistics>

3.3.4 Potentially enabling planning levers

Some planning levers enhance the potential for achieving missing middle outcomes. When examining the complexity in progressing through the development framework, especially in relation to RZ1 and RZ2 zoned land, existing enabling levers include:

- Allowing subdivision in RZ2 without an associated design and siting component.
- Allowing single dwellings to be exempt from the need for Development approval.
- Allowing single dwellings to be exempt from third party review at ACAT.
- Allowing secondary residences to be exempt from third party review at ACAT.

These levers are enabling as they reduce the complexity of approvals, lowering the need to incur costs for professional supports and regulatory fees, and reduce timeframes between concept and outcome development.

Observation 17: Existing planning levers that enable easier development almost exclusively serve single dwelling housing as opposed to multi-unit housing development.



3.4 REGULATORY AND ENABLING LEVERS

There are a range of activities in the framework which could fit into the planning or non-planning categories.

These *regulatory and enabling* matters affect the inputs to planning processes, the design stage of buildings, construction pathways and costs, the settlement process and post-occupancy factors.³⁰

Specific regulatory and enabling activities include those that achieve entity endorsements, building approvals, licensing, and certification, and achieving occupancy certificates.

3.4.1 Professionals, endorsements, & acceptance

Depending on the development option being considered, lease conditions, and the subject site, it is reasonable to assume most missing middle style development (including dual occupancy) is going to be *multi-unit housing*. Some will be unit tilted too.

For a multi-unit housing DA, any developer, whether a professional or a non-professional leaseholder, would need to supply a range of supporting material to the TPA. A sample of the requirements includes:

- | | | |
|---|---|--|
| 1. Application Form | 18. Perspectives | 32. Hazardous Materials Survey |
| 2. Letter of Authorisation | 19. Colour Sample Schedule | 33. Contamination Assessment/Statement |
| 3. Development Outcomes Report (inc. Design Guide Response) | 20. Water Sensitive Urban Design | 34. Bill of quantities/ Summary of costs |
| 4. Detail Survey | 21. Demolition Plan | 35. Fencing Plan |
| 5. Site Plan | 22. Access and Mobility Report | 36. Locality Plan |
| 6. Floor Plan | 23. Access and Mobility Plan | 37. Noise Report |
| 7. Public Register Floor Plan | 24. Waste and Recycling Management Plan | 38. List of Interested Parties |
| 8. Area Plan | 25. Parking Plan | 39. Valuation Report |
| 9. Sections | 26. Turning Templates | 40. Valuation Certificate |
| 10. Elevations | 27. Traffic Impact Assessment or Transport Effects Form | 41. Subdivision Plan |
| 11. Shadow Diagram | 28. Tree Management Plan | 42. Hydraulics Plan |
| 12. Site Analysis Plan | 29. Tree Survey | 43. Utilities Services Plan |
| 13. Landscape Plan | 30. Landscape Management & Protection Plan | 44. Resolution of owner's corporation to cancel units plan |
| 14. Erosion and Sediment Control Plan | 31. Off-Site Works Plan | 45. Territory or a government entity endorsement. |
| 15. Solar Access Plan | | |
| 16. Driveway Plan | | |
| 17. Composite Streetscape Elevation | | |

Multi-unit housing: The use of land for more than one dwelling. It includes, but is not limited to, apartments and dual occupancy housing.

District Strategies, Volume Five, Glossary

Dual occupancy housing: the use of land that was originally used or leased for the purposes of single dwelling housing for two dwellings. Dual occupancy Housing is a type of multi-unit housing.

Territory Plan 2023, Part G: Dictionary, Table 2.

³⁰ In this discussion, for simplicity, matters like real estate agent licensing, trade licensing, professional licensing, and financial systems regulations are excluded.



To prepare these documents, the developer would typically require expert inputs from professionals, including:

- Urban Planner.
- Architect.
- Landscape Architect.
- Civil Engineer.
- Hydraulic Engineer.
- Waste Consultant.
- Access Consultant.
- Traffic Consultant.
- Arborist.
- Surveyor.

Depending on the circumstances, the proposal may also need services from:

- Property Valuer.
- Acoustics Consultant.
- Environmental Site Assessor / Contamination Assessor.

It is reasonable to assess development proposals to achieve a balance between private development goals, and community expectations, and it is fair to say not all developments will require all these inputs. However, it is also reasonable to conclude that the process to develop a missing middle style option may be overwhelming for non-professional leaseholders, and the weight of requirements may explain why land zoned with more rights has not been bought into production.

3.4.2 Related ACT legislation

Some requirements created in the DA process are in both the planning and non-planning framework categories, which in this project are considered *regulatory and enabling levers*. In addition to the DA approval process, any multi-unit housing proposal is required to obtain approval from other agencies against various requirements, codes, regulations, and legislation. For instance, Transport Canberra & City Services (TCCS) approval is required in relation to:

- Waste (*Waste Management and Resource Recovery Act 2016* via the *Development Control Code for Best Practice Waste Management in the ACT 2019*).
- Driveways, verge crossings and public pedestrian paths (*Public Unleased Land Act 2013*).
- Stormwater (*Utilities Act 2000*).
- Trees on unleased land (*Urban Forest Act 2023*).
- Traffic & Parking (via the Transport for Canberra Policy under the *Planning Act 2023*).

In the ACT, protected trees have a **Tree Protection Zone** which is:

- the area under the canopy of the tree.
- the 2-metre-wide area surrounding the vertical projection of the canopy.
- the 4-metre-wide area surrounding the trunk as measured at 1 metre above ground level.
- the area as specified in an approved tree management plan.

Urban Forest Act 2023, s 13.

Stakeholder feedback suggests that the *Development Control Code for Waste* impacts on design and viability of missing middle developments where there are more than 10 dwellings.

Also, if a development impacts on the *Tree Protection Zone* of a protected tree, the Conservator for Flora and Fauna is required to review the proposal under the *Urban Forest Act 2023*. If the site is adjacent to the Blue-Green network (set out in District Strategies) the conservator may also review the proposal against the *Nature Conservation Act 2014*.

If there are noisy roads in the vicinity of the development, a developer will also need to seek approval under the *Environment Protection Act 1997*.

Under the *Utilities Act 2000*, a development for multi-unit housing will be required to obtain:



- Icon Water approval in relation to the sewer and water mains connections, and
- EvoEnergy approval in relation to electrical connections (which may also require the provision of an electrical substation on the site).

If the development is on a block in a heritage precinct, a development proposal will have to be assessed against the requirements of the *Heritage Act 2004*, by the ACT Heritage Council. Relevant to this project, are areas of RZ1 covered by heritage registrations such as:

- Red Hill Housing Precinct.
- Blandfordia Precincts.
- Kingston/Griffith Housing Precinct.
- Barton Housing Precinct.
- Reid Housing Precinct.
- Braddon Housing Precinct.
- Corroboree Park Housing Precinct.
- Wakefield Gardens Housing Precinct.

Prior to undertaking development, certain proponents must also comply with the *Property Developers Act 2024*. The primary purpose of the Act is to introduce developer licensing. The stated goal is to improve consumer protections and lift building quality. This legislation is unique in the Australian context and places all liability for a development with the developer, rather than distributing this across all professionals involved in the development process. Key components of the legislation include:

- Personal liability to the Director of a Development Company.
- Retrospective application of the Act.
- Rectification period of 10 years.

All these additional requirements obligate a developer to hold additional insurances, engage in more extensive and long-lasting contractual agreements with sub-contractors and require significant additional paperwork. The consequences will be the same as noted for the typical DA requirements—effectively the additional requirements are more likely to make simple developments more appealing regardless of development rights especially for those who are not professional property developers.

As for the DA processes, there is a need to assess whether all these processes meet market expectations.

Recommendation 3: Current regulatory and enabling levers require the use of a range of expertise and achieving third party endorsements. Most are complicated and add cost and potential delays into development processes. These issues may not be understood by leaseholders who are not professional property developers. It is recommended EPSDD undertake benchmarking of ACT Government owned and controlled red tape involved in development and building approvals processes to assure the development market that all timeframes, processes, and costs are fair, reasonable, and competitive.

3.4.3 National Construction Code

Importantly, the definition of a dwelling in the *Planning Act 2023* and *Territory Plan 2023* refers to the National Construction Code (NCC), specifically *Planning (General) Regulation 2023*, defines a dwelling as:



...an NCC ‘...class 1 building, or a self-contained part of a [NCC] class 2 building, that includes the following, that are accessible from within the building, or the self-contained part of the building: at least 1 but not more than 2 kitchens [excludes outdoor or enclosed garden rooms]; at least 1 bath or shower; at least 1 toilet pan; and does not have access from another building that is either a class 1 building or the self-contained part of a class 2 building; includes any ancillary parts of the building and any [NCC] class 10a buildings associated with the building’.

As part of the NCC 2022, new dwellings must meet Liveable Housing Standards, based on the Liveable Housing Design Guidelines (silver level), first published by Liveable Housing Australia.³¹ The guidelines were subsequently agreed to by all Building Ministers and then codified by the Australian Building Codes Board. These guidelines and the Standards of the NCC are designed to make housing ‘easier to use and more adaptable to the changing needs of occupants.’ Some of the key requirements include:

- Providing at least one toilet at ground level.
- Providing step-free access to the home.
- Making doorways and hallways easier to use for people with reduced mobility.
- Providing extra space in the bathroom and toilet.
- Wall reinforcing in the bathroom and toilet, to make it easier to install grabrails if needed in the future.

Certificate of occupancy means a certificate issued under the *Building Act 2004*. The certifier needs to see all the above approvals, prior to issuing the certificate under the *Building Act*. In addition to the above, they are required to inspect the build against the *National Construction Code*.

The NCC is applied in the ACT through the *Building Act 2004 (ACT)*. The Building Act can provide additions and variations to how the NCC is applied in the ACT. For instance, the Liveable Housing Standards were introduced in 2022, but the Building Act delayed the enforcement of these standards until early 2024

Settings in, and changes to, the NCC have the potential to affect the feasibility of developing dwellings, including increasing footprints, influencing the number of storeys at which developments require additional infrastructure such as lifts, and materials choices for example.

³¹ Available at: https://livablehousingaustralia.org.au/wp-content/uploads/2021/02/SLHA_GuidelinesJuly2017FINAL4.pdf



3.5 NON-PLANNING LEVERS

Non-planning levers are ‘everything else’ that impacts on progressing from a concept to an outcome in the development feasibility framework. Some of these factors are within the regulatory and enabling lever space, discussed earlier. Others are broad market, financial and economic factors, taxes, and wider community issues.

Non-planning issues start with a choice to pursue some form of change compared to baseline land usage, which depends on base values and expected future values uses, and then steps through a complex set of activities to achieve a preferred result. Some levers are market based, some determined by regulation. A summary of the factors that are exclusively non-planning are set out in Table 8.

Table 8: Non-planning impacts on feasibility

Factor	Components	Impacts on
Site constraints	Size, shape, slope (>15 degrees), street frontage, on-site infrastructure, on-site tree canopy constraints, zoning overlays, and similar site-specific issues that might limit development potential.	Design, yield, marketability, planning acceptance, and return on investment (ROI)
Existing uses	Existing development rights utilised such as dual occupancy assets, multi-unit complexes, unit titles, or developments exceeding existing rights (illegal structures). This limits new development potential, where it could be more expensive to knock down and re-develop compared to detached lower valued and older dwellings.	Acquisition price or base value, Site costs, approvability, and ROI.
Development costs	Concepts, design, project financing, equity contributions, materials, trades, climate/season, environmental standards, and building surveying and certifying (differentiated between NCC structures) for example all add costs that will factor into the feasibility of pursuing increased development outcomes.	Project acceptance, duration, costs, taxes, scale of development, and ROI.
Holding costs	The opportunity cost of unrealised shadow prices, equity contributed and rents . Direct and indirect costs such as interest on borrowings, government fees and charges, site property, and project management. All aspects adjust the potential returns to a development.	Project acceptance, duration, costs, and ROI.
Government regulation, taxes, and fees	Planning, regulatory and enabling factors, (development application, holding charges, lease variation, unit titling, subdivision, major territory plan amendments, planning timeframes), related regulations (developer licencing), development taxes (LVC) and land taxes and fees. All factors change the timing, and add costs, potentially lowering the incentive to develop.	Project acceptance duration, cost, approval, completion, and ROI. Also affects post-occupancy costs and risks.
Community culture	The age of a suburb (average stock age), demographics of an area, heritage values, and the motivation of community leaders towards density all create potential negative externalities to pursuing land change.	Approvability, scheme rules, design, marketability, duration, costs, and ROI.

It is not sensible to address each of these issues in detail. The ACT Government cannot influence many of them. Many of these factors influence the design of the feasibility methodology applied in subsequent parts of the report. Material issues for feasibility include prices and values, financing, costs to construct, taxes and community culture.



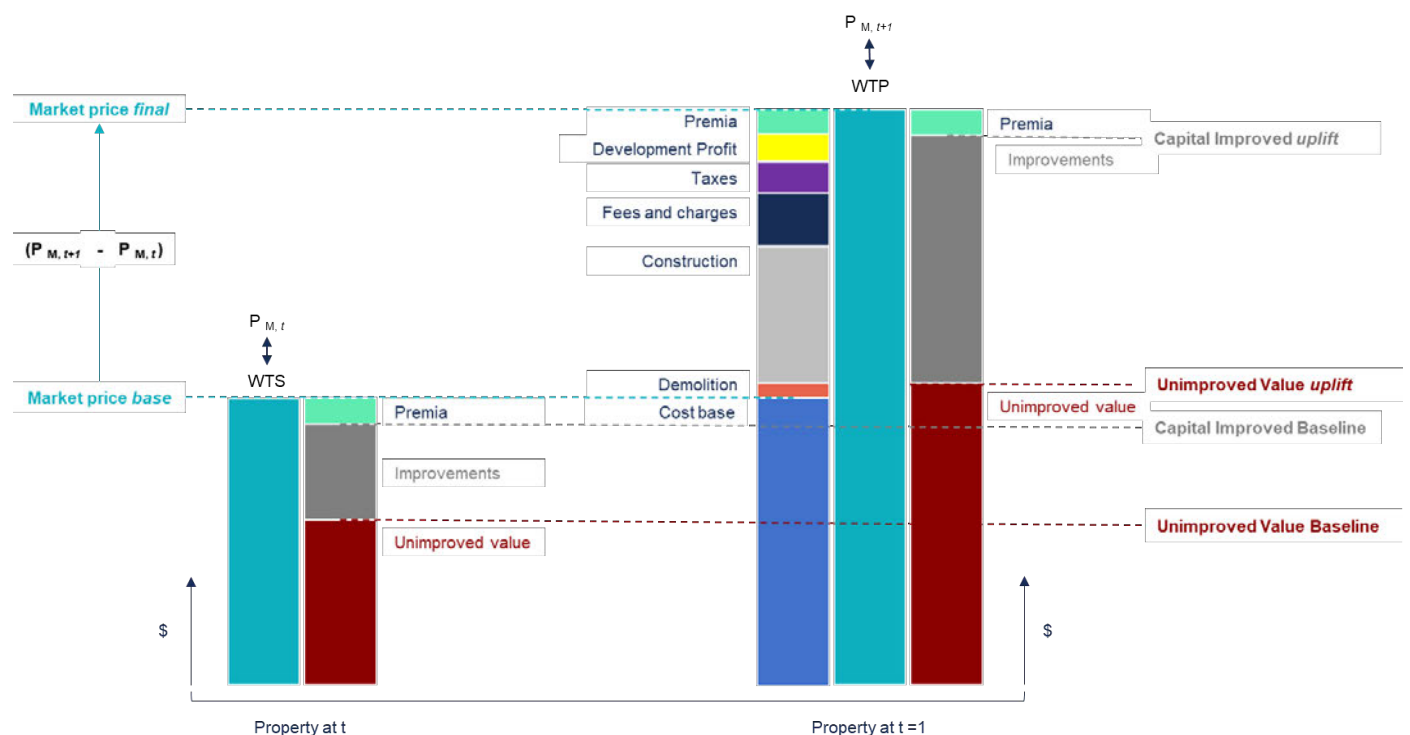
3.5.1 Price and value

As the bundle of rights in a lease being the foundation planning lever, the financial outcomes ('sales price' or end value) and inputs ('land price' or 'value') are the primary hurdle in assessing the feasibility and viability of any development. If the input price is high compared to the sale price, there is little room to make a return that adequately compensates the activity and risks in development. Importantly, 'value,' distinct from 'price' also affects taxes and regulatory imposts associated with land use decisions.

Despite a national obsession with real estate market prices regulatory frameworks underpinning land use and valuation have specific, and contextually different concepts which must be understood to estimate returns to investment. Different meanings have specific consequences in feasibility assessment, for example different concepts exist when considering *project gross returns*, *market prices*, and *valuations* for distinct types of local and national taxes, fees, and charges.

A conceptual decomposition of prices and values in an ACT context is set out in Figure 28 . In this figure a baseline property, which may or may not be bought into production for additional development, is set against a counterfactual future state assuming some development has occurred. In this stylised presentation the gross return from a development action would be the difference between the base market price (market price at time zero) and the final market price (market price at time one). These prices would be measured by the amount at which a willing and able buyer and seller meet at a point where they are willing to pay and sell without any compulsion.

Figure 28: Decomposing price and value



Note: P is 'price,' t is 'time,' M is 'market,' WTS is willingness to sell, WTP is willingness to pay. $\$$ means value or price in dollars.

To move from the base to counterfactual, however, requires a range of direct financial costs. There may be demolition of improvements, construction (including fit out and land scaping), a range of regulatory and professional fees and charges, financing costs, and taxes. Where the final market price, or end value, is greater than the combination of the baseline inputs and costs there is a development profit. If the expected development profit is less than a benchmark return, a project would not be viable, even if it is technically feasible.

External to development feasible assessment there are a range of regulatory definitions of value and economic concepts that ascribe values to rights in the ACT. For example, Table 9 presents a cursory assessment of definitions of different valuations of land in ACT legislation.



Table 9: ACT formal valuation concepts

Unimproved value	Market value of a lease
The unimproved value of a parcel of land held under a lease from the Commonwealth is the capital amount that might be expected to have been offered on a date (the base date), for the lease of the parcel, assuming that— (a) the only improvements on or to the parcel were the improvements (if any) by way of clearing, filling, grading, draining, levelling or excavating...³²	Market value, of a lease, means the amount that could be expected to be paid for the lease on the open market if it were sold by a willing but not anxious seller to a willing but not anxious buyer.³³
Dutiable value	Market value of improvements
The dutiable value of dutiable property that is subject to a dutiable transaction is the greater of—the consideration (if any) for the dutiable transaction (being the amount of a monetary consideration or the value of anon-monetary consideration), and other factors. Note: The consideration for the transfer of dutiable property is taken to include the amount or value of all encumbrances, whether certain or contingent, subject to which the dutiable property is transferred.³⁴	Market value, in relation to improvements on land, means the amount by which the improvements increase the value of the lease of the land, assuming that the lease, together with the improvements, were offered for sale on the open market on the day before the assessment day on the reasonable terms and conditions that a genuine seller might require.³⁵
V1 (for LVC)	V2 (for LVC)
(a) for a chargeable variation other than a consolidation or subdivision—means the capital sum that the lease might be expected to realise if— (i) the lease were varied as proposed; and (ii) the lease were genuinely offered for sale immediately after the variation on the reasonable terms and conditions that a genuine seller would require; and (iii) either— (A) the rent payable throughout the term of the lease were a nominal rent; or (B) for a variation that involves the surrender of a lease and issue of a new lease—the rent payable for the term of the new lease were a nominal rent; or (b) for a chargeable variation that is a consolidation or subdivision—means the capital sum that the new lease or leases to be granted under the consolidation or subdivision might be expected to realise if— (i) the consolidation or subdivision were to take place as proposed; and (ii) the new lease or leases were genuinely offered for sale immediately after the variation on the reasonable terms and conditions that a genuine seller would require; and (iii) the rent payable throughout the term of the new lease or leases were a nominal rent.³⁶	(a) for a chargeable variation other than a consolidation or subdivision—means the capital sum that the lease might be expected to realise if— (i) the lease were not varied during the remainder of its term; and (ii) the lease were genuinely offered for sale immediately before the variation on the reasonable terms and conditions that a genuine seller would require; and (iii) the rent payable throughout the term of the lease, or lease to be surrendered, were a nominal rent; or (b) for a chargeable variation that is a consolidation or subdivision—means the capital sum that the lease or leases to be surrendered under the consolidation or subdivision might be expected to realise if— (i) no consolidation or subdivision were to take place during the remainder of the term of the surrendered lease or leases; and (ii) the lease or leases were genuinely offered for sale immediately before the consolidation or subdivision on the reasonable terms and conditions that a genuine seller would require; and (iii) the rent payable throughout the term of the lease, or leases to be surrendered, were a nominal rent.³⁷

³² Rates Act 2004 [R44, 1/7/24]

³³ Planning Act 2023 [R4, 11/7/24].

³⁴ Duties Act 1999 [1/7/2024]

³⁵ Planning Act 2023 [R4, 11/7/24].

³⁶ Planning Act 2023 [R4, 11/7/24].

³⁷ Planning Act 2023 [R4, 11/7/24].



ACT rates and land tax are charged on *unimproved value*, stamp duty is charged on a consideration value (close to a *market price*), market leases and improvements have a definition akin to a market value of land, and valuation changes from lease variations have a separate unique definition linked to lease rights.

In Figure 28 some of these values are stylised in the context of market prices before and after development. While not referring to lease rights, the ‘*premia*’ wedge reflects the impact on market prices of economic factors distinct from financial measures like land price and the depreciated value of improvements. These *premia* are many and varied.

For example, there is a reasonable evidence base about factors that influence the market price of property. CoreLogic report a *hedonic price index* where median prices are a function of ‘SA2 location, land area, street type, property type, bedrooms, bathrooms, car spaces, pool, air conditioning, view, recency of update (built or refurbished within 10 years), density of the mesh block, spatial dependency, previous prices and days on market for previous price.’³⁸

Others have found proximity to social infrastructure supports prices, noting for school outcomes ‘...a 5 percentage point increase in test scores (approximately 1 SD) is associated with a 3.5 per cent increase in house prices’.³⁹ Others consider wider factors ‘...individuals maximize utility when choosing neighbourhoods as a function of prices, location features, access to employment opportunities, and commuting time.’⁴⁰ RBA research finds distinctly economic reasons for the level and changes in prices.⁴¹

Social infrastructure encompasses all the facilities, services and networks that help families, groups and communities to meet their social, health, education, cultural and community needs.

ACT Government, *District Strategies 2023: Volume Five Glossary of Terms*, p. 7.

LVC is dealt with elsewhere, however the *premia* wedge also covers the additional valuation concept unique to the ACT, linked to the notion of economic rent, which attempts to value potential gains in the value of a lease based on rights added through changes in land use permissions.

For this project, the analysis suggests there is a potential asymmetry between how projects will be valued—the difference in market prices and costs to achieve the gain—and the many and varied valuation measures that affect taxes. It is beyond the project scope, however, there appears to be an argument to review multiple pieces of legislation to align market and land price and value definitions to simplify feasibility assessments, increase transparency, and assure the underpinning definitions of land-based revenues.

Development feasibility in this project is linked to *financial* outcomes, applying market prices, costs and baseline prices or values. The only publicly available information on ACT land values is unimproved values. These are used to understand baseline land values, noting these values may not reflect LVC land values. However, it must be the case unimproved values are related to market prices, and market prices invariably account for the bundle of rights in land.

In the precinct selection section of the report market price experience was compared for each precinct. Figure 29 extends those data to illustrate market price differences between the precincts and compared to ACT levels. What is evident in these data is house prices—including detached single residences and dual occupancy and duplex typologies—are higher than unit prices. Also, location matters in price expectations.

In the last period reported in the figure, for example, the highest to lowest house prices are recorded in Narrabundah, Chifley, Macquarie, Fisher and then Monash. These patterns have held broadly, and over the timeframe reported Monash and Fisher have been at or slightly below the ACT average and the others have mostly been above the average. Units have less predictability, reflecting changes in market structure over time as well as data quality issues (like smaller sample sizes).

³⁸ CoreLogic, “CoreLogic Australia Residential Property Index Series.”

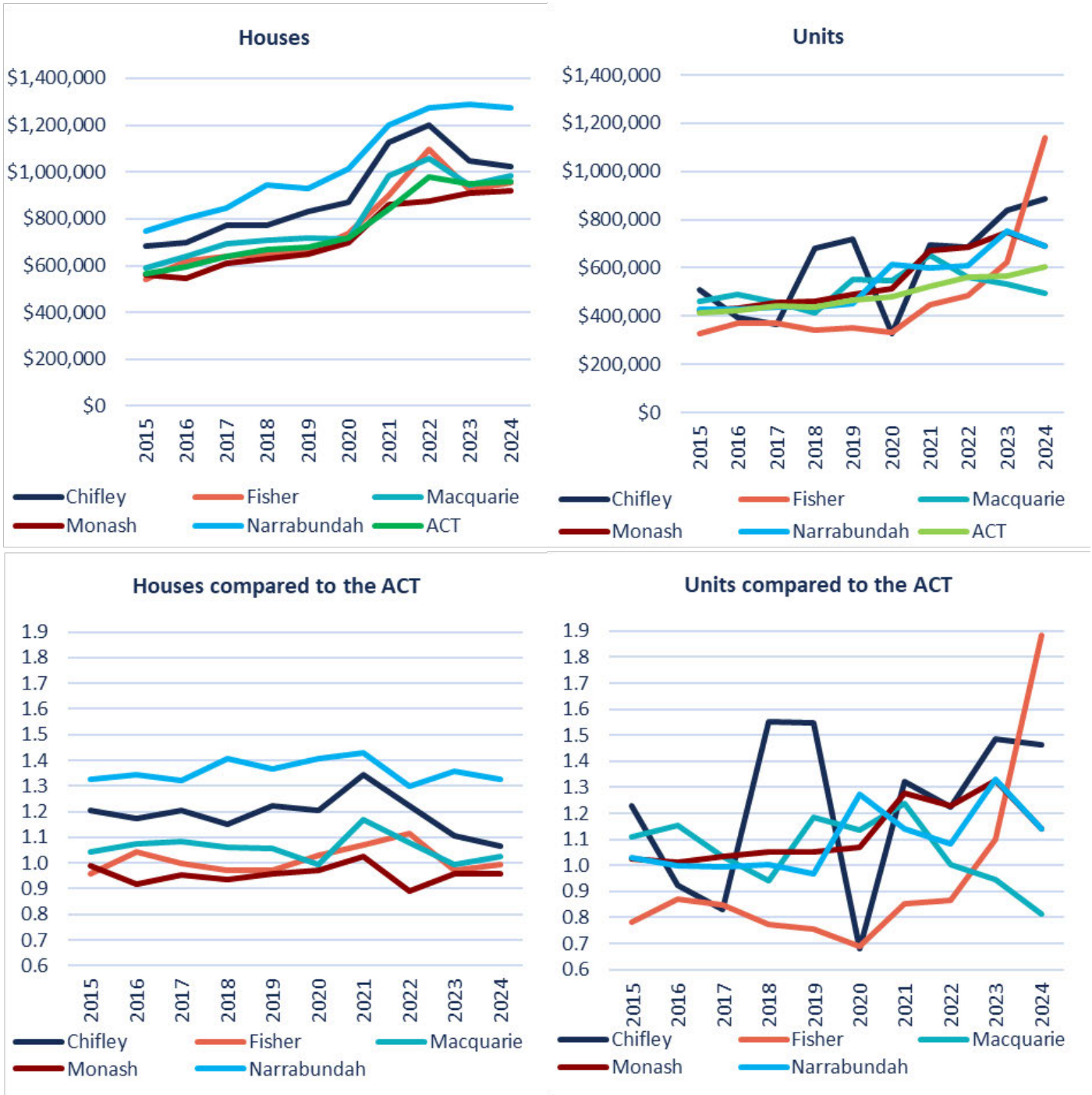
³⁹ Davidoff and Leigh, “How Much Do Public Schools Really Cost?”

⁴⁰ Anagol, Ferreira, and Rexer, “Estimating the Economic Value of Zoning Reform.” p. 5.

⁴¹ Tulip and Saunders, “A Model of the Australian Housing Market.”



Figure 29: Median price experience in selected precinct



Source: Purdon analysis of allhomes.com.au market research

While these levels assist set price expectations for modelling, for the policy questions and feasibility assessments the key issue is that prices are formed locally, whereas regulations and costs are formed nationally and at the ACT scale. This means the same project delivered in separate locations is guaranteed to have different feasibility outcomes.

Observation 18: Market prices are formed in a local context, based on location factors. Development costs and regulations are formed nationally and at a Territory scale. This will affect development returns and project feasibility.

The ACT is unique in the Australian federation with the ACT Government being the primary, if not sole, supplier of new land to the market. The consequence from this setting is that the ACT Government can engage in monopolistic pricing behaviour. This issue has been recognised in several studies, on one hand as an economic ‘bad’, and



otherwise as a protection from the accumulation of private land wealth.⁴² From a land value perspective this sets the ACT Government as a price maker. The Urban Development Institute of Australia (UDIA), for example, recently observed ‘the ACT’s median lot price average across 2023 grew 38% to \$679,375 which elevated the nation’s capital into having the most expensive residential lots across the capital city regions and is now 82% higher than the national average’.⁴³ The report demonstrates the average price per sqm of land in greenfield settings has risen from \$484/sqm in 2014 to \$1,407/sqm in 2023.

In Figure 30 and Figure 31 land values in the case study precincts are presented in aggregate and per sqm terms. These values affect both the tax consequences from development and the baseline values in feasibility analysis.

Figure 30: Unimproved values by type and zone

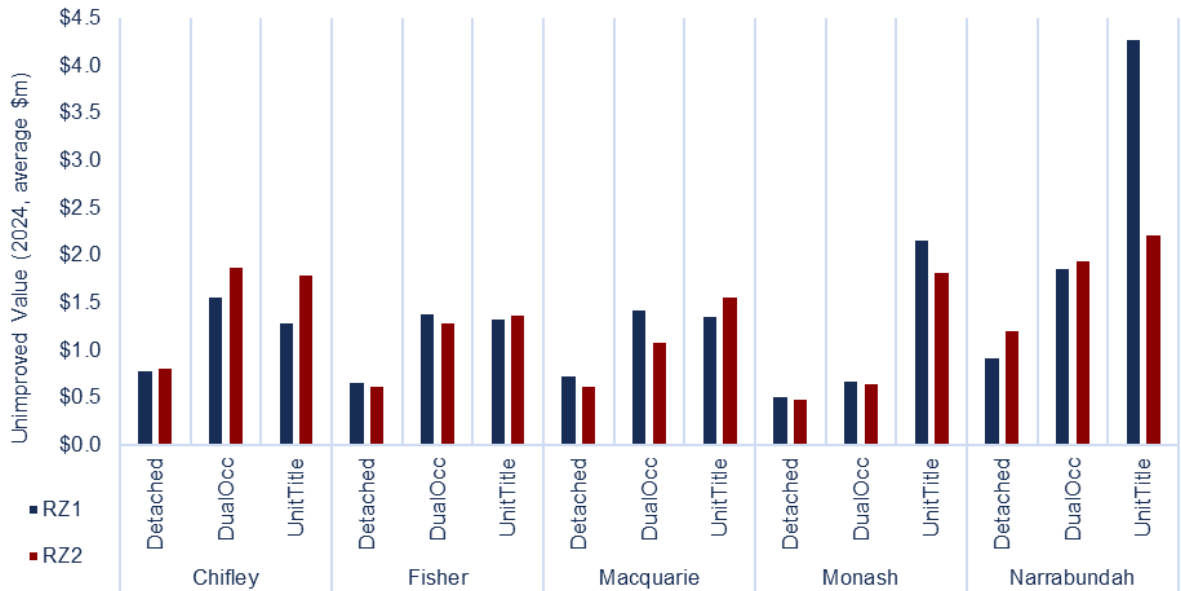
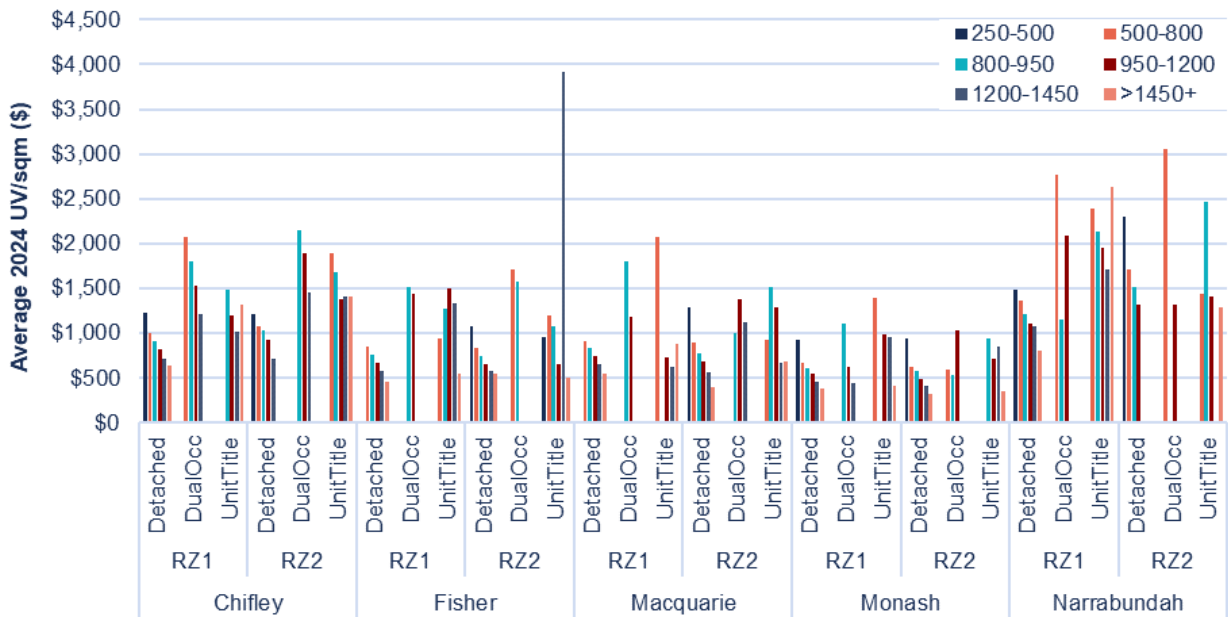


Figure 31: UV per sqm by size, zone, and precinct



Source: Purdon analysis of linked geospatial and unimproved data sets.

⁴² Tulip; p. 12, and Smith and Hermans. p. 20.
⁴³ Urban Development Institute of Australia, “UDAI State of The Land 2024.” p. 88.



In gross terms the land value patterns are broadly consistent with market prices. Similarly, the relationship between existing development types as might be expected, with detached values generally less than dual occupancy, which is less than unit titled land. An interesting result emerges in different zoned land. Unimproved values in RZ1 do not appear to be systematically lower than those in RZ2. In terms of the value per square metre precincts' values sit in a wide range, but in the case of dual occupancy land sit near the ACT monopoly land value average per sqm. An interesting feature of the per sqm values is that the same patterns exist between use types, and zones, but as land size increases the value per sqm falls.

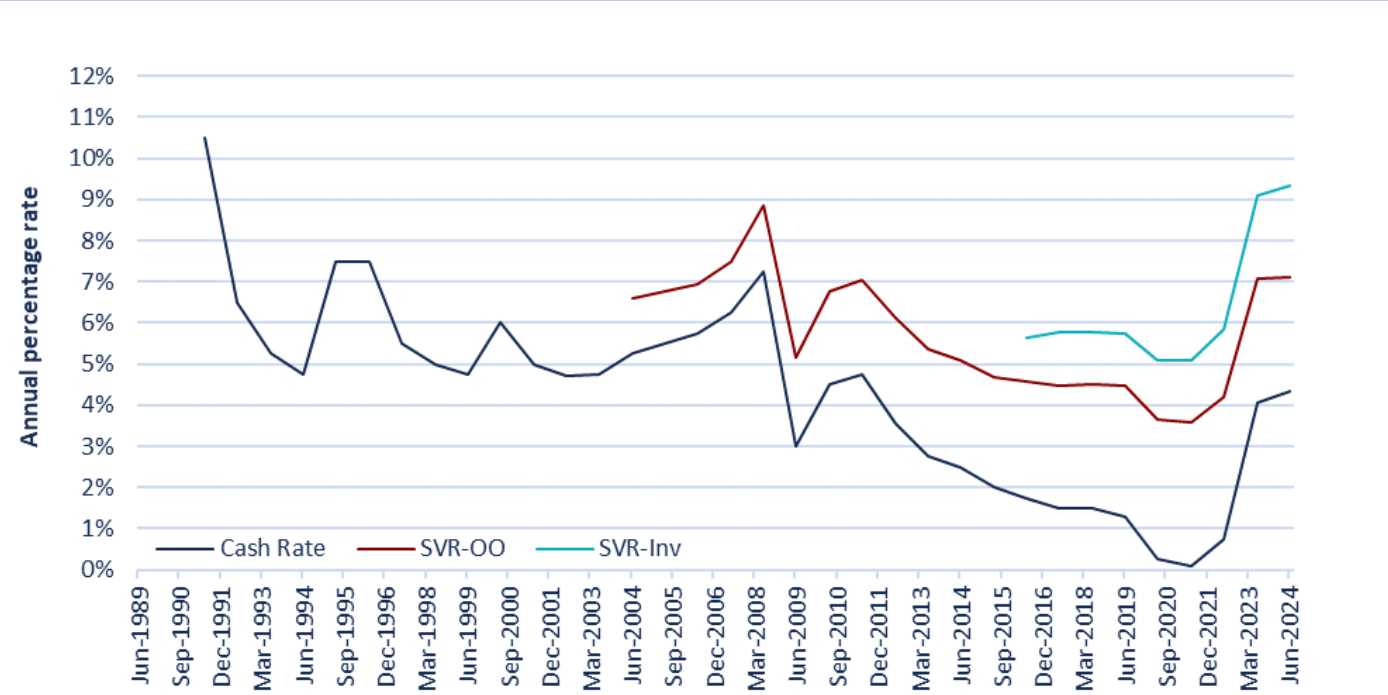
Apart from definitions issues on prices, values and taxes, land price analysis suggests around 60% of market prices are accounted for in unimproved values. This finding informs assumptions for the feasibility case study modelling.

3.5.2 Access and cost of finance

Development projects will be funded to completion by a mix of equity (cash and existing assets) and debt. Most deals need access to financing. Development financing is not as simple as retail mortgage lending. For simpler medium density options (secondary dwelling, dual occupancy) proponents may be able to structure a standard retail construction loan. As the scale and risk increases it is likely financing will become conditional on matters such as pre-sales, experience in development, and the reputation of the proponent and their experts. It is likely lenders will require equity to be used first, and there may be a need for interim or 'mezzanine' debt to bridge costs until typical lenders provide senior debt financing. Associated with these different structures will be higher costs and interest rates.

The cost of interest has increased significantly in recent years. Figure 32 illustrates three benchmark rates. The cash rate sets baseline market pricing between banks, the standard variable rate for owner occupiers (SVR-OO) is a proxy for the average retail mortgage lending rate, and the SVR for investors (SVR-Inv) reflects the price of debt for borrowing for established property investments.⁴⁴ Between June 2021 and June 2024 the cash rate increased from 0.1% to 4.4%, the owner occupied rate jumped from 3.6% to 7.1% and the investor rate jumped from 5.1% to 9.4%.

Figure 32: Interest rates



Source: RBA, Bulletin Tables F1, F5, and F6, <https://www.rba.gov.au/statistics/tables>

⁴⁴ Strict credit criterion and separated investor rates emerged in response to macroprudential regulation changes from the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry.



It is likely that some of the downturn in DA and BA activity is associated with the recent increase in finance costs. It is the case that financing costs have thrown out development feasibility assessments across the board, making marginal project unviable. For the ACT Government this is not a controllable lever, but should be taken into consideration when assessing the impact of the array of taxes and costs that go into a development and are controllable.

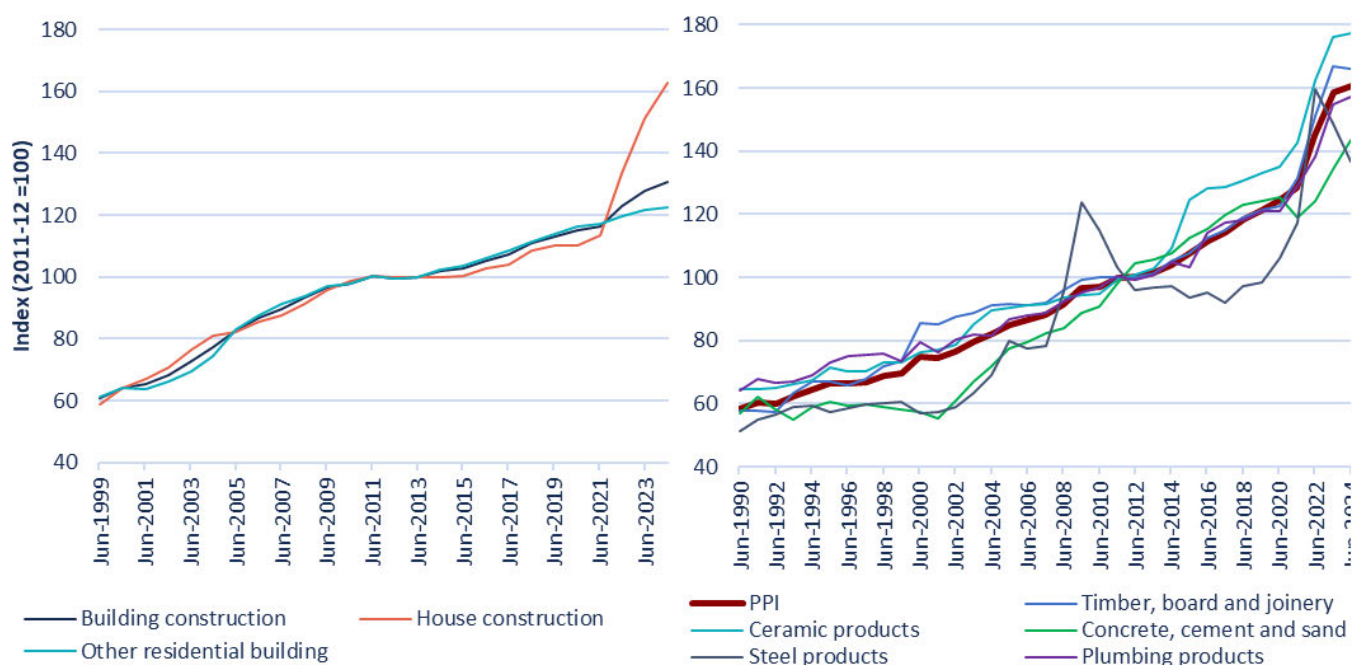
3.5.3 Input costs and access

Construction activity depends on globally competitive input prices and nationally competitive labour prices.

The closest broad-based measure for construction input prices is the Sydney producer price index published by the ABS. High level series are reported in Figure 33. The left panel is output prices for the sector, and shows a serious uptick in prices for ‘house construction,’ and slightly less for the broader basket of ‘building construction’ outputs. Between June 2013 (the index baseline) and June 2024 house outputs increased by 62.9% and building construction by 30.9%. The right panel illustrates the input prices that drive these results. The broad-based construction input price index rose by 60.8%. The price path of different materials is wide ranging—timber up 66.1%, ceramics up 77.2%, concrete up 43.7%, steel up 36.7%, plumbing materials up 57.2%, electrical equipment up 107.3% and gas appliances up 30.5%. These indices exclude labour costs.

Like many other market factors, the ACT Government cannot control these prices. However, there are connections between planning and regulatory and enabling levers and these costs. For example, electrification of new builds will achieve policy outcomes in that framework, but over time will have increased the input costs to construction, by virtue of faster input price growth. Design guides that mandate materials for aesthetic or character reasons may nudge design and construction materials into a higher input cost stream.

Figure 33: Producer price indices for construction



Source: Purdon analysis of ABS, Producer Price Indexes, Australia, June Qtr 2024.

Observation 19: In setting guidelines for materials and building quality, there is a risk policy settings may increase the costs of construction which impact on project feasibility. There is a trade-off between the costs, quality and whole of life outcomes. These trade-offs should be assessed in regulatory impact assessment of any new guidelines or requirements.



Labour and skills

The project research has not attempted to benchmark trades labour pricing and trends, as there are many occupation classifications in the development sector. However, like input prices, labour prices affect the viability of projects. A key factor in the price of these skills is the availability of people.

The Australian Government report for 2023 that more than 40 construction industry supply chain skills are in shortage in the ACT. These skills, based on a designation of shortage *relative to national measures*, include employment classifications:⁴⁵

- *Below economy-wide average*: Floor Finisher, Painter, Glazier, Plasterer (Wall and Ceiling), Renderer (Solid Plaster), Roof Tiler, Airconditioning and Mechanical Services Plumber, Drainer, Gasfitter, Roof Plumber, Plumber (General), Fire Protection Plumber, Electrician (General), Electrician (Special Class), and Cabinet Maker; and
- *At economy-wide average*: Construction Project Manager, Project Builder, Architect, Surveyor, Quantity Surveyor, Structural Engineer, Architectural Draftsperson, Building Inspector, Construction Estimator, Civil Engineering Draftsperson, Civil Engineering Technician, Bricklayer, Stonemason, Carpenter and Joiner, Carpenter, Joiner, Wall and Floor Tiler, Cabler (Data and Telecommunications), Arborist, Earthmoving Plant Operator (General), Bulldozer Operator, Excavator Operator, Scaffolder, Steel Fixer, Structural Steel Erector, and Crane Chaser.

There are many other industry adjacent skills in the list that are not reported here. These issues are beyond the control of the ACT Government. For example, the Australian Government determines skilled migration policy, and higher education settings. The ACT Government may have some market power through the Canberra Institute of Technology; however, that is beyond the scope of this project to investigate. Increasing the availability of construction labour ought to moderate cost growth and contribute to improved project feasibility.

3.5.4 Taxes

Development feasibility is impacted by taxes and fees raised at the ACT and national level.

The ACT Government participates financially in all aspects of the land value chain through taxes and fees linked to land. On current settings, in addition to collecting new lease sale revenues, they:

- Participate in *capital improved values* through stamp duty on sale and resale.
- Participate in *unimproved values* through rates and, if rented, through land tax.
- Collect *fixed charge* in addition to a valuation tax for rateable properties.
- Collect *land-based fees* including the *Safer families levy*, and a *Police, fire and emergency services levy*.
- Collect behavioural or targeted *levies*. For example, they levy a *Short-term residential accommodation levy*, and if commercial land is located within a specific boundary, a *City Centre marketing and Improvement Levy*.

Finally, in the event a leaseholder wished to access rights available through the Territory Plan but not available in a lease, they will incur a lease variation charge (LVC). This tax is investigated further as it is often referred to in the development context.

In addition, the Australian Government levies income and capital gains taxes (CGT), and a goods and services tax (GST). National taxes are not investigated as they require specialised expertise, and taxable events are circumstantial. There is a range of guidance that suggests subdivision, and developments on owner occupied land have the potential to accrue GST, income tax, and CGT liabilities.⁴⁶

⁴⁵ Australian Government, Skills Priority List filtered for ACT across all ANZSCO major groups that are designated as in 'shortage', <https://www.jobsandskills.gov.au/data/skills-shortages-analysis/skills-priority-list>.

⁴⁶ See for example: Australian Taxation Office, "Property development, building and renovating"; Australian Taxation Office, "Property and capital gains tax"; Australian Taxation Office, "Subdividing land."



In the case study feasibility assessments Australian Government taxes are not estimated. However, the consequences of these taxes are likely to be material, especially for developments with marginal or below benchmark returns.

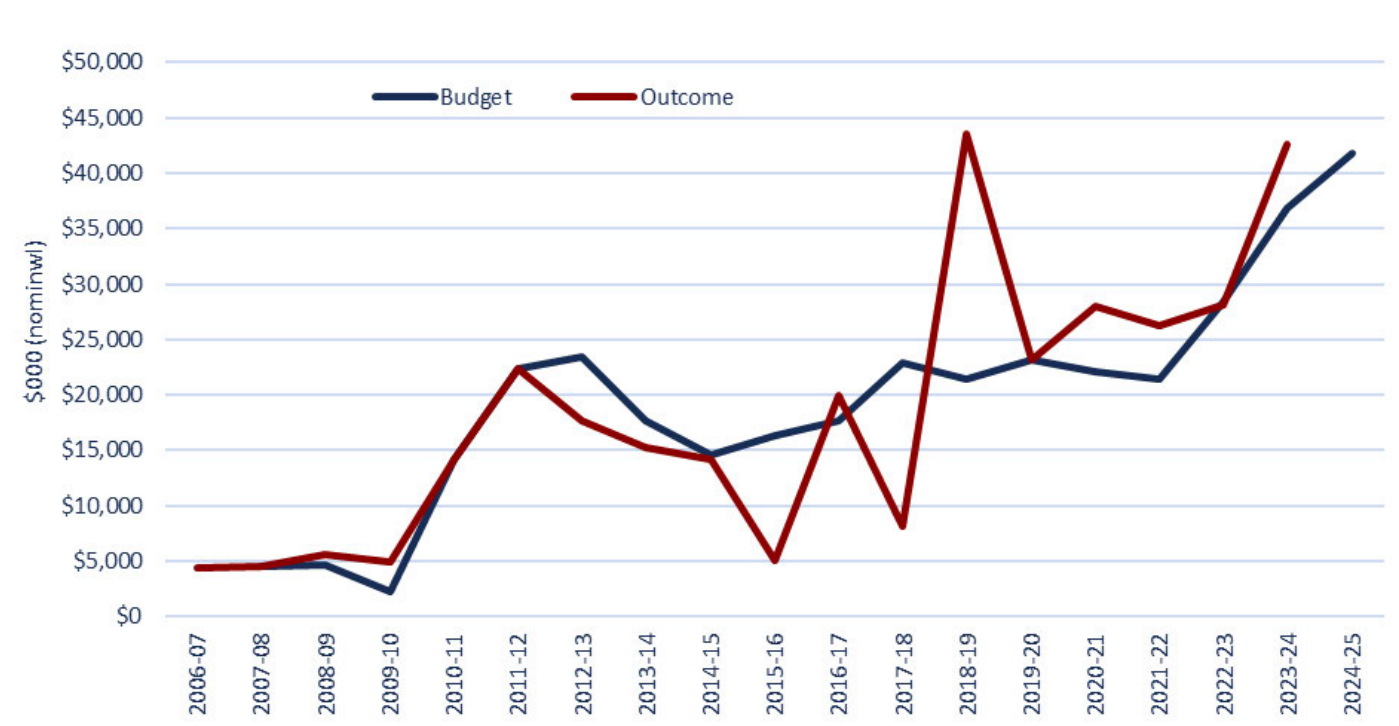
Lease Variation Charge

The ACT is fundamentally different to all other jurisdictions because a change in government planning policy does not automatically translate into additional development rights in a lease. Unless a leaseholder has specific provisions in a lease document which accommodate changes in Territory Plan instruments, they must change their lease.

In 1970 a significant shift occurred in the leasehold system, where acquisition of land rights shifted from a land rent to a 99-year lease. In 1970 a ‘...Change of Use Charge (CUC)...was put in place following the abolition of land rents and implementation of the current leasehold system’⁴⁷ The CUC introduced a ‘betterment’ charge into the leasehold system. Since 1970 no less than seven methods for CUC existed with durations lasting between 9 months and 20 years.⁴⁸ In 2009-10 the CUC was rebadged as a lease variation charge (LVC). The change to LVC introduced a codification scheme ‘... in response to industry concerns about the degree of uncertainty in change of use charge determinations’, while also retaining a before and after valuation approach under certain conditions.⁴⁹

Figure 34 reports the budget and estimated outcomes for LVC collections over the period spanning the transition from the CUC to the LVC up to the most recent ACT Government Budget. The effect of LVC was to increase collections from around \$5m per annum in CUC to between \$15m and \$20m per annum in LVC. Since 2021-22 the expected revenues have shifted from around \$20m per annum to above \$40m per annum. At the end of forward estimates, in 2027-28, collections are expected to grow to \$51.1m per annum. At this peak, LVC will account for 0.53% of ACT revenue and 1.5% of own source taxation.

Figure 34: Lease variation charge returns



Source: Purdon analysis of ACT Government, Budget Outlook: Revenue, various years.

⁴⁷ ACT Chief Minister, Treasury and Economic Development Directorate, “Review of the Lease Variation Charge: Consultation Paper.” p. 4

⁴⁸ Macroeconomics, “Final Report on the Review of the Change of Use Charges System in the ACT.” p. 5.

⁴⁹ ACT Government, Planning (Lease Variation Charges) Determination 2024 DI2024-184, commenced 1 July 2024. p. 111.



Economic rent: excess payment made to a factor of production (land, labor, capital) over and above the minimum amount required to keep that factor in its current use. Economic rent arises when certain factors of production are fixed in supply, and their owners are able to earn income beyond what is necessary to induce them to provide the factor. It commonly applies to natural resources like land, where the supply is inelastic, but can also apply to labor or capital when a particular skill or asset is scarce.

The New Palgrave Dictionary of Economics

The LVC is based on a principle of capturing *economic rent*. In principle, the concept is to capture unearned windfall gains in land value that accrue from an improvement in the development rights attached to land. In the ACT the specific language is the changes in the value of rights attached to a *lease*. The tax intends to share apparent gains between a leaseholder and the community. Valuations and tax rates used in the assessment of LVC are distinct from other land valuations aiming to measure the apparent rent. For example, the Government describes:

*The principle of market valuation of the additional rights is retained. The valuation basis does not take account of the on-site improvements, and the cost of demolition. This approach will ensure developers pay a **charge commensurate with the increase in the value of land only due to the additional bundle of rights granted through the change in use**. In essence, this reverts the system to its original betterment principle.⁵⁰*

The LVC has created some tension. Generally, industry have argued it affects project viability, and the ACT Government has defended the principle of sharing windfall gains. Robust published evidence about the effect of the LVC on development in the ACT is absent with both sides relying on anecdotal evidence.

Since the switch to the LVC, which happened around the same time as the 2012 Tax Reforms, the ACT Government has commissioned four reviews into tax reform. Two reviews considered the changes between rates and stamp duty, but did not include any discussions on LVC.⁵¹ Two others covered broad changes in the tax system, and referred in passing to LVC and its settings but provided no formal review.⁵²

The ACT Government ran an LVC review process in house, and reflected on comments from stakeholders, but provided little in the way of formal evaluation of the impact of the tax on activity.⁵³ In submission to the LVC review industry provided views along the lines that ‘...projects with high returns, which tend to be of larger scale and limited in number in the ACT, can easily absorb the impact of LVC. This was not true for projects with marginal returns, suggesting that the LVC was reducing the pool of viable projects.’⁵⁴

The Government provided a counter view that ‘there was limited concrete evidence in submissions to support the claim that the LVC is a disincentive for medium density housing and limits housing diversity. It is also considered unlikely that the supply of affordable townhouses would significantly increase in inner city areas, given current land values even if such an incentive was introduced. It is likely that the benefit of such an incentive would be transferred to project proponents where development of townhouses would have occurred regardless of such an incentive.’⁵⁵ In both cases, industry or government were unable to provide definitive evidence of the impact of the LVC.

One challenge that is highly relevant to land within the RZ1 and RZ2 zones is that the value of the bundle of rights are relatively small compared to those in denser zones, and while the taxing principle may be pure, there is a perception is that LVC prevents marginal development decisions among risk averse stakeholders. At the design stage of the LVC the potential for scale issues was raised by advisors to government. It was observed that

⁵⁰ ACT Government, 2011-12 Budget Paper no.3: Revenue and forward estimates, pp. 44-46. Emphasis added.

⁵¹ Tax and Transfer Policy Institute and National Centre for Social and Economic Modelling, “Analysis of the Impacts and Outcomes of the ACT Tax Reform”; and Adams, Nassios, and Sheard, “The Economic and Efficiency Impacts of Altering Elements of the ACT’s Tax Mix.”

⁵² Murray, “The First Interval – Evaluating ACT’s Land Value Tax Transition”; Smith and Hermans, “THE SECOND INTERVAL: Evaluating the ACT’s 20 Year Land Value Taxation Transition after 8 Years.”

⁵³ ACT Chief Minister, Treasury and Economic Development Directorate, “Review of the Lease Variation Charge: Consultation Paper”; ACT Government, “Detailed Consultation Report: Review of the Lease Variation Charge.”

⁵⁴ ACT Government, “Detailed Consultation Report: Review of the Lease Variation Charge.”p.4

⁵⁵ ACT Government. p. 11.



...there will likely be a tipping point, where higher rates impact development activity, and may compromise overall revenue collections, although it is impossible, on current experience, to determine where that might lie,⁵⁶ and

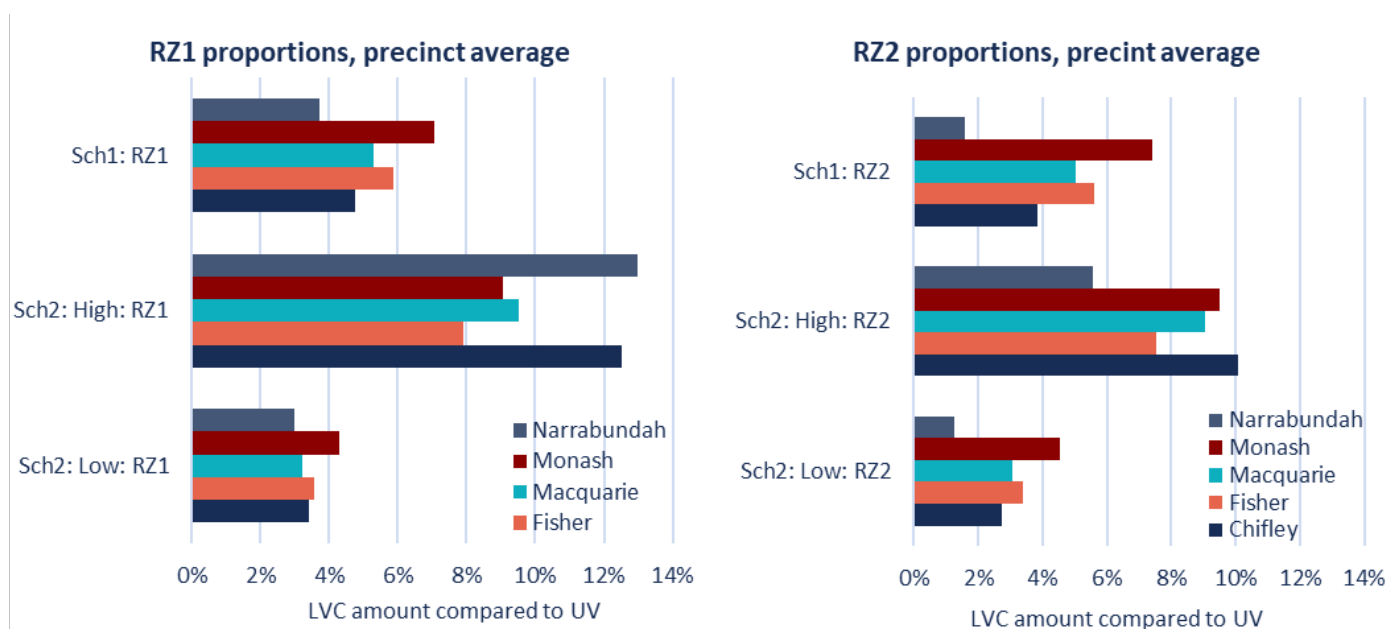
Any extraction of revenue from the development process must impact on at least one of the site price, developers' profits, and sale price... The extent to which each of these three variables is impacted will depend upon how responsive each is to the introduction of the charge⁵⁷

As observed earlier, leaseholders of RZ1 and RZ2 land are not development professionals, and it is most likely they will be more sensitive to LVC than professional developers, especially when contemplating the full array of costs and risks they would need to manage. On the balance of probabilities, the prospect of paying a tax despite any relationship with project feasibility is likely to affect the decision of individuals to bring land into higher valued uses.

LVC is estimated in the precinct case studies. A finding is that LVC affects the ROI, but is ranked behind construction, professional fees, and finance costs in impact. LVC may not tip returns from positive to negative, however it lowers ROI on profitable and marginal projects. More importantly the design and implementation of the tax is complicated and generates anomalies. In the first instance it has been difficult to identify a difference in reported land values between zones that have different development rights, which should be observable if there are indeed economics rents *in practice*.

Figure 35 reports comparisons between apparent land values and schedule 1 and schedule 2 (codified) LVC rates. There is substantial difference within precincts, and between precincts. For example, in Narrabundah RZ1 dual occupancy codified rates are above 13% of the average RZ1 UV, but around 5% of the RZ2 average UV. When shifting to the lowest codified unit rate the RZ1 ratio drops to around 3%, and for RZ2 to about 1%.

Figure 35: Simple value comparisons for LVC



It is difficult to demonstrate, under current settings, how theoretical uplift values in the LVC codified schedules relate to the experience of changes in market values from development in practice. Until a lease is varied, its highest and best valued use is well defined, and can only be measured by what someone is willing to pay for that right, the market price.

⁵⁶ Piggott, "Reforming the Change of Use Charges (CUC) in the ACT: An Independent Economic Assessment." p. iii.

⁵⁷ Piggott. p. 7.



One way in which the intention of capturing windfall gains could be maintained, while also reflecting actual changes in value, would be to shift to a super profits style tax. This method would apply for smaller scale developments, like missing middle projects in RZ1 and RZ2 zones, and shift the incidence of taxing gains from lease variation to an actual difference in values between the baseline and project outcomes, adjusted for construction costs and a reasonable profit. This method would still see actual gains shared between developers and the community, be directly connected with realised gains, shift the incidence of the tax from the lease variation stage to the closure stage, and lower the burden for projects that are not being undertaken for profit purposes (e.g. ageing in place investments, family housing, supported accommodation). Such a tax would be easier to estimate in project feasibility assessments, and would also adjust immediately to changes in market conditions.

In the absence of an existing lease clause there is no economic rent available to a leaseholder by virtue of rights created through Territory Plan updates. The question is whether the existing theoretically determined gains in LVC are better than taxing revealed gains.

Observation 20: Smaller scale developments in RZ1 and RZ2 zones have significantly different risks and incentives when compared to larger scale higher density developments. The leaseholders are not likely to be professional developers. The current LVC is complicated, reflects theoretical valuation gains rather than actual gains, and has an increased chance of preventing underutilised RZ1 and RZ2 land being bought into higher valued uses, especially in the context of leaseholder risk tolerance. A different approach to capturing ‘windfall gains’ in developments in these zones might be appropriate, where the tax is linked to revealed market outcomes rather than rigid fixed tax rates disconnected from actual market outcomes.

Finally, the logic underpinning the LVC appears to favour only a microeconomic interpretation of economic impact, the capturing of individual project economic rents. Murray observed, in relation to stamp duty, that tax can be avoided by selling or buying less frequently.⁵⁸ In residential settings LVC is an in-fill tax, and is only triggered when a lease needs to be varied to access a right offered by the ACT Government. The practical options available for RZ1 and RZ2 land are set out in the feasibility framework section. Like stamp duty, leaseholders can avoid LVC by choosing not to bring a lease into a higher value use. Whatever microeconomic arguments exist about the incidence and impact of the LVC, the potential options avoided if a leaseholder does not take a development decision introduce other wider economic impacts.

For example, individuals choosing to vary a lease to increase missing middle development may release positive externalities for which they are not compensated. The Productivity Commission observes ‘...the better utilisation of land in established areas can realise additional agglomeration benefits, reduce the costs of public infrastructure, which is more costly to deliver the further they are from urban centres, and prevent the creation of distant, socially isolated communities.’⁵⁹ CSIRO have also noted similar wider benefits from improved density.⁶⁰ It has been observed that ‘...density is vital because it ensures that there are sufficient people to make shops, services, and public transport economically viable’.⁶¹ In-fill land provides direct competition to monopoly economic rents earned by the ACT Government in greenfield settings. Urban densification in the ACT can maximise the environmental and economic benefits of using existing infrastructure.⁶² If additional well-located housing supply, based on contemporary market and design quality settings, starts to exceed housing demand it will also put downward pressure on prices potentially improving housing affordability. Some of these externalities will be internalised to the leaseholder through retained economic rent, however these wider impacts are likely to exceed the retained benefits.

There are also opportunity costs inherent in leaseholder choices. If leaseholders in RZ1 and RZ2 zones, who are not professionals and have a lower risk appetite, choose to do nothing, and this happens at scale, pressure for greenfield

⁵⁸ Murray, “The First Interval – Evaluating ACT’s Land Value Tax Transition.”

⁵⁹ Productivity Commission, “Realising the Productive Potential of Land, Shifting the Dial: 5 Year Productivity Review Supporting Paper.” p. 5.

⁶⁰ House of Representatives Standing Committee on Infrastructure, Transport and Cities, “Building Up & Moving Out: Inquiry into the Australian Government’s Role in the Development of Cities.” P. 52.

⁶¹ Jafari, Singh, and Giles-Corti, “Residential Density and 20-Minute Neighbourhoods.” p. 9.

⁶² ACT Taxation Review Panel, “ACT Taxation Review.” p. 49.



development will increase. There is a considerable evidence base that demonstrates infrastructure costs in in-fill settings are much lower than in greenfield settings.⁶³ Choosing not to act prevents the economic activity from the construction of new assets. Not developing will prevent the sharing of positive externalities. Finally, additional dwellings would increase the revenue available to the ACT government through land related taxes. The choice of an individual to not develop would lead to substantial opportunity costs for the ACT community. If the perception of the LVC has any role in preventing a lease being varied, capturing the economic rent needs to be weighed against the impacts of externalities and opportunity costs from losing additional development within in-fill setting.

Observation 21: It is unclear whether the economic rent argument used to justify the LVC is sustainable, especially in RZ1 and RZ2, if compared to a wider impact assessment that includes externalities and opportunity costs, where all benefits and costs from a leaseholder not proceeding with a development are measured.

3.5.5 Community culture

Land use and planning excites many community members in the ACT. At a strategic level, the ACT has had a long history on engaging with the community about preferred planning settings. For example, preparing for the District Strategies that were released with the *Territory Plan 2023* the ACT engaged the community extensively across all Districts. Table 10 presents a range of comments from the published engagement reports that illustrate perspectives about medium density development, and missing middle typologies.

Table 10: Selected District views about densification and uplift

Belconnen	'Focus more dense urban areas near commercial centres' 'Rejuvenate local shopping centres including surrounding amenity'
'Maintain and protect undeveloped land'.	Gungahlin
Inner North	'Design efficient housing, smaller footprints with increased greenery' 'Create a mix of housing density with a focus on medium and low-density dwellings'
'Focus higher density housing close to the shops, Parliament House and along corridors such as Canberra Avenue' 'Balance urban infill with existing character and amenity'	Inner South
Molonglo	'Spread out medium- and high-density housing' 'Provide housing typology choice' 'Plan low density housing near nature reserves and open areas' 'Limit medium and high-density housing.'
'Enhance local shops and commercial precincts' 'Build efficient and smaller housing'	Tuggeranong
Weston Creek	'Cater for downsizing' 'Limit and vary building heights and density' 'Maintain village feel by controlling building size and scale' 'Maintain low density planning'
'Deliver diversity of style in building developments' 'Design efficient homes and make them smaller' 'Revitalise local shopping centres'	Woden

Source: ACT Government, "District Strategies 2023: Volume Four, Background Material." pp. 14-22.

⁶³ See for example: AECOM, "Greenfield and Infill Developments in the ACT: Comparative Cost Study"; NSW Productivity Commission, "Building More Homes Where Infrastructure Costs Less."



At a broad scale there appears to be support for sensible densification. These broad-based views are supported in other work too. A recent EPSDD assessment reports that ‘the results of the market research indicate that Canberrans aren’t against dual occupancy developments ,but want to make sure the Government has measures in place to ensure that they are delivered in a controlled and considered way.’⁶⁴

Despite these views in theory, the experience of delivering development is more complicated. The culture of communities can fundamentally affect the desire to proceed with development ideas, and the ability to successfully deliver projects. The views of individuals and groups not involved in a development can fundamentally affect the viability of a project. Within the planning settings, the most extreme version is third parties having appeal rights that can delay, or even prevent, developments (see discussion on ACAT).

The *Territory Plan 2023* introduced the idea of a Territory Priority Project which has features that override the ability for so-called ‘NIMBYs’ to object where there are fixed and established views about land use and potential public values from a development proposal.

Perhaps, once an accepted missing middle design guide is available, and suitability criterion for missing middle development are identified and embedded in the planning system, an exception to appeal rights could be made available that removes the power for disputes, delays and other prevention tactics to enable faster adoption of missing middle development.

3.6 CONTROLLABILITY IS KEY

The assessment of the feasibility framework in this section has been a light touch describing broad issues and drawing observations to assist understand why developments in RZ1 and RZ2 zones may not have been as significant as the rights in the zones suggest. An investigation of each of the issues in the framework in more detail would be warranted to determine systemic feasibility opportunities and constraints for missing middle in the ACT.

Beyond the evidence and anecdotes raised for different levers, the key focus for assessing options to improve the feasibility of the missing middle is to focus not on the full array of levers, but those which are within the remit of the ACT Government to control. Those which are out of its control are identified and can be monitored, however any recommendations or reforms must focus only on controllable matters.

Filtering the feasibility framework discussion, and assessing the materiality of the levers within the framework, a breakdown of controllable levers is summarised in Table 11. While issues in the quadrants ‘Government has limited to no control’ are important to understand, little can be achieved without challenging the boundaries of government participation. Practically, the framework and this matrix underpins the feasibility analyses in subsequent sections.

Observation 22: Assessing the feasibility of any development is a complicated task. Recommendations made in this project are focussed on planning, non-planning and regulatory and enabling levers which are directly able to be controlled by the ACT Government, and contribute towards achieving an outcome focused land development system. Factors not in the control of the ACT Government are observed, and are consequential, however they are excluded from further analysis.



Table 11: Framework controllability matrix

	Planning	Non-Planning
Government can control	• Strategic land use patterns. • Lease conditions. • Mandatory Controls (subdivision, consolidation, unit title policy) and related costs. • Assessment Outcomes, and Requirements. • Technical specifications, Design guides. • Zoning permissions. • Approval timeframes. • Related ACT legislative framework. • Dispute and appeal rights. • Taxes, fees, and charges (lease variation charge, DA, BA).	• Public and affordable housing ratios. • <i>Land</i> valuation and taxation. • Greenfield land pricing. • Off-site infrastructure. • Improved physical, social and living infrastructure. • Improved location amenity. • Taxes, fees, and charges (rates, land tax, stamp duty). • Incentives to develop. • Street trees, and public open space.
Government has limited to no control	• Existing development footprint. • Supply of qualified professionals and trades. • Overexercised rights and illegal development. • On site canopy (in situ), existing street frontage, established block shapes. • National regulatory frameworks, other than localised interpretation where available.	• Leaseholder preferences and skills. • Historical decisions. • Construction costs (materials and labour). • Concepts, design, materials, climate/season. • On-site infrastructure. • Motivation of community leaders. • Cost and availability of finance. • Site factors. • Population and migration. • Australian Government taxation (income, CGT, and GST).



3.7 FEASIBILITY METHODOLOGY

With more than 6,130 RZ1 and RZ2 blocks in the sample for the five case study precincts it is difficult to establish a definitive and objective method to estimate how missing middle developments can be delivered feasibly at scale.

The two approaches adopted for this project are to estimate a *developability index*, and then assess factors affecting feasibility at a block scale by estimating a *case study* within the precincts.

3.7.1 Developability index

To determine potentially developable parcels of land and areas at a precinct scale the project has developed a multicriteria analysis tool that can be used to score blocks based on characteristics that are most likely to appeal to someone facing a decision to develop or not. These characteristics may not align with non-development factors, which is discussed briefly next.

To the extent possible, the goal has been to develop mutually exclusive criterion and ascribe values, or ‘scores,’ which illustrate the impact of a particular characteristic of a block on a scale from ‘good’ to ‘bad.’ The scores and ranking are subjectively determined, with scaling strata between 1 and 8 depending on the characteristic. Score levels for each criterion are set to create a relativity between the criteria.

The criteria and scoring tool used to construct the index is reported in Table 12. To create an index value for each block in each precinct:

- Each characteristic is scored based on the developability index matrix in Table 12.
- The scores received for each characteristic are added to achieve a total which is the raw development score.
- The raw development score is then compared to a maximum score, in this method 60 is the maximum, to estimate the development index proportion.
- These proportions are then forced into quintiles created between the lowest score and highest score with 10 percentage point steps between stage (for example, rank 1 is lowest with Index Scores between 40 and 50%, through to rank 5 with index scores > 80%).

Each block is then given a score between 1 and 5, which is used to estimate developability and generate maps of developability.

A way to envisage this index in practice is to consider what might be a ‘unicorn’ block—highly desirable but mythical. Such a land parcel would be on a corner, with more than 1,450sqm area, mostly square, with one dwelling and very low on-site density, have a street frontage greater than 30 m, extant canopy less than 10% of area, and less than 3% of the block with slope, facing north with a discount on its unimproved value per sqm of 50% compared to the suburb average, while also being within 200 metres of a Town, Group and Local centre. There are no such blocks in the project data set.



Table 12: Developability index inputs

Characteristic	Layer	Unit	Rank								Max	Logic
			1	2	3	4	5	6	7	8		
Corner	Criterion	Binary	N	Y							1	Corners increase access
	Score	Score	0	1								
Existing use	Criterion	Type	Retirement	Unit Title	Multiunit	Dual Occ	Detached				5	Existing type impacts incentives to redevelop
	Score	Rank	1	2	3	4	5					
Land Size	Criterion	Sqm	<=250	250-500	500-700	700-800	800-950	950-1200	1200-1450	>1450+	6	More land increases GFA potential
	Score	Rank	0	1	2	2	3	4	5	6		
Complexity	Criterion	Count	>3000	2000-3000	1000-2000	500-1000	260-500	<=260			3	Complexity increases novelty in design
	Score	Rank	0	0.5	0.75	1	2	3				
Dwellings	Criterion	Count	>20	10-20	5-10	3-5	2-3	1			6	More existing dwellings increase cost and risk
	Score	Rank	1	2	3	4	5	6				
Density	Criterion	dw/sqm	>45	25-45	20-25	14-20	7-20	<7			3	Apparent density changes the scale of opportunity
	Score	Rank	0	0.25	0.5	1	2	3				
Frontage	Criterion	Metres	<6	6-12	12-18	18-24	24-30	>30			6	Larger frontages are better
	Score	Rank	1	2	3	4	5	6				
Canopy	Criterion	% sqm	>60	41-60	31-40	15-30	10-15	<10			6	Higher canopy constrains land for development
	Score	Rank	1	2	3	4	5	6				
Slope	Criterion	% sqm Orientation	>12	9-12	6-9	3-6	<3				5	Slope increases costs of construction
	Score	Rank	1	2	3	4	5					
Orientation	Criterion	Compass	4 [S]	3 [W]	2 [E]	1 [N]					4	Northern orientation increases marketability
	Score	Rank	1	2	3	4						
Town Centre	Criterion	Metred	>2400	1200-2400	800-1200	400-800	200-400	<200			5	Location preferences increase price value
	Score	Rank	0.50	1	2	3	4	5				
Group Centre	Criterion	Metred	>2400	1200-2400	800-1200	400-800	200-400	<200			4	Location preferences increase price value
	Score	Rank	0.25	0.5	1	2	3	4				
Local Centre	Criterion	Metres	>2400	1200-2400	800-1200	400-800	200-400	<200			3	Location preferences increase price value
	Score	Rank	0	0.25	0.5	1	2	3				
UV per sqm premium	Criterion	% suburb avg	>2	1.5-2	1-1.5	0.75-1	0.5-0.75	<0.5			3	Lower relative value per sqm increases return potential.
	Score	Rank	0	0.5	0.75	1	2	3				



3.7.1.1 *Developability is the focus*

It should be clear from the characteristics and multicriteria approach that the developability index method is a quantitative approach to assessing factors that are more likely to sway decisions to develop a property.

Character: Character makes an area distinctive and contributes to the identity of the place. This includes the natural, cultural and historic characteristics of an area that are intrinsic to the locality, and which the local community relate to. Local character and local identity is subject to change over time.

ACT Government, District Strategies 2023: Volume Five Glossary of Terms, p. 3.

The index methodology is **not** a tool that deals with broad questions about character, urban design outcomes, achieving effective strategic or statutory planning goals, or related concepts like healthy cities, transport-oriented development, or walkable cities.

Neither is it a tool that deals with qualitative factors such as improved urban amenity, liveability, network effects or agglomeration benefits. For example, the ACT defines liveability specifically as ‘a measure of city resident’s quality of life and is used to benchmark cities around the world. It includes socioeconomic, environmental, transport and recreational measures.’⁶⁵ These benchmarks do not automatically relate to incentives to develop land.

The tool does not directly investigate matters such as access to public spaces and parks, and access to social infrastructure or community facilities, or social requirements.

The goal of the developability index tool is to estimate the high level potential developability of a site, using characteristics that might affect the decision to develop alone. These developability characteristics may be complementary or contradictory to the wider concepts outlined above. For example:

- The character of a location may be a factor that appeals to individual purchasers, which may improve the saleability of a development, however new developments may challenge existing patterns of subdivision, and the character of a location, which may increase objections, and affect the ability to achieve a development approval.
- Access to open space ratios, or access to local social infrastructure are ‘good’ urban design outcomes, however they are not intrinsic to assessing the potential viability of development. Extrinsically these factors may influence prices (see section 3.5.1 Price and value, p. 84).
- Proximity to desirable activity zones—local, group and town centres for example—may increase the potential end price or value for a development, while also supporting walkability outcomes and leveraging existing infrastructure, but walkability alone is unlikely to influence a development feasibility assessment.
- On-site canopy would be a good living infrastructure outcome, may provide a non-market valuation increase from private valuations of urban amenity, and has protection in development controls, however significant extant canopy may increase the cost of development, or lower potential development yield, lowering project feasibility.

These qualitative factors feature in, and are protected by, a range of strategic planning documents including for example the *ACT Planning Strategy 2018*, the *Territory Plan 2023*, *District Strategies* (and related input material), the *Statement of Planning Priorities 2024-25*, the *Urban Forest Strategy 2021-2045*, the *Active Travel Plan 2024-30*, and *Canberra’s Living Infrastructure Plan: Cooling the City* (2019). Further, the influence of these qualitative factors is likely to be assessed in the concurrent project ‘missing middle suitability criteria.’

The novelty of the index approach is that land is assessed based on characteristics that influence development feasibility.

⁶⁵ ACT Government, “District Strategies 2023: Volume Five, Glossary of Terms.” p. 5.



3.7.1.2 Assessment of concept

It is fair to say the index approach is subjective. The selection of characteristics, the strata, and the ranking scores are estimated based on research and judgment but cannot be objectively tested. There are several precedents to using such an approach.

One immediate precedent is the Australian Urban Observatory (AUO). The AUO, hosted and operated by the Centre for Urban Research at RMIT University, has developed a framework for benchmarking and ranking urban settings on liveability, walkability, social infrastructure, transport, food, alcohol, public open space, employment, housing and demographic metrics for more than 10 years.⁶⁶ There is significant peer reviewed research supporting the broad approach underpinning the AUO tool.⁶⁷ The development index approach is not peer reviewed, and is based on a development concept rather than urban design concept, but it uses similar logic and methods.

There are other gaps in the characteristics list too, for example:

- There is insufficient data on the age of existing developments or improvements which would be a key feature in determining current value in use.
- Historic sales and settlement data has too small a sample size in the period being assessed (2011-2024). Market prices would be a better determinant than UV.
- While detailed bus stop data is available, it is closely related to the location of Town, Group and Local centres and provides little additional information value (see for example 'access to public transport' in *Annex 1*, p. 147).
- Other factors which might impact potential sale prices or project end values from development (school zone, bedrooms, pools, etc) are not easily available, or if available, are mostly sample level data.

A significant issue, in a strictly analytical sense, is that some characteristics may be correlated. For example, good proximity (a score of 12 for distance to Town, Group and Local centres) is probably correlated with the average UV premium. The index is used despite these potential correlations, noting the aim is to provide a consistent measure to guide project observations and recommendations, rather than inform a decision to develop a single block of land.

These gaps and issues mean it is possible there is a selection and scaling bias within the method.

A real strength of the approach is that the analysis excludes consideration of current zoning or lease conditions. That is, when considering the highest and best valued use for land a strong first principles approach that considers a range of characteristics is better than starting from rights defined in a lease formed in an historic context, or constraints imposed under a statutory planning framework. The index results also allow for a range of interpretations that might otherwise be unavailable. For example, the index can identify clusters of blocks that are highly developable with more potential as a bundle than as a single block of land.

3.7.2 Precinct Case Studies

While the developability index provides a precinct scale assessment of blocks or combinations of blocks where further development is likely to be feasible, it needs to be supported with fine grained insights to support recommendations for reforms. To enrich the high-level index approach, the project includes a range of precinct case studies based on specific blocks in each precinct, and in different zones.

A key emphasis for the case studies is that lease documents have not been accessed. All details used in the case studies are a matter of public record, however, the sample is a representation of rights rather than the rights according to existing leases. These case studies are necessarily restrictive and provide a sample of results based on the conditions set out in this and subsequent sections. A genuine feasibility assessment would have better inputs.

⁶⁶ See <https://auo.org.au/measure/>

⁶⁷ Arundel et al., "Creating Liveable Cities in Australia."



Observation 23: Genuine feasibility and viability assessment on a block or combination of blocks would need lease details, information about leaseholders' preferences, and reflect the opportunities and constraints for the specific parcel of land. The precinct case studies are necessarily high-level, and general, providing information on the size and direction of potential returns as opposed to specific investment returns. The case study results should not be seen as investment advice.

3.7.2.1 Feasibility case studies summary



The case studies draw together land use, planning, cost, development, taxation, and financing elements to derive relative return on investment measures. A representation of the components in each case study is in Figure 36. Each component, including assumed values and treatments, are set out in the results section.

The method does not include a range of components which may be material, but for which there is no straightforward way to estimate settings. These include, for example existing levels or constraints on:

- Private and/ or communal open space.
- Front boundary, side, and rear setbacks.
- Solar building envelope and access.
- Minimum or maximum building depths and widths.
- Specific tree planting requirements.
- End of trip and EV requirements.
- Subdivision configurations.
- Australian Government taxes (e.g. capital gains tax (CGT), Goods and Services Tax (GST), Income tax).

These issues would be resolved in a proper project due diligence assessment.

The model allows for purchase costs and transfer duty ('Stamp Duty'), but these are assumed at zero in the most part. The case studies also mix components which are statutory, such as site coverage, with aspects that are within Technical Specifications such as planting ratios. This is not down in a way that these issues are confused, rather the components chosen are used as proxies to ensure case study solutions are potentially technically feasible.





Figure 36: Case study metrics

Land	Planning	Fees and Charges	Development	Taxes	Finance	Outcomes
Block size	Block type	Designer	Max Coverage	LVC (Sch 1)	Debt: ratio	Price (market)
Base: CIV Price	Site Coverage [Zoned]	DA fee	Residual area	LVC (Sch 2)	Debt: max	Project cost
Base: UV	Planting	BA fee	Dwellings: demolish	Rates	Equity: residual	Gross revenue
Dwellings: Base	Planting area	Professional fees	Sub Cons: Blocks	Stamp Duty	Establishment costs	Pre-tax gross return
Trees: hinder		Power connection	Sub Cons: Area		Interest	Gross ROI: ex-land
Frontage		Water connection	Sub Cons: Utilised		Out of pocket	Gross ROI: inc-land
Purchase costs		Infrastructure	Sub Cons: GFA			End CIV
		Trees	Dwellings/Block			CIV change
		Legals (conveyance)	Storeys			
		Sales Cost	Other GFA: utilised			
		Unit Title	Other GFA: total			
		C of O	Dwellings: Final			
		Other Holding	\$/GFA sqm			
			Demolition			
			Construction			
			Landscaping			
			Contingency			
			Duration: pre + build			
			Duration			

Note: CIV is 'capital improved value', UV is 'unimproved value', DA is 'development application', BA is 'building approval', C of O is 'certificate of occupancy', Sub|Cons is 'subdivision or consolidation', GFA is 'gross floor area', and LVC is 'lease variation charge', either Schedule 1 (for leases without a limit) or schedule 2 (for those with a limit, and which use 'codified' LVC rates. Provision is made in the model for purchase costs and stamp duty, but they are not estimated in the case studies.



Further, there are a range of material assumptions and adjustments that have been made in the case studies to deal with structural issues in using a static approach. These include broad assumptions that:

- The current leaseholder is expected to manage the project directly and for private benefit. That is, the projects are not 'sale to developer' scenarios.
- Construction costs include fit out.
- Final GFA includes car parking spaces and circulation spaces.
- As the scenarios do not involve a sale capital improved value (CIV) is adopted as a capital base as it is the opportunity cost faced by the leaseholder. The model does not distinguish between capital improved value and market prices.
- Financing is a function of the loan ratio. In the first instance it is assumed that all costs (construction, fees and charges, and taxes) are borrowed. The debt ratio is borrowing divided by the costs plus the base value. If this ratio exceeds 70%, the debt is capped at 70%, and the additional costs are assumed to be equity. This is not entirely realistic and may not work in the market, but as a method it allows for estimation of finance costs.
- Existing leaseholders will not take stamp duty into account as it is a sunk cost, whereas the scenario 'sale to developer' would incur a stamp duty.
- Market prices for dwellings create relate to specific dwellings that are created in a development. For simplicity, the case studies adopt a single price point. In practice, prices for each dwelling may be different reflecting locations within a development, or orientation.
- Sales costs are not applied to secondary residences in RZ1, assuming the leaseholder retains them.
- Because lease details are not known LVC need to be scenario based. This means estimating LVC as if the lease does have a dwelling limit or does not have a dwelling limit. Both scenarios are estimated.
- Actual returns would be relatively complicated and depend on whether the leaseholder developer retains dwellings for occupancy, rent or sells the whole parcel. To simplify case studies the gross return metric is the potential market value of all dwellings in the end state, and returns on investment are considered 'pre-tax' (not incurring Australian Government taxation).

The impact of the exclusions and assumptions will undoubtedly create discussions and may introduce biases into the case studies. However, the approach provides a reasonable way to compare and contrast different scenarios on a range of blocks with unique locations and features.

3.7.2.2 Return targets

Despite any limitations, the cases study approach provides a consistent measurement approach to assess returns on investment based on different land parcels, options, and scenarios. This approach allows for like-for-like comparisons of feasibility outcomes and provides insights about what factors affect returns on investment.

In assessing the results an industry rule of thumb for a reasonable development return is in the vicinity of 17-25%. This return ensures all costs are covered, and the opportunity cost from the risk in development is compensated.

As noted, the decision makers in these development projects may not be typical professional development industry participants. Generally, the developments will be smaller scale, constrained to a maximum of three storeys (more likely two storeys on average), and with lower risk conventional builds. In some cases, dual occupancies in particular, the motive may be lifestyle related rather than profit maximisation. There are reasons why a lower return on investment may be feasible for leaseholders in RZ1 and RZ2 settings, the broad feasibility results are compared to the industry standard.



Observation 24: The professional developer industry tends to operate with an expectation of 17-25% return on project investment. The leaseholders, and development options in RZ1 and RZ2, may have lower thresholds and be motivated by factors other than profit maximisation.

3.7.2.3 *Site selection*

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

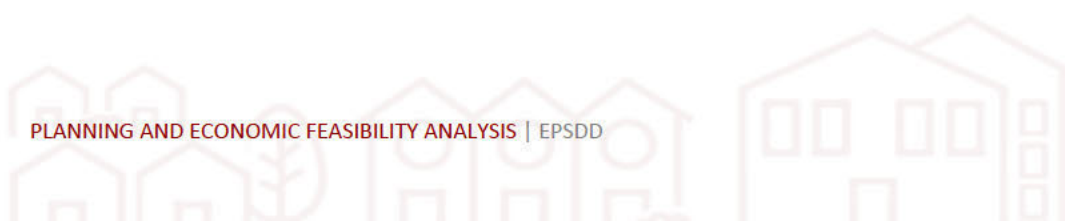
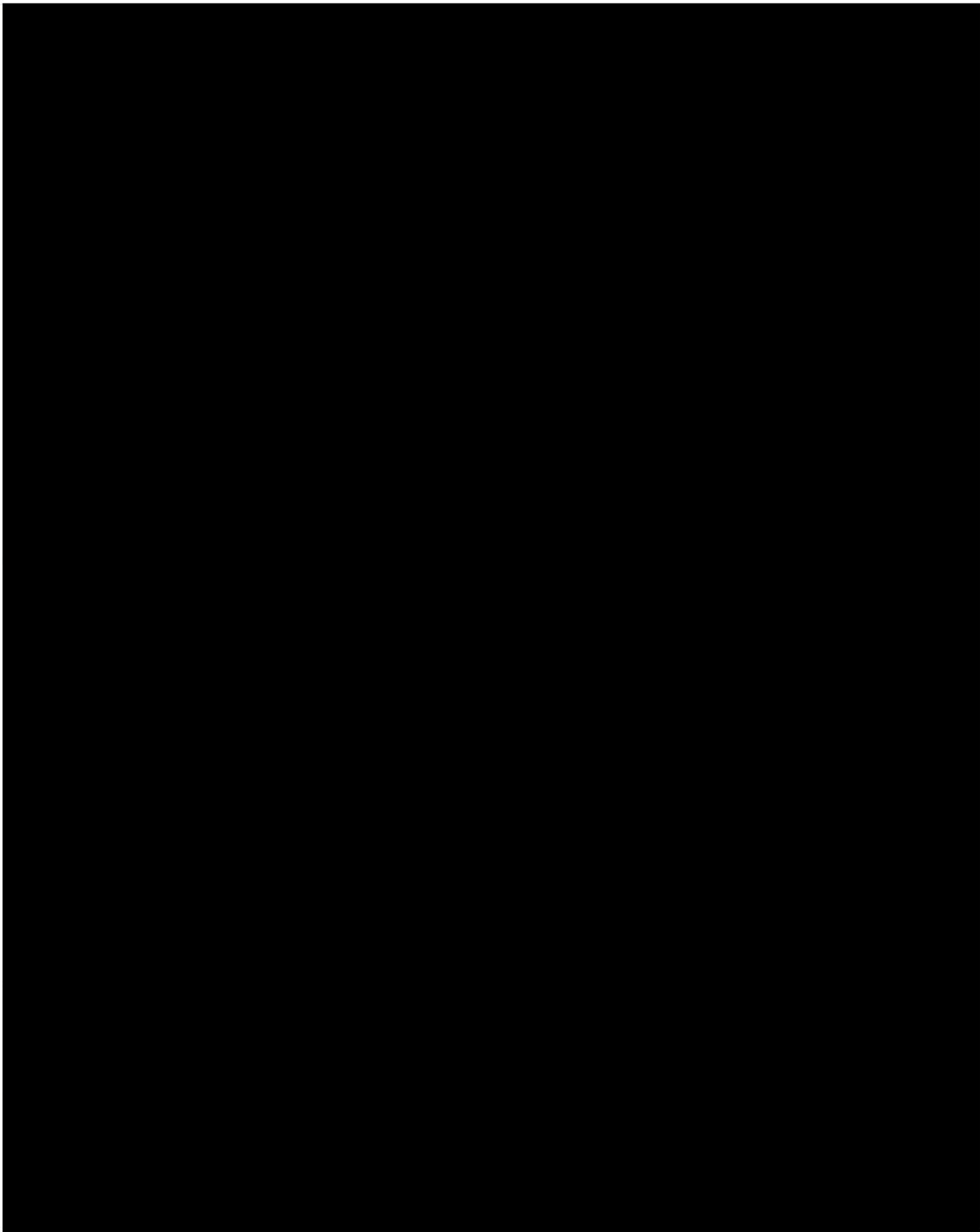
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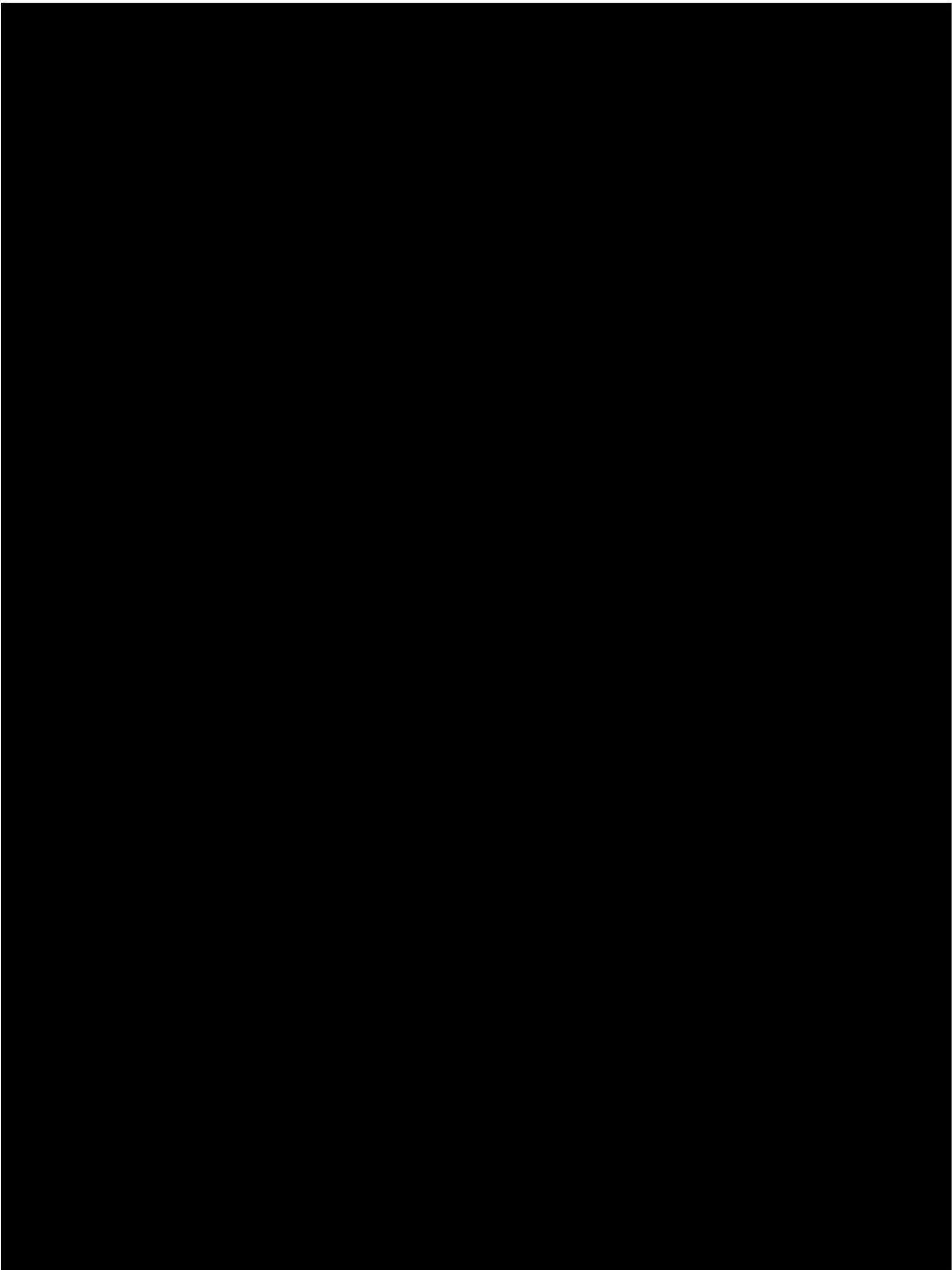
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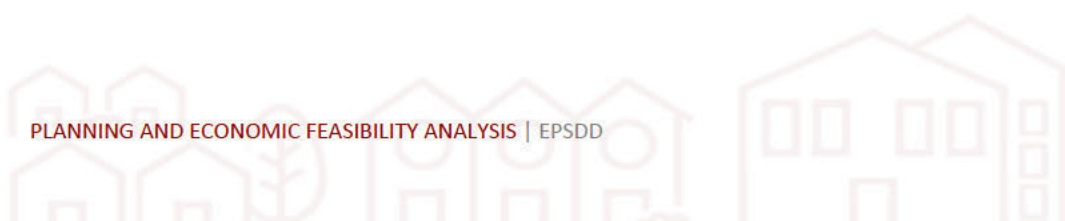
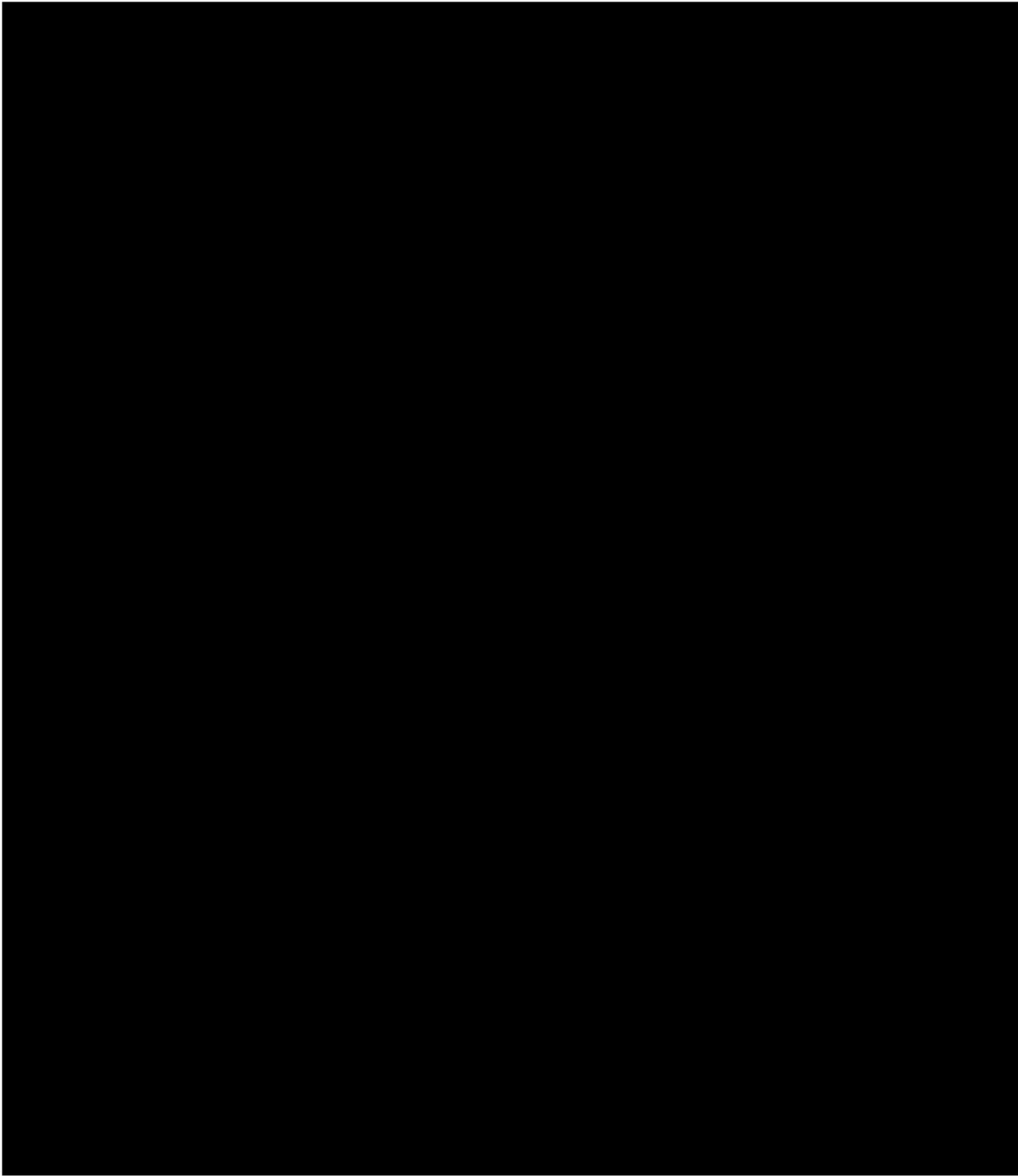
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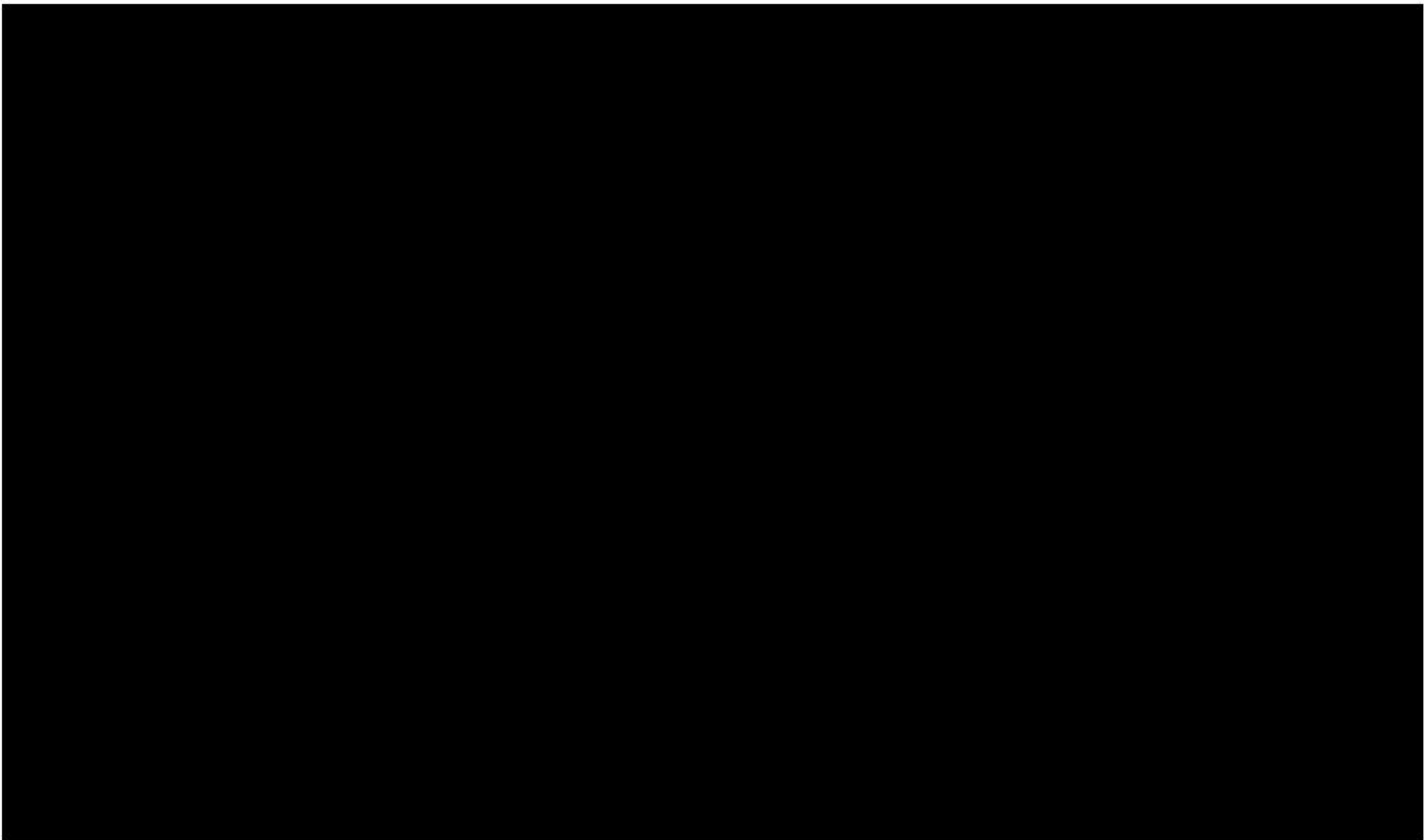
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3.7.2.4 *Sites baseline summaries*

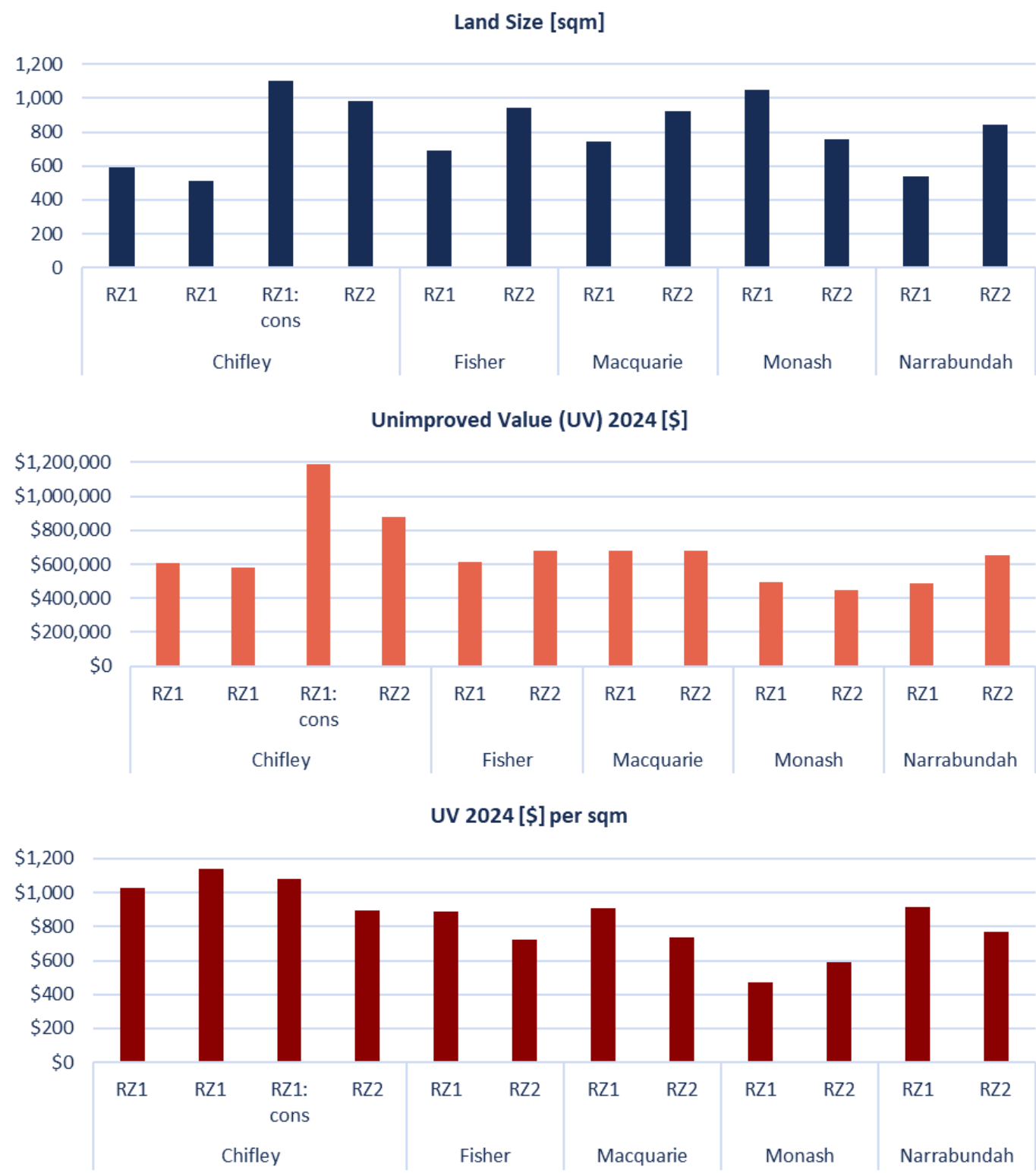
The sites each have benefits and costs, and these are tested further in the case study assessments. The broad parameters in the baseline are illustrated in Figure 37.

This shows the case study sample has a good mix of land sizes, some of which are within existing planning rules for development, other which would need change. Base values also show the differences between locations, and between zones in locations.

While not statistically representative, the sample illustrates some value difference between distant suburbs such as Narrabundah and Monash, but also nearby suburbs in Chifley and Fisher. In aggregate terms, RZ2 values are slightly higher than RZ1 in most of the precinct case studies. Conversely, when measured on a square metre basis the sample demonstrates a similar pattern reported in other discussions where the unimproved value per square metre appears to be higher in RZ1 compared to RZ2 in almost all locations.



Figure 37: Comparative metrics: baselines



FEASIBILITY RESULTS AND DISCUSSION





4.1 PRECINCT SCALE DEVELOPABILITY

Analysing the developability index results identifies broad parameters about the feasibility of achieving additional missing middle development in the case study precincts, as well as unique findings for each precinct.

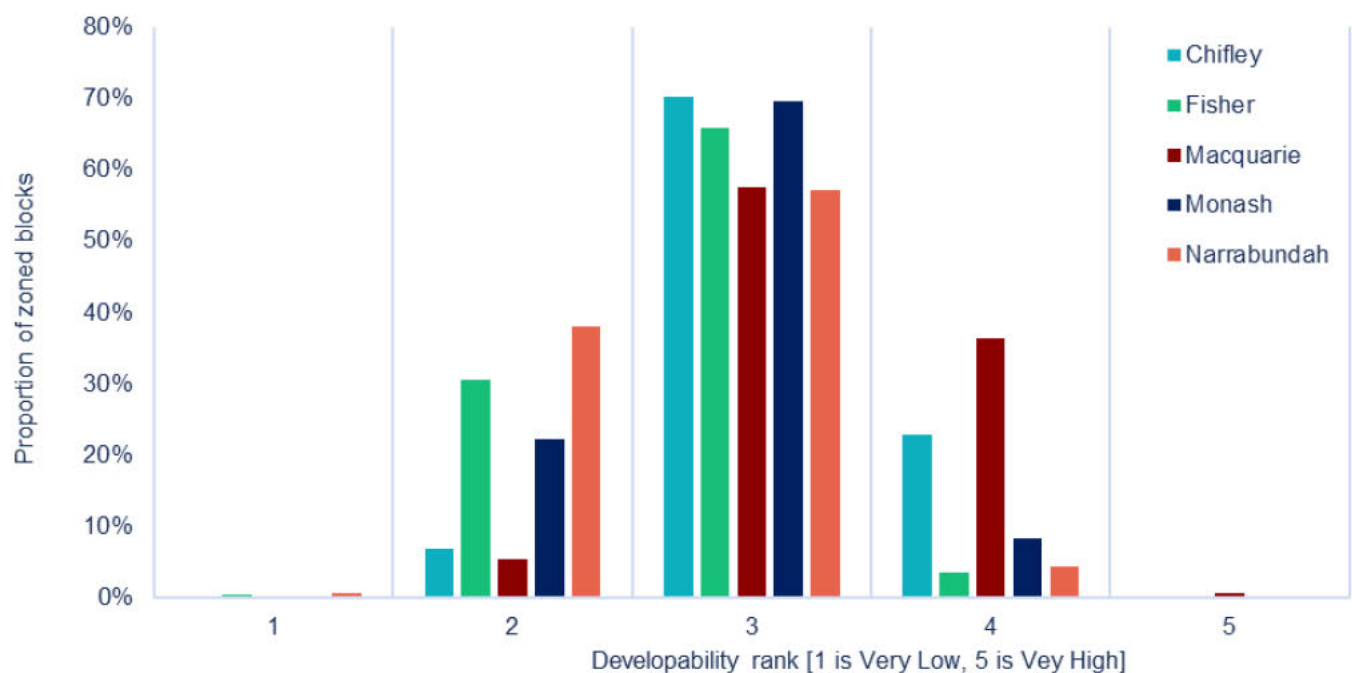
The high level findings are that:

- Out of 6,121 blocks in the sample, 12% have high to very high developability, while 64% have moderate developability.
- Around 24.4% have low to very low developability.
- In the RZ1 zoned land 7.8% of land has high to very high developability, 63.9% moderate and 28.3% low to very low developability.
- RZ2 zoned land achieved better outcomes overall, with 25.7% scoring high to very high outcomes, 62.6% moderate potential, and 11.7% low to very low.

If a threshold is set that a block must have an index score greater than 65%, then 40% of the sample would qualify as developable. If the threshold were lifted to 70% then 12% of the sample would qualify. The results suggest it is reasonable and conservative to estimate around 35% of blocks within the case study precincts are attractive for development. This finding is consistent with other research, with an analysis of Mr Fluffy blocks demonstrating a take up of additional develop rights at 33.1% of eligible parcels⁶⁹, and other resources provided by the project team demonstrating 36% of RZ2 could realise additional density following transect style analysis.

Each suburb has a unique pattern of developability scores. The suburb average developability scores are summarised in Figure 38.

Figure 38: Rank Distribution by Suburb



Note: Rank 1 is very low [DI 40-50%], rank 2 is low [DI 50-60%], rank 3 is moderate [DI 60-70%], rank 4 is high [DI 70-80%], and rank 5 is very high [DI 80%+].



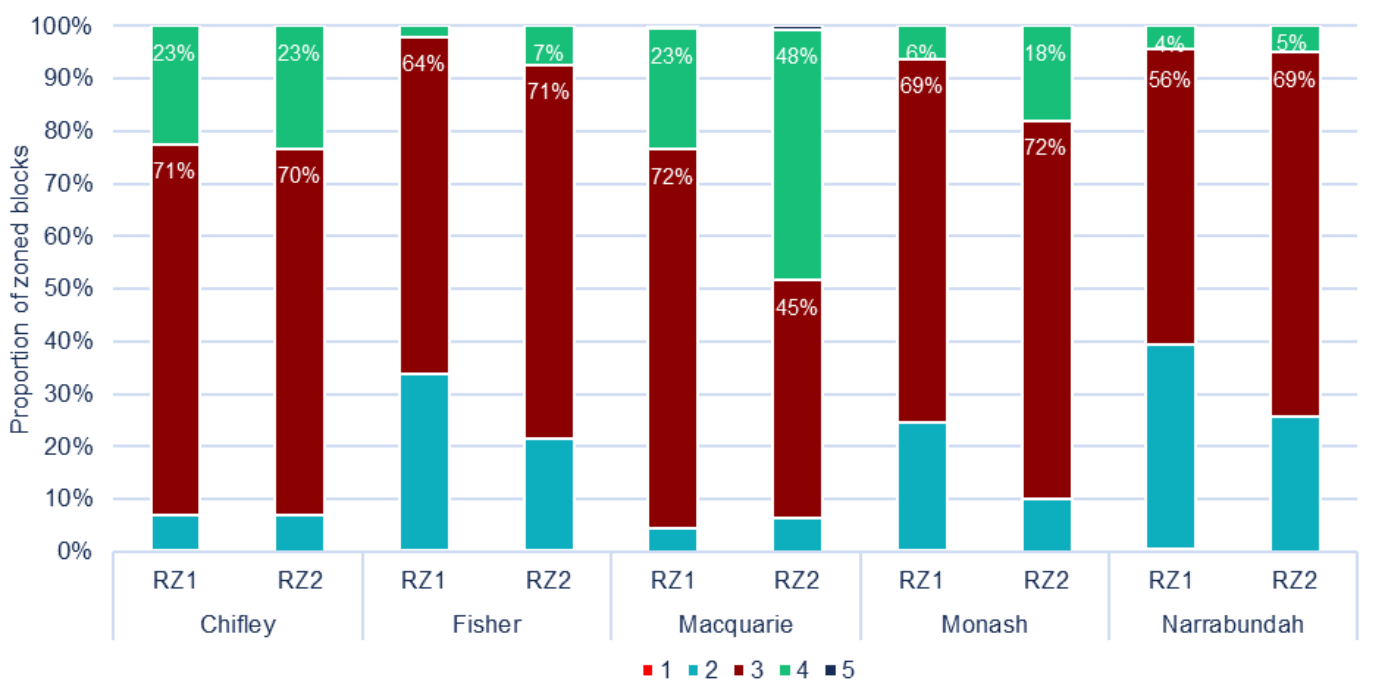
There is clearly a strong grouping in the middle rank (index score 60-70%). The developability index is generally higher in Macquarie and Chifley. Only Macquarie has sites that are very highly developable, while Fisher and Narrabundah have sites that receive very low scores.

The story is expanded when comparing case study precincts and zones. As summarised in Figure 39, while the concentration in the middle is still evident, other insights are:

- High developability scores in RZ1 in Chifley and Macquarie for more than 20% of sites.
- Macquarie having significantly higher developability index scores in RZ2 than all others (48%), and high developability scores in RZ2 in Chifley and Monash, each with more than 15% of sites.
- Generally low developability in Fisher and Narrabundah in both RZ1 and RZ2.

These general results are useful for broad interpretation, but they require contextual insights to understand what they mean, and how they could be improved.

Figure 39: Suburb and Zone developability ranking

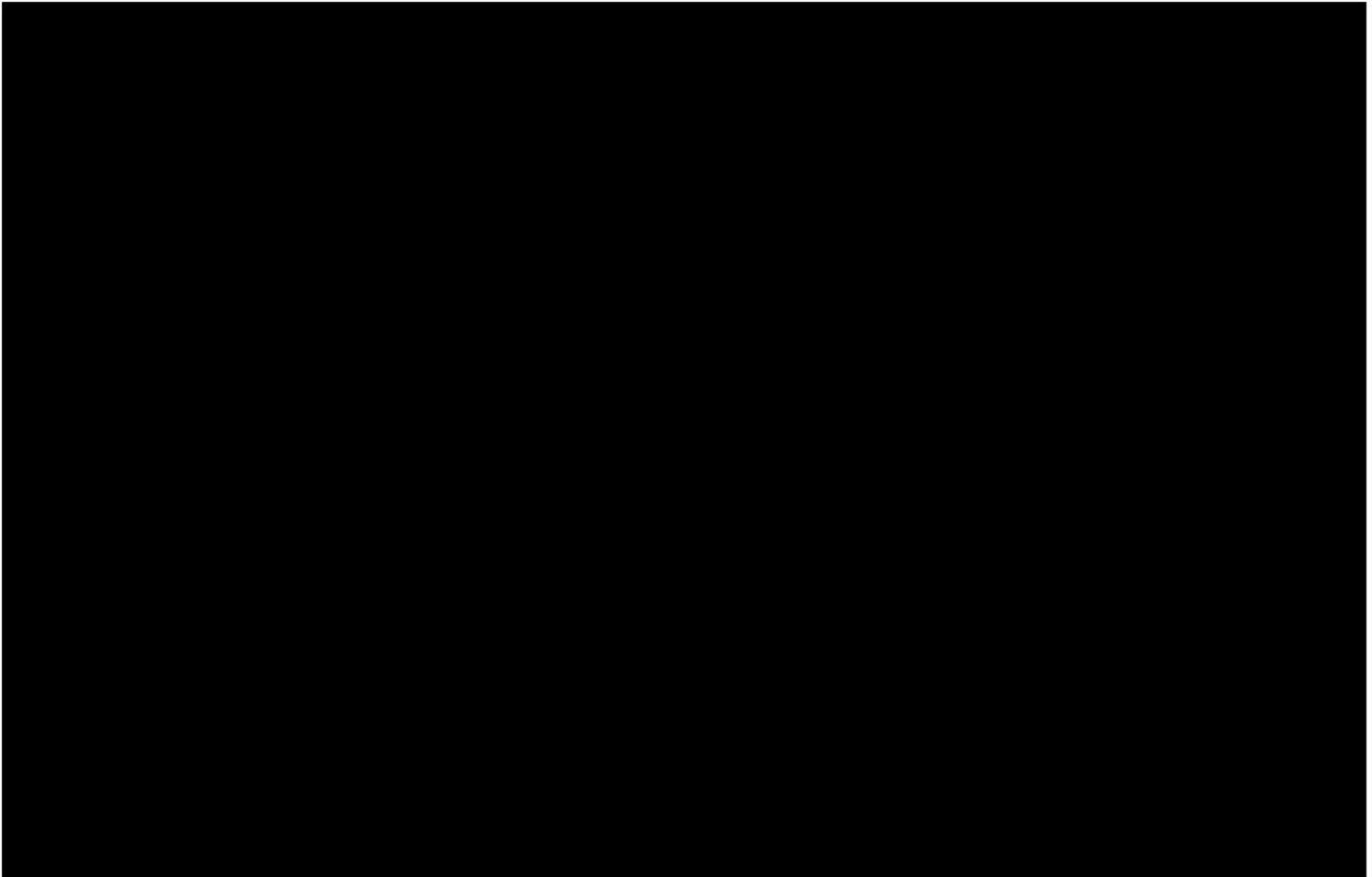


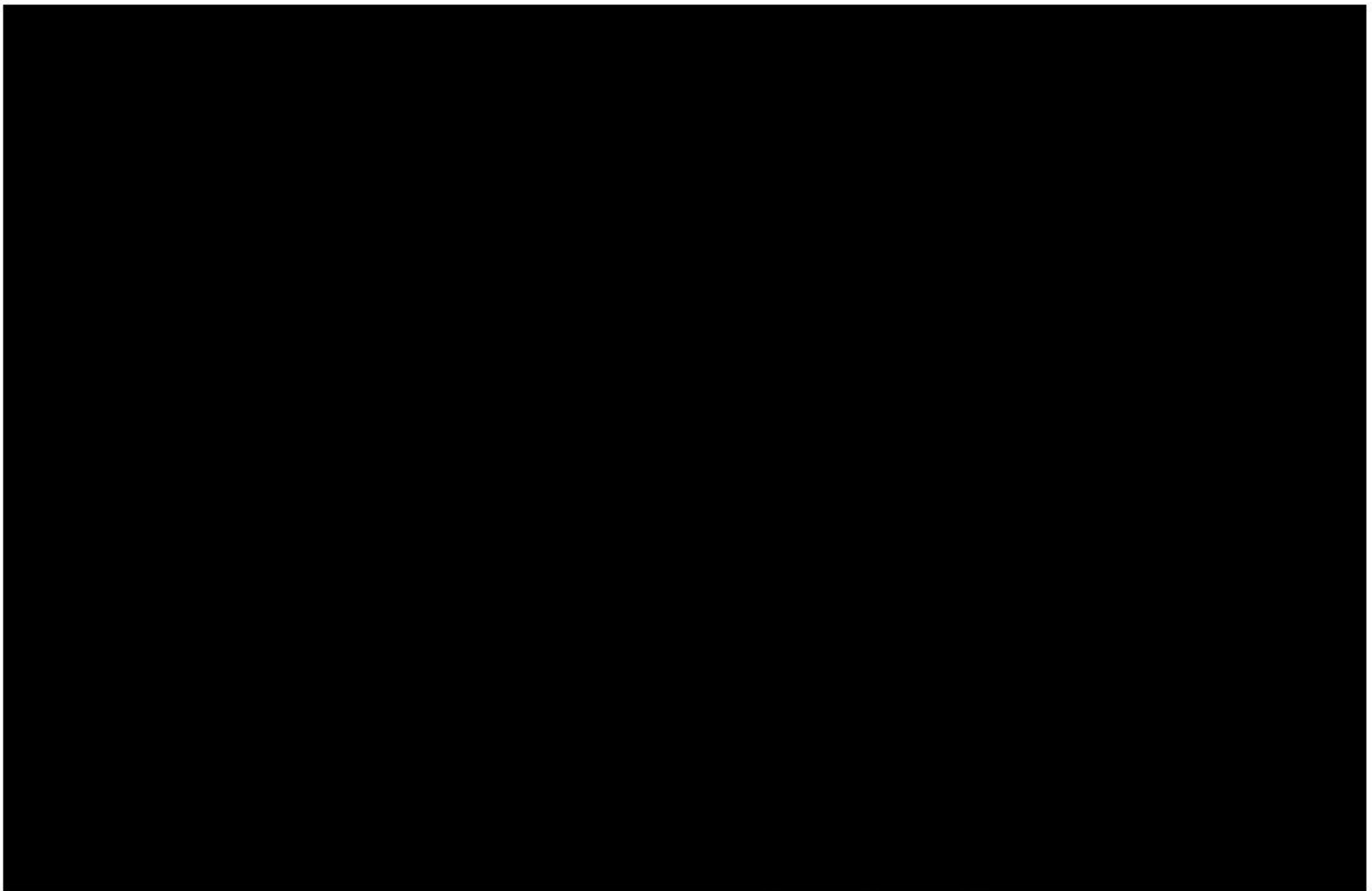
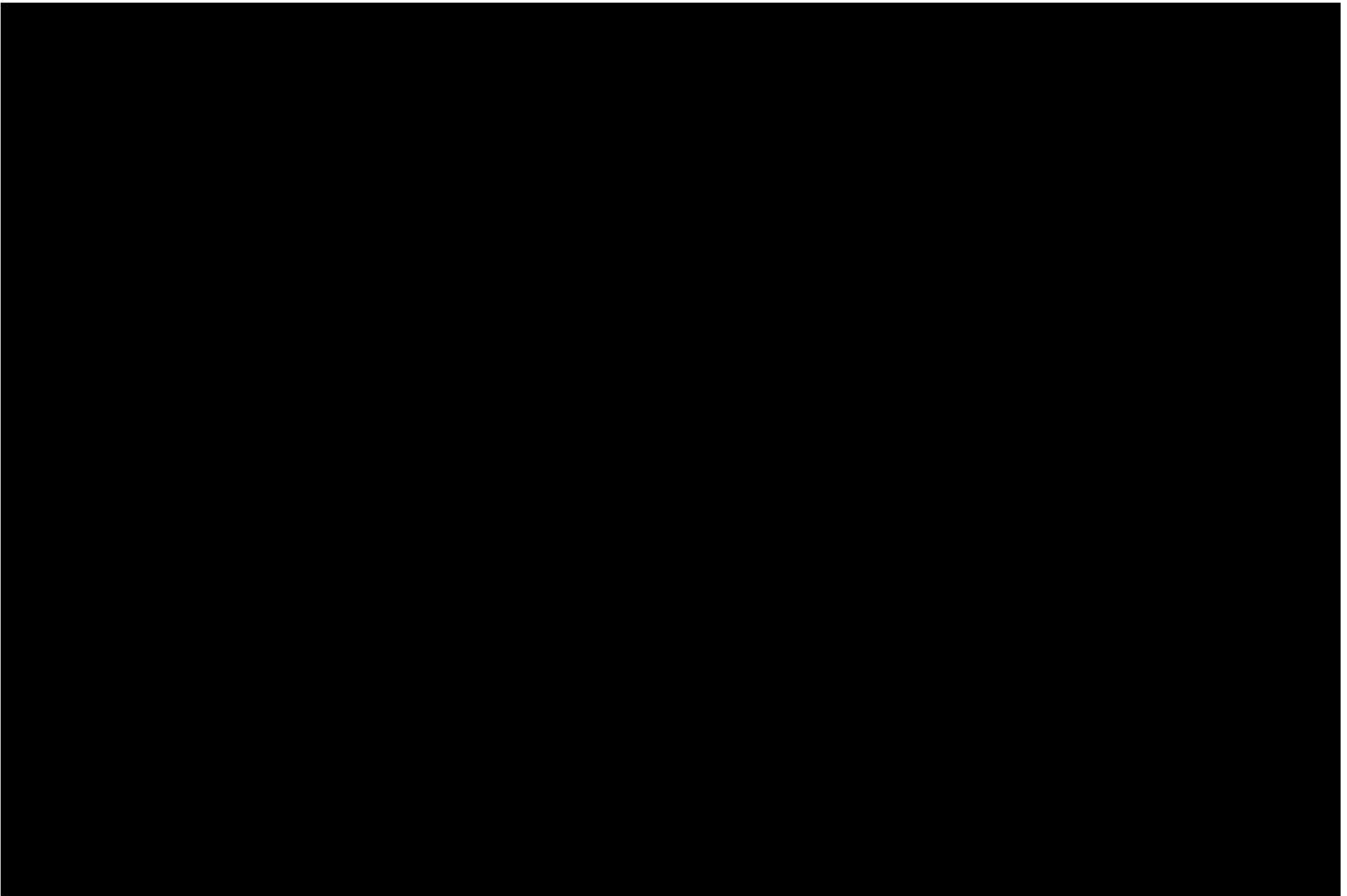
Note: Rank 1 is very low [DI 40-50%], rank 2 is low [DI 50-60%], rank 3 is moderate [DI 60-70%], rank 4 is high [DI 70-80%], and rank 5 is very high [DI 80%+].

Observation 25: The development attractiveness of blocks has been estimated using a developability index methodology. At a precinct scale most of the blocks have ‘moderate’ developability, with small but significant pockets of high and very high developability. Based on the analysis, and other government research, a conservative estimate is that around 35% of blocks in all case study precincts have attractive developability characteristics.

4.1.1 Precinct level results







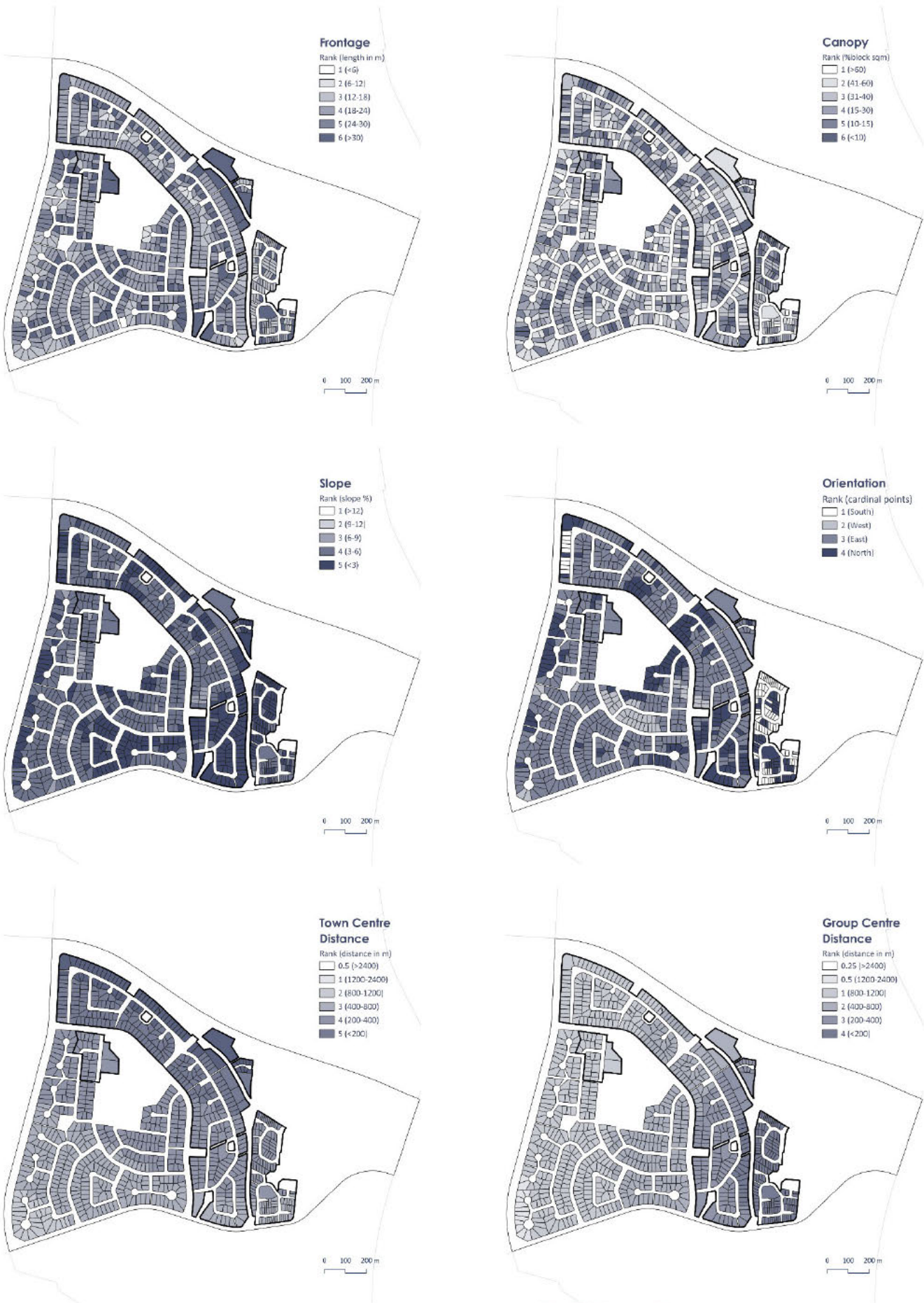


Observation 26: While current zoning is not a component of the developability index method, when zoning is overlaid on the developability results zone boundaries could be adjusted to maximise the potential for leases to be varied to a higher and better valued outcome, including shifting some blocks or combinations of blocks into higher density zoning.

The narrative for each precinct refers to the ways in which the combined attributes impact on block level scores. Several of the inputs have been discussed earlier (see: 2.3 Precinct approach and Annex 1). To understand the way the individual category scores impact on the aggregated developability index score refer to Figure 45 which illustrates each characteristics impact on the developability score for Macquarie.



Figure 45: DI characteristics for Macquarie





4.1.2 Patterns

Comparing and contrasting the scoring and the different maps provides insights about the feasibility of increasing yield in the RZ1 and RZ2 zones in these locations. Some material insights include:

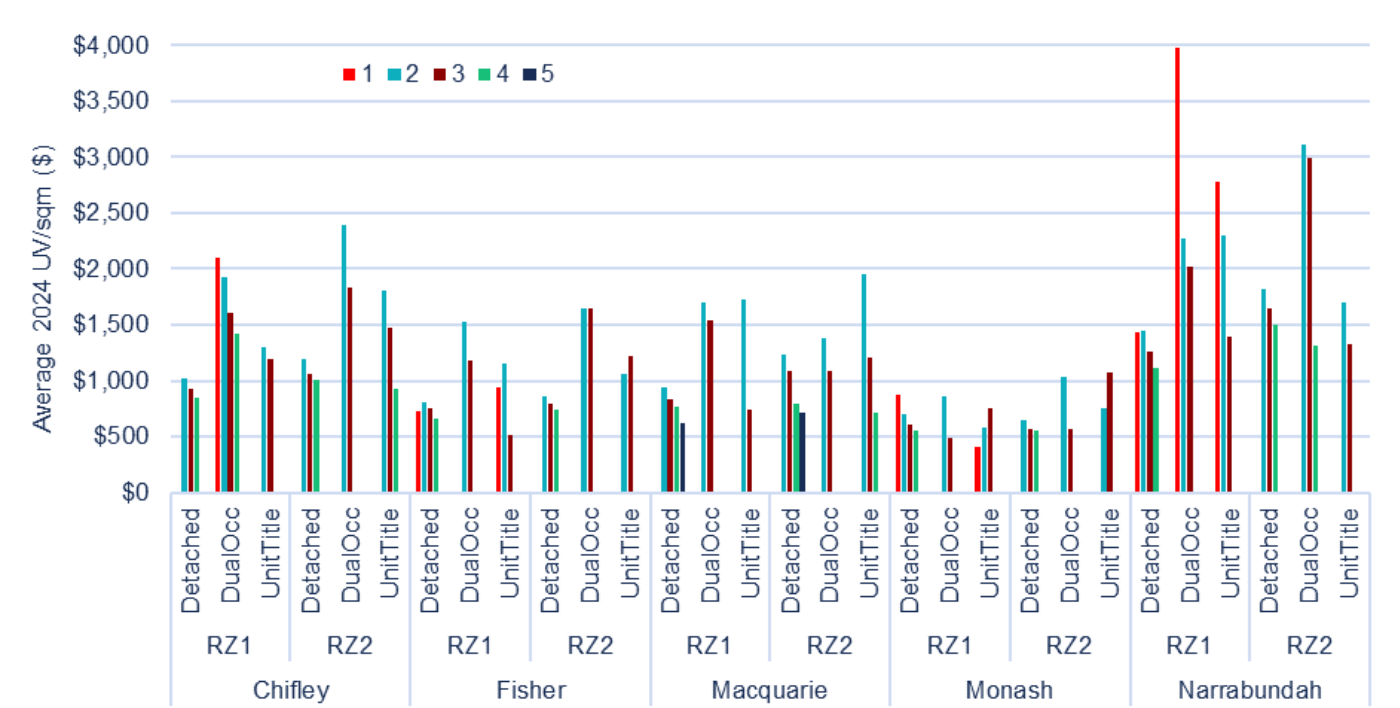
- Macquarie compared to Fisher demonstrates the potential from being collocated with local, group and town centres.
- Narrabundah, especially land in the northeast, illustrates the potential from allowing consolidation of well-located RZ1 sites, when compared to the northwest of the suburb.
- Chifley and Fisher are similar in location and patterns, however Chifley has more measured potential, primarily due to its location.
- Existing moderate density lowers developability scores in the short term, however, over a long enough time frame the blocks could be more attractive as population pressures increases.
- When it comes to raw development potential, existing zoning is not a significant factor determining whether improvements toward higher and better valued uses can be made.
- Similarly, the developability scores for some parcels suggest even medium density will not unlock full land potential. For example, along the eastern edge of Chifley, around the group centre in Macquarie, and at the edge of the Griffith and Narrabundah local centres, higher density is more likely to achieve better long-term outcomes.
- Current land size affects developability. Land size definitions in the planning framework have unclear provenance, and existing controls for RZ1 and RZ2 zones constrain development based on land size. These are influenced by historical patterns of subdivision. If strict land size definitions were removed, it is possible more land would seem developable.

Further, on the issue of relative values, there are continuing themes around values measured based on current usage. There is a declining relationship between higher developability index scores and unimproved values per sqm for all existing uses, zones, and precincts. As land size decreases in size unimproved values per sqm are higher. This analysis is subject to measurement issues discussed earlier.

However, it appears that lower developability index scores are currently associated with higher UV per sqm (see Figure 46) which at face value is counterintuitive.



Figure 46: Average 2024 UV/sqm by band, zone, and suburb



Note: Rank 1 is very low [DI 40-50%], rank 2 is low [DI 50-60%], rank 3 is moderate [DI 60-70%], rank 4 is high [DI 70-80%], and rank 5 is very high [DI 80%+]. UV per sqm is measures at block scale, and then averaged to zone, precinct, and apparent dwelling type.

The analysis results inform a key observation:

Observation 27: When viewed at a precinct scale matters that would improve developability that are within the control of the ACT Government are less rigid block size controls, the ability to consolidate and subdivide in all zones, allowing adjustments to block frontage/verge crossing definitions (for corner blocks), and simplifying controls in unit titled blocks to improve incentives for more complex redevelopments.



4.2 PRECINCT CASE STUDIES

Whereas the developability index provides insights at a precinct scale, the case study method provides block level insights about actual development feasibility. While these case studies are based on assumptions, they provide a filter for the index approach, illustrating how developability, planning and non-planning factors impact on the incentives to develop.

4.2.1 Scenarios analysed

To understand the feasibility of development on the case study sites a set of scenarios was developed. In general, for land in RZ1 and RZ2 zones the scenarios include:

- **Least gain (Least):** an option that achieves some additional development. Generally, this is a secondary residence in RZ1 or one additional dwelling with unit titling in RZ2. Generally this is a simple dual occupancy.
- **Modest/TP 2023 compliant (Modest):** a middle pathway that applies *Territory Plan 2023* rules as best as possible. This scenario seeks to maximise development subject to existing rules and site constraints, achieving at least one additional dwelling, but preferably more. It is 'modest' in the sense the scenario does not challenge the rules, but can generate an outcome better than a single residence or simple dual occupancy, and
- **Option that require MM reform (MM reform):** a scenario to assess site potential without reference to existing rules, or at least challenges the boundaries of the current regime, with the objective of achieving a missing middle development outcome. Typically the yield will exceed the 'least' and 'modest' scenarios.

Each scenario fits into the broad missing middle definition, but the reform scenario aims to assess more novel missing middle solutions. The high-level specific scenarios are summarised out in Table 13.

At face value there are 30 potential case studies. This is based on five precincts, with three case studies in each zone and two zones. In practice, when factoring in lease variation charge scenarios the case study volume increases to 50 (the base 30, less 5 scenarios that do not incur LVC, and then two LVC scenarios for each of the remaining 25 cases studies). After doing a first pass assessment of the case studies of the 50 potential solutions 15 were automatically excluded because of existing constraints—either sites being 'congested' from existing improvements that impede expansion such as additional secondary or dual occupancy options, or planning levers that do not permit development based on the scenario definition.

The remaining case studies were further curtailed. For example, as noted in the scenario table, in cases where existing planning controls are respected several case studies had to be excluded:

- A secondary residence and an additional unit titled dwelling in Chifley RZ1 due to on-site constraints, and block size limits.
- In Fisher, a unit titled additional dwelling due to the block size limits, and adding one dwelling to RZ2 due to on-site constraints.
- A secondary residence and a unit titled additional unit titled dwelling in Macquarie RZ1 due to on-site constraints, and block size limits.
- A secondary residence on RZ1 land, and an adding one dwelling to RZ2 in Monash, both due to site constraints.
- Achieving an additional unit titled dwelling in Narrabundah RZ1 due to land size limits.

For the remaining 40 case studies, the results are a function of a range of benchmarks and assumptions.



Table 13: Case study scenarios

Precinct	Zone	Least gain (Least)	Modest / TP 2023 compliant (Modest)	Options that require MM reform (MM reform)
Chifley	RZ1	na (constrained block)	na (not possible due to land size)	Consolidate 2 blocks, create 4 x 2 storey townhouses on Unit Title (UT)
	RZ2	Add one 1 storey dwelling with UT	Maximum rights with UT, results in 3 2 storey houses.	Subdivide into 2 blocks, duplex into 4 dwellings with UT, 2 storey walk up townhouse format
Fisher	RZ1	Add 90 sqm secondary residence	na (not possible due to land size)	Subdivide into 2 blocks, 2 x detached 2 storey townhouses
	RZ2	na (constrained block)	Knock down, max dwellings as 2 storey manor style on UT (4 dwellings over 2 storeys)	Knock down, subdivide to 3 x 2 storey luxury townhouses, walkway easement to connect pathway to road
Macquarie	RZ1	na (constrained block)	na (not possible due to land size)	Knock down, 2 luxury 2 storey townhouse dual occ on UT
	RZ2	Add one 2 storey 120 sqm dwelling on UT	Maximum dwellings, with UT, 2 storey attached terrace style	Subdivide, 3x, luxury 3 storey walk up townhouses
Monash	RZ1	na (constrained block)	Knock down, 240 sqm house and 120 sqm dual occ (1st house built DA exempt).	Knock down, subdivide into 3 blocks with 2 storey houses
	RZ2	na (constrained block)	Knock down, maximise development and duplex of 2 storey houses	Knock down, develop 6 units (3 per storey over 2 storeys) on UT
Narrabundah	RZ1	Add 90 sqm secondary residence over 2 storeys	na (not possible due to land size)	Knock down, build 3 compact 2 storey houses on UT
	RZ2	Add one 1 storey 120 sqm dwelling	Demolish base, subdivide, and maximise dwellings (2)	Develop a combination of three 2 bed and six 3 bed apartments(9 total) over 3 storeys on unit title.

Note: 'Constrained block' means having existing improvements that impede expansion, red highlighted cells illustrated excluded options, with the reason highlighted in parentheses within the cells.

Observation 28: After selecting case study sites, and before estimating case study results, two fundamental issues arose: some cases had land that meets existing rules for additional dwellings however existing improvements congest the land making uplift unfeasible, and some missing middle scenarios require development rights that do not exist under current zone rules (for example block size limits, subdivision and consolidation constraints, building to three storeys). These issues excluded 15 case studies. For example, If the 800 sqm limit on unit titled additional dwellings in RZ1 was relaxed four of the 15 excluded scenarios could have been tested.



4.2.3 Case study assumptions

Total feasibility, in a development sense, requires technical feasibility (can the project be done?) and financial viability (does the return on investment exceed a benchmark return on investment?). In practice every potential development project goes through extensive due diligence and feasibility modelling work which accounts for leaseholders' preferences, capacity, and capability to deliver a project, actual site constraints informed by lease documents and market settings, and incorporating expert inputs and analysis. This project does not have these inputs for each case study site, and is relying on a broad range of assumptions.

In the case studies there are five key stage-based elements estimated: Land, Planning, Fees and costs, Development, Taxes, and Finance. These are not differentiated between 'planning' and 'non-planning' in this section however the components emulate the broad feasibility framework outlined in *Section 3.0*. The goal of each case study is to estimate the financial feasibility of the scenarios as described, based on the assumptions set out below.

4.2.3.1 Land

Land stage settings are set out below.

Item	Covers
Block size	Original land size in sqm
Base: CIV Price	An estimate of the market price prior to any activity. In the absence of market prices this is a derived input.
Base: UV	The 2024 unimproved value reported by the ACT Government. ⁷⁰
Dwellings: Base	The number of dwellings on the block in the base
Trees: hinder	An estimate of the number of trees on site that would hinder development and are assumed to be removed in the scenario.
Frontage	The derived street frontage of the site.

If the case study proposes consolidating blocks, the base land size may increase to reflect the consolidated total. Conversely if the scenario proposes subdivision of the block, the resulting case study land size is estimated.

Due to the market data issue observed earlier the CIV is an estimate derived from an assumption that the UV is typically around 60% of the CIV.

The model allows for purchase costs, but these are not estimated. Purchase costs up to 3% of the base CIV could be incurred if a leaseholder chose to sell land to a builder/developer. In addition, the purchaser would pay stamp duty, which is also excluded in this modelling

4.2.3.2 Planning

There are many planning variables which might be included. For the case studies the key items most relevant for the model are set out below.

These assumptions do not mean to say other issues are not relevant, just that these factors provide a sufficient 'gateway' to understand broad parameters impacting on development. For example, there are separate and clear rules and guidance around tree canopy and planting ratios, however the modelling measures a planting ratio as it is assumed canopy is likely to be a component of any measurement of planting area.

The intention of this assumption is not to confuse different controls, but to set a soft constraint within the model.

⁷⁰ ACT Government, "Unimproved Value."



Item	Covers	Values
Block type	A range of options for block type based on size.	• Compact • Mid • Large • Multi
Site Coverage [by Zone]	The proportion of a block which could be developed at ground level.	• 40% • 45% • 60% • 70%
Planting	A non-statutory proportion of a block which is to be covered by plantings. This is used as a proxy for land required to be planted.	• 15% • 20% • 30% • 35%
Planting area	Derived from base block size.	Variable

4.2.3.3 Fees and costs

As noted in the development feasibility framework discussion, there are a wide array of possible expert services that may be required to achieve a DA, BA, Unit Title, and a certificate of occupancy. The potential list is extensive. While a full exposition of costs may be sensible, and necessary in a market-based assessment, this project has adopted a more limited set of assumptions to cover only major items. The summary of costs in the modelling is below.

Item	Values	Covers
Designer	\$30,000/dw	Estimated broad design and drafting. More extensive architectural designs are likely to be much higher.
DA fee	Link to DA Calculator	Algorithm based on the fee regulation ⁷¹
BA fee	\$7,000/dw	Market estimate including services and fees.
Professional fees	\$50,000/dw	Estimate of all extra services not already budgeted.
Power connection	\$15,000/site	Evo energy connection, market feedback
Water connection	\$10,000/site	Icon water connection, market feedback
Infrastructure	\$5,000/site	Other on and off-site works.
Trees	\$10,000/tree	Assessment and removal of hinderance trees.
Legals (conveyance)	\$1,500/dw	Common transfer legal documents
Sales Cost	1.8% sales price	Market feedback
Unit Title	\$15,000/if UT	Services, certification, and approval.
C of O	\$5,000/dw	Services, certification, and approval.
Other Holding	\$2,000 pa	Estimate for general items like utilities, security, and administration not otherwise defined.

The values ascribed are best estimates, based on defined regulations, market feedback and experience, or otherwise estimated as a rule of thumb.

Each project will have different parameters, and no model can reasonably estimate precise costs following the method adopted.

Many of the components are estimates, and some are relevant to some case studies but not others. Some are variable based on project size. The assumptions represent 'minimum' costs, but more importantly, this approach is more realistic than any modelling that sets a single simple flat fee for these costs.

⁷¹ See: Planning (Fees) Determination 2024, <https://www.legislation.act.gov.au/di/2024-107/>



4.2.3.4 Development

The development stage is more complicated, and responds to the specific case study outcomes being sought. The components cover the details of what will need to be done on-site to build the case studies. The assumptions do not allow for off-site works. As for earlier parts all components need to be assumed.

While the assumed development sets the quantity limit, the case studies are sensitive to the assumed cost per square metre of GFA. The adopted rates are those typically experienced in day-to-day industry discussions, and the rates are probably optimistic when compared to some benchmarks.⁷² Effectively the rates assumed are for 'modest' quality developments.

Item	Values	Covers
Max Coverage	Derived variable	Maximum envelope based on site coverage.
Residual	Derived variable	Land remaining after allowing for Max Cover and Planting Area. Measures persistent underutilisation.
Dwellings: demolish	Variable	The number of base dwellings to be removed in the case study.
Subdivision or consolidation (Sub Cons): Blocks	Variable	Estimated blocks after consolidation or subdivision.
Sub Cons: Area	Variable	Area of consolidated or subdivided land.
Sub Cons: Utilised	Variable	Estimated actual site cover of ground floor.
Sub Cons: GFA	Variable	Overall GFA from the proposed development.
Dwellings/Block	Variable	The number of dwellings per block. Alt: If there is no change to land, number of dwellings added per block.
Storeys	Variable	Storeys in the new development.
Other GFA: utilised	Variable	Estimated actual site cover of ground floor.
Other GFA: total	Variable	Total additional GFA on-site (excluding consolidation or subdivision).
Dwellings: Final	Derived	Dwellings to be delivered in the case study scenario.
\$/GFA	Construction cost rate assumed.	• \$3,200 house, single dual occ. • \$3,400 a 2-storey house, single dual occ • \$3,500 2-3s townhouse • \$3,500 unit with no lift • \$3,900 unit with a lift or complicated multi-unit build
Demolition	\$30,000/dw	Industry estimate, no contamination.
Construction	Derived	GFA times cost per GFA
Landscaping	\$10,000/site	Industry estimate
Contingency	10% of total	Industry practice to account for unforeseen risk
Duration: pre-build	Months: 3, 6, 9, 12, 18	Variable, based on perceived risk in pre-build phase.
Duration: build	Months: 6, 9, 12, 18	Variable, based on perceived risk in build phase.
Duration	Derived	Sum of pre- and build phases.

Another key sensitivity is duration. It is well established that duration increases holding and interest costs, and indirectly affects cost escalation risks. In the model it is assumed that approval and construction processes have separate risks, and combine to affect project duration. The duration result affects interest and holding costs.

⁷² See for example: BMT Quantity Surveying, "How Much Does It Cost To Build a House in 2024? | Average Building Costs."



4.2.3.5 Taxes

Taxes can be incurred at most stages of the development feasibility framework. The model does not attempt to estimate all taxes, for example the GST and Australian Government CGT and income taxes are excluded. The taxes which are included are below.

Item	Values	Covers
LVC (Sch 1)	Per Determination	See discussion. These apply to 'No limit' scenarios.
LVC (Sch 2)	Per Determination	See discussion. These apply to 'Limit' scenarios.
Rates	\$3,500/dw/pa	estimate based loosely on the whole of ACT.

The case studies are designed to accommodate stamp duty which would be incurred if a leaseholder chose to sell land to a builder/developer. Based on the assumptions about development it is set to zero.

The most complicated is the LVC, which is discussed further.

Lease variation charge

In most case studies assessed it is likely a change in the lease would be required, which would trigger an LVC. Because lease details are not included in the cases study inputs, the model needs to estimate LVC according to different LVC Determination schedules, and case study circumstances.

The guidance and provisions upon which the case studies rely are:

- 'Subdivision of a residential lease into two leases and an overall increase in the number of dwellings permitted on the resulting two leases: '...the LVC is the sum of the LVC for the subdivision (schedule 1) and the increase in the maximum number of dwellings from five to seven (schedule 2)' ⁷³, and
- Consolidation of two or more residential leases and an increase in the number of dwellings permitted on the consolidated lease: '... the LVC is the sum of the LVC for the consolidation (schedule 1) and the increase in the permitted number of dwellings from five to seven (schedule 2)' ⁷⁴ and
- 'If a development application relates to the chargeable variation of only 1 residential lease', including a variation to increase or limit the number of dwellings permitted on the land under the lease', then the lessee must vary the lease to limit the number of dwellings permitted on the land before subdividing the land. ⁷⁵

To handle this complexity, the case studies estimate two types of potential lease variation:

- **No limit:** a situation where a lease purpose clause does not define a dwelling limit. These scenarios rely on the LVC defined in Schedule 1 of the *Planning (Lease Variation Charges) Determination 2024*.
- **Limit:** a situation where a lease purpose clause does define a dwelling limit. These scenarios rely on the LVC defined in Schedule 2 of the *Planning (Lease Variation Charges) Determination 2024*. These charges are often referred to as 'codified LVC'.

Typically, the LVC on leases without a limit can be lower, as Schedule 1 rates are relatively lower, whereas Schedule 2 rates are codified based on pre-determined amounts by suburb and locality. The marginal impact of LVC between the scenarios cannot be generalised easily as it is entirely conditional on existing lease clauses and what a leaseholder would like to achieve.

To be clear, the scenarios do not estimate LVC outcomes between 'Standard chargeable variations' and 'Non-standard chargeable variations'. These concepts are defined in Section 331 and Section 332 of the *Planning Act 2023* respectively. The Schedule 1 and 2 rates adopted for the case study scenarios are both part of the class of s331 variations, however, only those leases which already include a dwelling limit will incur Schedule 2 codified charges.

⁷³ ACT Government, Explanatory Statement, *Planning (Lease Variation Charges) Determination 2024*, p. 3.

⁷⁴ ACT LVC Determination 2024, p. 4.

⁷⁵ ACT Government, *Planning (General) Regulation 2023 SL2023-20*, 1 January 2024, s 75 (1) (a) and (b).



The LVC input values are derived from the *Planning (Lease Variation Charges) Determination 2024*. The values are not repeated in this section, but resulting vales are demonstrated in the case study results tables. The *Planning (Lease Variation Charges) Determination 2024* indicates that the fees are expected to increase over the short term, and this escalation has not been included or assessed.

In the reform scenarios, where a case study proposes an outcome not available under current planning settings, the model estimates LVC assuming the change is permitted, with LVC charges as if the current LVC regime applies to the planning reform scenario.

4.2.3.6 Finance

A critical factor in achieving development is accessing sufficient capital. Earlier studies did not include finance costs which is a significant oversight. The case studies do not ask whether there is access to finance, they merely set out broad parameters that will inform the total cost of project delivery.

Typically, it is assumed developments in these RZs may be able to access 70% of end value as debt. The model also assumes the scale is small enough that there will be no need for mezzanine and senior debt structures, and that the development parties will access lower risk, lower cost senior debt from the retail banking sector.

The parameters for debt are below.

Item	Values	Covers
Establishment	1.5% of debt	Costs of establishment and managing debt
Interest	6.5% pa	Cost of funds.
Debt max	70% of end value	Industry estimate.

The case study uses a feedback method. Initially, the total costs, comprising construction costs, fees, and taxes, are compared to the potential end value. If the cost is less than 70%, then all costs are assumed borrowed. If the costs exceed 70%, debt is assumed at 70% with the residual being assumed as an equity contribution.

It is not possible to know if the parties have access to funds, but for the sake of the case study it is assumed they will.

The case studies aggregate the establishment cost, interest, and equity (if needed) as an estimate of *out-of-pocket costs*—those which cannot be borrowed. Again, for the sake of the case study it is assumed parties have access to funds for this purpose. Ideally the model would estimate the opportunity cost of this capital and factor lost returns into the outcome, however the goal is simplicity.

4.2.3.7 Outcomes

Each case study combines the various components to estimate a range of summary metrics. These metrics provide a range of lenses through which project feasibility can be assessed, based on the case study structure and the assumptions outlined.

The full set of outcomes observed are set out below.

Item	Values	Covers
Price (market)	Variable/dw	An estimate of the market price per additional dwellings.
Project cost	Derived	The sum of all fees and charges, development costs, taxes, and finance costs.
Gross revenue	Derived	Dwellings added times the price.
Pre-tax gross return	Derived	Gross revenue less project cost
Gross ROI: ex-land	Derived	Pre-tax gross return divided by project cost
Gross ROI: inc-land	Derived	Pre-tax gross return divided by project cost plus base CIV
End CIV	Derived	Base CIV plus gross revenue
CIV change	Derived	End CIV divided by adjusted base CIV (accounting for changes)



Case studies use the potential total return as the appropriate metric. Despite any holding of property by the leaseholder, market prices reflect the opportunity cost of holding. Even where not all developments are sold, the total value should be considered to compare the different case studies on a like-for-like basis.

The case studies do not account for any Australian Government tax. It is fair to say there would be some tax impact, and the results presented would overstate the 'in-pocket' consequence from the case studies. Nevertheless, the results remain an overestimate of the returns to development, and should not be inferred as potential wealth created in these projects.

Observation 29: Several key assumptions in the case studies are at the low to mid end of the range of possible values, and could be considered 'optimistic'. Case study results are estimated in pre-tax terms. There would certainly be some income, GST, and CGT consequences. The reported results must be seen in this light—they overestimate returns on optimistic inputs, and do not translate to increased wealth. They set a magnitude and direction to be compared to industry ROI benchmarks to understand potential gross returns from the case studies.

4.2.4 Broad results

Unsurprisingly, given the unique local constraints and opportunities in the case study precincts and case studies, the results are rich and varied.

Of the 55 case studies 15 were excluded, 32 have a positive gross rate of return, and 8 result in losses. Including land costs in the base resulted in 15 scenarios returning more than the 17% gross return on investment (ROI) benchmark. The highest result is for the Narrabundah RZ2 case study that cannot currently be delivered as it requires missing middle reform to achieve a 3 storey height. In terms of negative ROI results, four were incurred in the missing middle reform scenarios.

In terms of location only Narrabundah recorded all positive results, however just four from nine results exceed the target ROI. Monash performed the worst with three losses from eight scenarios—it did however have one result above the target ROI in the missing middle scenario. A high-level result summary is summarised in Figure 47.

Generally, RZ2 results have more positive ROIs across more case studies assessed. For RZ1 results there is more variability, with some high returns, but most options are marginal or negative. Large positive results are generally associated with the smaller scale lower risk projects, however there are significant positive gains from reforms to missing middle cases, however they typically do not meet the target ROI threshold. For example, for all positive gains (n=32):

- 10 are in RZ1, of which eight are in missing middle reform scenarios.
- Of the 10 positive RZ1 results just two exceed the ROI benchmark.
- 22 are in RZ2 cases, of which eight are in missing middle reform scenarios (not the same eight as in the RZ1 record)
- Of the 22 positive RZ2 results, 13 exceed the ROI benchmark.

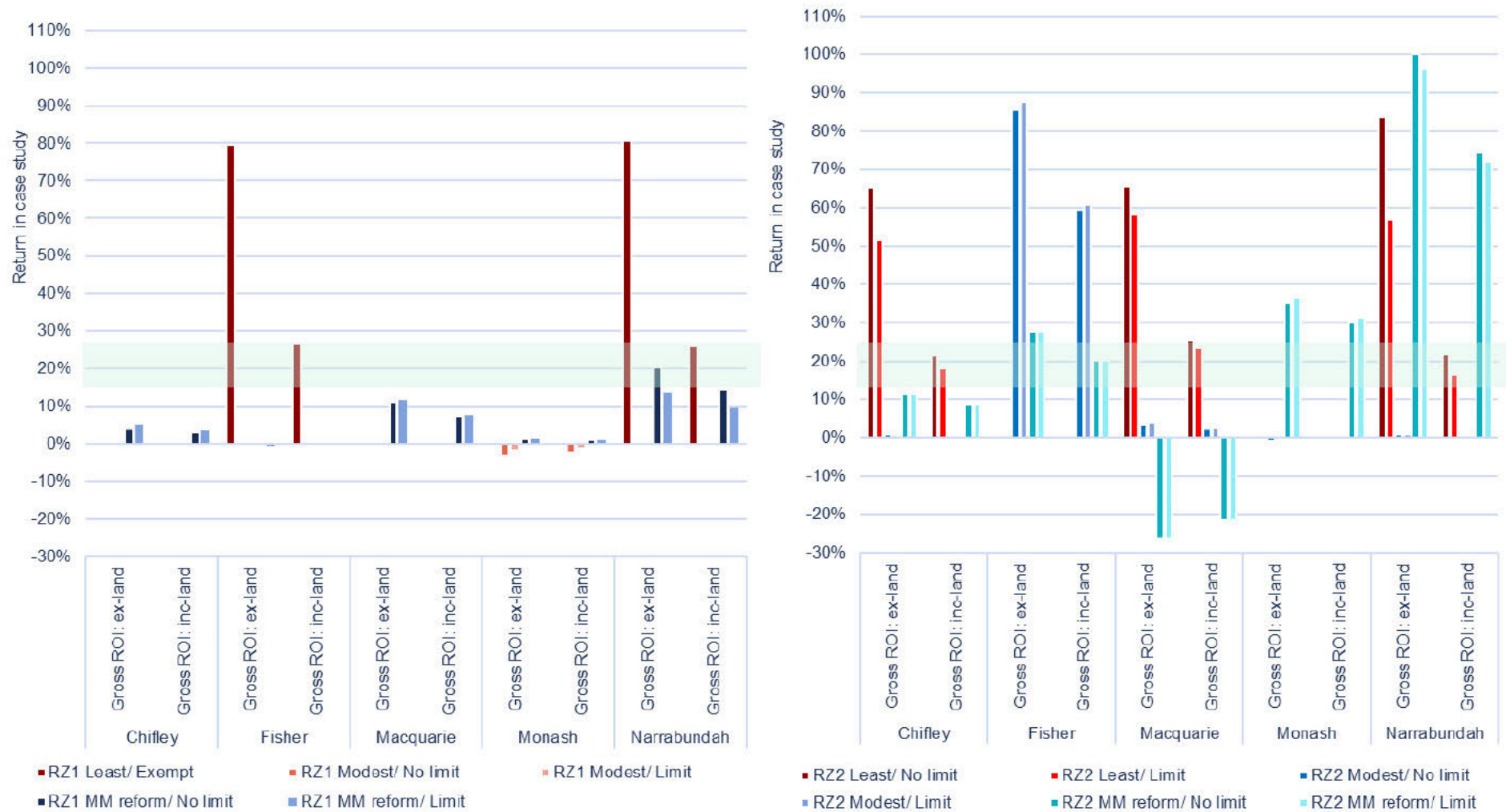
Across all the 32 cases that make a positive ROI 16 cannot currently be achieved, or would face significant approval challenges, as they require missing middle reform.

Observation 30: From 55 case studies only 32 have positive returns, and 15 achieve a gross ROI above the 17% benchmark. Of the 32 positive results 16 are based on missing middle reform cases that cannot be delivered under current planning settings.

A complete set of summary results for the precinct case studies are shared in Table 14 through to Table 18, with fully detailed results in Annex 2 (Table 23 through to Table 27).



Figure 47: Estimated case study returns



Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. The absence of a scenario result reflects its exclusion. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes.



Table 14: High level summary table: Chifley

Category	Metric	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
			Exempt	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
Land	Block size	sqm	593	593	593	1,103	1,103	981	981	981	981	981	981
	Base: CIV Price	est \$	\$1,015,000	\$1,015,000	\$1,015,000	\$1,985,000	\$1,985,000	\$1,466,667	\$1,466,667	\$1,466,667	\$1,466,667	\$1,466,667	\$1,466,667
	Base: UV	2024\$	\$609,000	\$609,000	\$609,000	\$1,191,000	\$1,191,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000
	Dwellings: Base	#	1	1	1	2	2	1	1	1	1	1	1
Fees and costs	Total	\$				\$641,327	\$641,327	\$184,916	\$184,916	\$483,916	\$483,916	\$642,883	\$642,883
Development	Dwellings: Final	#				4	4	2	2	3	3	4	4
	Construction	\$				\$3,368,200	\$3,368,200	\$433,400	\$433,400	\$2,512,400	\$2,512,400	\$3,278,000	\$3,278,000
	Duration	m				24	24	15	15	24	24	30	30
Taxes	LVC Total	\$				\$167,500	\$127,500	\$40,000	\$99,375	\$120,000	\$150,000	\$187,500	\$187,500
	Total	\$				\$181,500	\$141,500	\$44,375	\$103,750	\$127,000	\$157,000	\$196,250	\$196,250
Finance	Interest	\$				\$381,383	\$377,743	\$53,844	\$58,668	\$406,031	\$409,931	\$669,034	\$669,034
Outcomes	Project cost	\$				\$4,616,416	\$4,572,356	\$726,475	\$791,564	\$3,576,197	\$3,610,547	\$4,847,924	\$4,847,924
	Gross revenue	\$				\$4,800,000	\$4,800,000	\$1,200,000	\$1,200,000	\$3,600,000	\$3,600,000	\$5,400,000	\$5,400,000
	Pre-tax gross return	\$				\$183,584	\$227,644	\$473,525	\$408,436	\$23,803	-\$10,547	\$552,076	\$552,076
	Gross ROI: ex-land	%				4.0%	5.0%	65.2%	51.6%	0.7%	-0.3%	11.4%	11.4%
	Gross ROI: inc-land	%				2.8%	3.5%	21.6%	18.1%	0.5%	-0.2%	8.7%	8.7%
	End CIV	\$	\$1,015,000	\$1,015,000	\$1,015,000	\$4,800,000	\$4,800,000	\$2,666,667	\$2,666,667	\$5,066,667	\$5,066,667	\$6,866,667	\$6,866,667
	CIV change	%	0.0%	0.0%	0.0%	141.8%	141.8%	81.8%	81.8%	245.5%	245.5%	368.2%	368.2%

Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes. For all summary and detailed tables 'Dwellings: Final' is the number of all dwellings after the development occurs. The modelling tool number will not match as the modelling tool measures the number of dwellings constructed. For example, the 'least' option will have a base dwelling plus one as the final count, but measure 1 constructed dwelling in the modelling tool.



Table 15: High level summary table: Fisher

Category	Metric	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
			Exempt	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
Land	Block size	sqm	691	691	691	691	691	944	944	944	944	944	944
	Base: CIV Price	est \$	\$1,025,000	\$1,025,000	\$1,025,000	\$1,025,000	\$1,025,002	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667
	Base: UV	2024\$	\$615,000	\$615,000	\$615,000	\$615,000	\$615,001	\$679,000	\$679,000	\$679,000	\$679,000	\$679,000	\$679,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
Fees and costs	Total	\$	\$154,001			\$277,293	\$277,293			\$625,376	\$625,376	\$473,149	\$473,149
Development	Dwellings: Final	#	2			2	2			4	4	3	3
	Construction	\$	\$319,550			\$1,614,800	\$1,614,800			\$1,534,500	\$1,534,500	\$2,080,265	\$2,080,265
	Duration	m	12			21	21			18	18	24	24
Taxes	LVC Total	\$	\$0			\$61,250	\$61,250			\$160,000	\$135,000	\$110,000	\$110,000
	Total	\$	\$3,500			\$67,375	\$67,375			\$165,250	\$140,250	\$117,000	\$117,000
Finance	Interest	\$	\$31,008			\$222,889	\$222,889			\$226,700	\$224,262	\$347,154	\$347,154
Outcomes	Project cost	\$	\$515,215			\$2,211,749	\$2,211,749			\$2,586,702	\$2,558,890	\$3,057,624	\$3,057,624
	Gross revenue	\$	\$925,000			\$2,200,000	\$2,200,000			\$4,800,000	\$4,800,000	\$3,900,000	\$3,900,000
	Pre-tax gross return	\$	\$409,785			-\$11,749	-\$11,749			\$2,213,298	\$2,241,110	\$842,376	\$842,376
	Gross ROI: ex-land	%	79.5%			-0.5%	-0.5%			85.6%	87.6%	27.6%	27.6%
	Gross ROI: inc-land	%	26.6%			-0.4%	-0.4%			59.5%	60.7%	20.1%	20.1%
	End CIV	\$	\$1,950,000	\$1,025,000	\$1,025,000	\$3,225,000	\$3,225,002	\$1,131,667	\$1,131,667	\$5,931,667	\$5,931,667	\$5,031,667	\$5,031,667
	CIV change	%	90.2%	0.0%	0.0%	214.6%	214.6%	0.0%	0.0%	424.2%	424.2%	344.6%	344.6%

Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes. For all summary and detailed tables 'Dwellings: Final' is the number of all dwellings after the development occurs. The modelling tool number will not match as the modelling tool measures the number of dwellings constructed. For example, the 'least' option will have a base dwelling plus one as the final count, but measure 1 constructed dwelling in the modelling tool.



Table 16: High level summary table: Macquarie

Category	Metric	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
			Exempt	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
Land	Block size	sqm	747	747	747	747	747	925	925	925	925	925	925
	Base: CIV Price	est \$	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000
	Base: UV	2024\$	\$679,000	\$679,000	\$679,000	\$679,000	\$679,000	\$681,000	\$681,000	\$681,000	\$681,000	\$681,000	\$681,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
Fees and costs	Total	\$				\$317,630	\$317,630	\$164,990	\$164,990	\$315,580	\$315,580	\$452,543	\$452,543
Development	Dwellings: Final	#				2	2	2	2	2	2	3	3
	Construction	\$				\$1,591,700	\$1,591,700	\$451,550	\$451,550	\$1,684,100	\$1,684,100	\$3,855,500	\$3,855,500
	Duration	m				21	21	15	15	18	18	24	24
Taxes	LVC Total	\$				\$80,000	\$71,875	\$40,000	\$71,875	\$80,000	\$71,875	\$128,750	\$128,750
	Total	\$				\$86,125	\$78,000	\$44,375	\$76,250	\$85,250	\$77,125	\$135,750	\$135,750
Finance	Interest	\$				\$226,983	\$226,059	\$53,699	\$56,289	\$203,281	\$202,488	\$404,385	\$404,385
Outcomes	Project cost	\$				\$2,252,370	\$2,243,199	\$724,528	\$759,471	\$2,319,484	\$2,310,445	\$4,894,837	\$4,894,837
	Gross revenue	\$				\$2,500,000	\$2,500,000	\$1,200,000	\$1,200,000	\$2,400,000	\$2,400,000	\$3,600,000	\$3,600,000
	Pre-tax gross return	\$				\$247,630	\$256,801	\$475,472	\$440,529	\$80,516	\$89,555	-\$1,294,837	-\$1,294,837
	Gross ROI: ex-land	%				11.0%	11.4%	65.6%	58.0%	3.5%	3.9%	-26.5%	-26.5%
	Gross ROI: inc-land	%				7.3%	7.6%	25.6%	23.3%	2.3%	2.6%	-21.5%	-21.5%
	End CIV	\$	\$1,131,667	\$1,131,667	\$1,131,667	\$3,631,667	\$3,631,667	\$2,335,000	\$2,335,000	\$3,535,000	\$3,535,000	\$4,735,000	\$4,735,000
	CIV change	%	0.0%	0.0%	0.0%	220.9%	220.9%	105.7%	105.7%	211.5%	211.5%	317.2%	317.2%

Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes. For all summary and detailed tables 'Dwellings: Final' is the number of all dwellings after the development occurs. The modelling tool number will not match as the modelling tool measures the number of dwellings constructed. For example, the 'least' option will have a base dwelling plus one as the final count, but measure 1 constructed dwelling in the modelling tool.



Table 17: High level summary table: Monash

Category	Metric	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
			Exempt	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
Land	Block size	sqm	1,050	1,050	1,050	1,050	1,050	758	758	758	758	758	758
	Base: CIV Price	est \$	\$820,000	\$820,000	\$820,000	\$820,000	\$820,000	\$741,667	\$741,667	\$741,667	\$741,667	\$741,667	\$741,667
	Base: UV	2024\$	\$492,000	\$492,000	\$492,000	\$492,000	\$492,000	\$445,000	\$445,000	\$445,000	\$445,000	\$445,000	\$445,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
Fees and costs	Total	\$		\$310,079	\$310,079	\$453,183	\$453,183			\$325,984	\$325,984	\$888,249	\$888,249
Development	Dwellings: Final	#		2	2	3	3			2	2	6	6
	Construction	\$		\$1,305,700	\$1,305,700	\$2,388,980	\$2,388,980			\$1,833,700	\$1,833,700	\$2,746,700	\$2,746,700
	Duration	m		15	15	24	24			18	18	24	24
Taxes	LVC Total	\$		\$80,000	\$51,250	\$105,000	\$105,000			\$80,000	\$51,250	\$240,000	\$190,625
	Total	\$		\$84,375	\$55,625	\$112,000	\$112,000			\$85,250	\$56,500	\$247,000	\$197,625
Finance	Interest	\$		\$138,138	\$135,802	\$268,829	\$268,829			\$153,217	\$151,255	\$504,653	\$498,235
Outcomes	Project cost	\$		\$1,863,794	\$1,832,277	\$3,254,010	\$3,254,010			\$2,421,722	\$2,390,708	\$4,444,831	\$4,388,297
	Gross revenue	\$		\$1,800,000	\$1,800,000	\$3,300,000	\$3,300,000			\$2,400,000	\$2,400,000	\$6,000,000	\$6,000,000
	Pre-tax gross return	\$		-\$63,794	-\$32,277	\$45,990	\$45,990			-\$21,722	\$9,292	\$1,555,169	\$1,611,703
	Gross ROI: ex-land	%		-3.4%	-1.8%	1.4%	1.4%			-0.9%	0.4%	35.0%	36.7%
	Gross ROI: inc-land	%		-2.4%	-1.2%	1.1%	1.1%			-0.7%	0.3%	30.0%	31.4%
	End CIV	\$	\$820,000	\$2,620,000	\$2,620,000	\$4,120,000	\$4,120,000	\$741,667	\$741,667	\$3,141,667	\$3,141,667	\$6,741,667	\$6,741,667
	CIV change	%	0.0%	219.5%	219.5%	402.4%	402.4%	0.0%	0.0%	323.6%	323.6%	809.0%	809.0%

Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes. For all summary and detailed tables 'Dwellings: Final' is the number of all dwellings after the development occurs. The modelling tool number will not match as the modelling tool measures the number of dwellings constructed. For example, the 'least' option will have a base dwelling plus one as the final count, but measure 1 constructed dwelling in the modelling tool.



Table 18: High level summary table: Narrabundah

Category	Metric	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
			Exempt	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
Land	Block size	sqm	536	536	536	536	536	844	844	844	844	844	844
	Base: CIV Price	est \$	\$1,166,667	\$1,166,667	\$1,166,667	\$1,166,667	\$1,166,667	\$2,016,667	\$2,016,667	\$2,016,667	\$2,016,667	\$2,016,667	\$2,016,667
	Base: UV	2024\$	\$700,000	\$700,000	\$700,000	\$700,000	\$700,000	\$1,210,000	\$1,210,000	\$1,210,000	\$1,210,000	\$1,210,000	\$1,210,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
Fees and costs	Total	\$	\$145,993			\$456,623	\$456,623	\$176,682	\$176,682	\$314,604	\$314,604	\$1,363,773	\$1,363,773
Development	Dwellings: Final	#	1			3	3	2	2	2	2	9	9
	Construction	\$	\$354,310			\$1,811,150	\$1,811,150	\$425,150	\$425,150	\$1,841,180	\$1,841,180	\$3,274,370	\$3,274,370
	Duration	m	15			24	24	15	15	18	18	30	30
Taxes	LVC Total	\$	\$0			\$120,000	\$262,500	\$40,000	\$150,000	\$157,500	\$157,500	\$320,000	\$420,000
	Total	\$	\$4,375			\$127,000	\$269,500	\$44,375	\$154,375	\$162,750	\$162,750	\$328,750	\$428,750
Finance	Interest	\$	\$41,005			\$311,320	\$329,845	\$52,504	\$61,442	\$226,057	\$226,057	\$807,120	\$823,370
Outcomes	Project cost	\$	\$553,253			\$2,742,015	\$2,905,177	\$708,404	\$828,992	\$2,579,369	\$2,579,369	\$5,848,517	\$5,966,267
	Gross revenue	\$	\$1,000,000			\$3,300,000	\$3,300,000	\$1,300,000	\$1,300,000	\$2,600,000	\$2,600,000	\$11,700,000	\$11,700,000
	Pre-tax gross return	\$	\$446,747			\$557,985	\$394,823	\$591,596	\$471,008	\$20,631	\$20,631	\$5,851,483	\$5,733,733
	Gross ROI: ex-land	%	80.7%			20.3%	13.6%	83.5%	56.8%	0.8%	0.8%	100.1%	96.1%
	Gross ROI: inc-land	%	26.0%			14.3%	9.7%	21.7%	16.6%	0.4%	0.4%	74.4%	71.8%
	End CIV	\$	\$2,166,667			\$4,466,667	\$4,466,667	\$3,316,667	\$3,316,667	\$4,616,667	\$4,616,667	\$13,716,667	\$13,716,667
	CIV change	%	85.7%			282.9%	282.9%	64.5%	64.5%	128.9%	128.9%	580.2%	580.2%

Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes. For all summary and detailed tables 'Dwellings: Final' is the number of all dwellings after the development occurs. The modelling tool number will not match as the modelling tool measures the number of dwellings constructed. For example, the 'least' option will have a base dwelling plus one as the final count, but measure 1 constructed dwelling in the modelling tool.

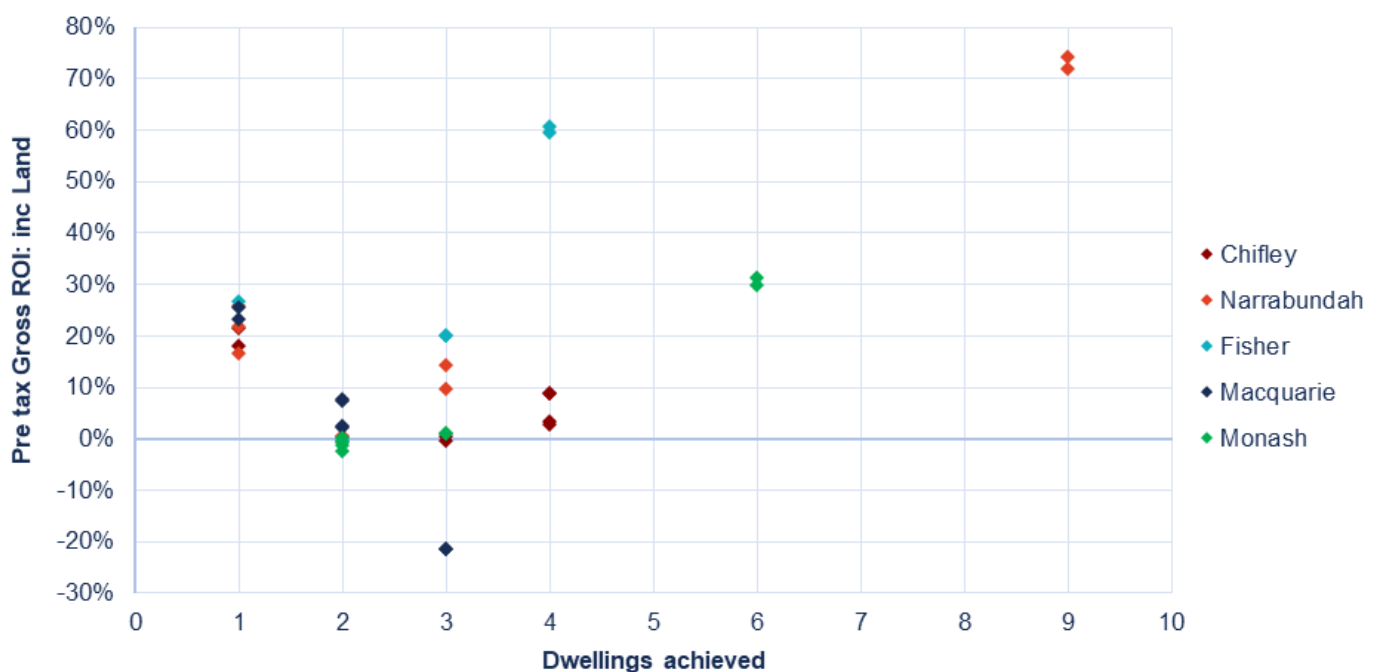


4.2.5 Common themes

It is difficult to generalise from the case studies to community or ACT finding as each case outcome reflects the diversity of zoning and location settings relevant to each case study site. However, there are useful insights for the future of missing middle settings.

In general, there is no relationship between dwelling yield and ROI. In Figure 48 the pre-tax ROI for each case study is set against the modelled dwelling yield. There is no clear pattern between these measures. There is evidence of returns clustering at lower scale dwelling yields (1 and 2 dwellings achieved), however the results spread out more significantly as dwelling yield increases.

Figure 48: Relationship between dwellings and ROI



While it is tempting to infer there is a positive correlation (an upward sloping line through the dots) the precincts are too unique to compare directly, and a larger sample size would be required to confirm if there is any correlation in practice. In general, a conclusion that more dwellings will achieve higher pre-tax ROI cannot be drawn, except perhaps when the dwelling yield exceeds four dwellings.

Next, the key factors which influence feasibility can be identified from the case studies. Figure 49 summarises the key aggregates reported in the cases study results tables, focussing on total fees and costs, construction, lease variation charge and interest, and reporting the pre-tax gross return. Without question, there is a clear order in each case study:

- Construction costs dominate.
- The second ranked driver is either the combination of all fees and charges, or interest.
- LVC is last in the ranking.

In aggregated terms, the only of these factors in the control of the ACT Government is the LVC.

While LVC is relatively lower than other factors, it is impactful. In all cases it lowers the ROI, and in each case where a loss is made a significant LVC was incurred. On the basis LVC captures a windfall, taxes on losses seems perverse.



Figure 49: Case study aggregates by precinct



Note: 'Least' refers to the least gain scenario. 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario. 'MM Reform' refers to the options that require missing middle reform. The absence of a scenario result reflects its exclusion. Refer to Section 4.2.1 and Table 13 for further information. 'Exempt' means no LVC is incurred. 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation). 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation). For more discussion on the LVC see Section 4.2.3.5 Taxes. Where returns are not evident from the bars, results are reported as values. These do not reflect any special significance in analysis or reporting.



Considering all the results some common patterns which are instructive about the potential opportunities and challenges to achieving missing middle outcomes include:

- Current planning settings prevent achieving potential missing middle returns in a significant number of cases. Rules in both RZ1 and RZ2 need to be adjusted if the development potential is to be realised in a viable way.
- Location matters. Local settings affect the price of new developments, the site constraints, and the level of codified LVC taxes. However, Territory and national settings affect fees and charges, construction materials, trades labour, financing, and interest costs, and holding costs. In the short term this means some developments will not be viable (where local factors are less impactful than broad factors). Over time this may improve as developable land becomes scarcer (as local factors tend to catch up with broad factors).
- The block size constraint in current planning settings complicates the assessment of what might be feasible. Most case study land is well-located, uncomplicated and with significant potential, alone or in combination with nearby land. Even with these quality settings a range of scenarios are unavailable based entirely on block size constraints.
- Allowing for subdivision or consolidation, without changing other constraints, can lead to improved development outcomes including better combined GFA, wider street frontages, potentially re-oriented frontage/verge crossings (in corner blocks), and more opportunity to capture solar orientation.
- Rigid rules may not allow for the appropriate level of flexibility to incentivise development toward highest and best valued use. For example, site coverage is arbitrarily linked to land sizes and zones, and higher ratios are not available in sites investigated and not at all in older suburbs that have larger block sizes.
- LVC is complicated, has different impacts on the same land parcels depending on relatively realistic assumptions, has varied and unpredictable relative impacts when comparing the same development type in different locations, affects the ROI of the precinct cases studies, and can be incurred even where there is no ROI available in a development.

These findings support strategic and supporting recommendations.



4.3 DISCUSSION AND RECOMMENDATIONS

This project has comprehensively analysed the past, present and future opportunities and challenges to delivering missing middle style housing in land zoned RZ1 and RZ2 in the ACT. At the centre of the analysis has been a development feasibility framework that has set out the breadth and depth of planning, non-planning and regulatory and enabling levers to move from a concept through to an outcome. Further analyses are underpinned by the framework, and have been tested in five precincts, including through a *precinct scale* developability index and detailed *block scale* case studies. Spatial, statistical, and design supports are provided through the reporting to assist the reader understand context, opportunities and challenges.

4.3.1 Discussion of findings

Missing middle development has been improving over time, and has been supported with more high-density development too. Based on statistical concepts, the missing middle has grown from around 25% of dwellings in 2011 to 27% in 2022.

Providing reasons for missing middle utilisation, historical or current, and projecting forward what might happen on RZ1 and RZ2 land, is complicated. The main challenges found in the project are that:

- Leases dictate development potential ahead of zoning.
- Leases are formed over time, and the rights they contain may not align with contemporary zone opportunities.
- This means static lease rights become unaligned with zoning rights over time.
- Every location, whether block, section, precinct or greater, has unique local opportunities and challenges. No 'one size fits all' policy will solve all challenges, or leverage all opportunities.
- Leaseholders in RZ1 and RZ2 zones are unlikely to be professional developers, and their incentives are not well understood, suffice to say they will have different capacity and capability, and risk tolerances compared to professional developers.
- Shifting from typical single dwelling development, traditionally seen in RZ1 and RZ2, to multi-unit development (of any type) significantly increases the effort, cost, time and risks any developer will face, professional or not.
- Based on the precinct scale analyses, it is likely that only around 35% of suburbs, perhaps older suburbs, have blocks with good developability, and
- Testing scenarios of actual development on these blocks, applying reasonable market-based assumptions, demonstrates there is no clear way to assure that a development will be financially viable, even where it is technically feasible.

Despite this, there is significant capacity in RZ1 and RZ2 zoned land to support the in-fill target required to house the future ACT population, and continued expansion of missing middle development.

The report has provided extensive coverage of planning, non-planning and regulatory and enabling levers that are available to increase the incentives to achieve missing middle outcomes. While all are relevant, only a few of the levers can be controlled by the ACT Government.

While there is no clear black and white evidence of what will deliver missing middle outcomes, the findings within the report suggest that the interventions which are most likely to improve incentives the most are those which enhance flexibility in development controls applying to leases in RZ1 and RZ2 zones to increase the range of design options to achieve additional dwellings. In general terms the main interventions would be around land size, land adaptability, consolidation and subdivision opportunities, unit titling constraints, permissible activities, and storey limits.

In terms of project feasibility, the case study modelling demonstrates clearly that construction is the main cost driver, followed closely by the cost of experts and government fees, financing, and then other ACT Government



taxed like the LVC. Any intervention which can lower actual costs, especially in a demonstrably high-cost environment, as well as lower time and delivery risk will contribute to benefits from changes in development controls to improve project feasibility.

The analysis has been used to make several observations, and to frame recommendations for action to achieve the outcome of increased missing middle development in the ACT.

Should the ACT Government pursue reforms as recommended, in conjunction with the concurrent projects and changes already enabled in the *Territory Plan 2023*, better practice policy setting suggests it would be prudent to implement a robust monitoring and evaluation framework. To that end, it is recommended:

Recommendation 4: Consistent with an outcome-based system it is recommended the ACT Government adopt a monitoring and evaluation framework, utilising and integrating planning, building and revenue data, to measure and report on actual additional development realised through the RZ1 and RZ2 reforms in the *Territory Plan 2023*, as well as any new agreed reforms from this and concurrent projects. The measures monitored should include dwelling demolition, dwelling creation, dwelling location, change in apparent density, and be reported annually, in a report like the Land and Property report.

4.3.2 Recommendations

Recommendations are made on matters that are within the remit of the ACT Government to action, and that support achieving the outcome of improved integration of the missing middle in the ACT.

Any recommendation, if accepted, may require consequential changes to legislation, regulation, policy, or related documentation. These additional changes would include dealing with any unintended consequences that cannot be foreseen at this point. These changes are a matter for the 'owner' of these process within the ACT Government and are not set out in this report. The recommendations do not include estimated costs of implementation or other financial impacts.

The primary goal of recommended changes is to simplify the system and permit more flexibility in RZ1 and RZ2 to provide missing middle outcomes. Major systemic recommendations are made in this section.

4.3.2.1 Planning recommendations

Despite planning levers being only one component of the feasibility framework, the ACT Government can control most planning matters. For example, controls and requirements are set out in the Planning Act, Territory Plan (including district and zone policies), design guides, technical specifications, and related regulations. Amendments to these can be made in accordance with powers under the Planning Act, or by amendment to this and related legislation in the ACT Legislative Assembly.

Two types of recommendations are offered.

First are those which support the strategic intent to increase development of missing middle dwellings in RZ1 and RZ2. The proposed changes will need further policy work, and will take effort to achieve. The second are recommendations which will support the strategic intent, but are relatively easier to implement.

Strategic recommendations are presented in Table 19.



Table 19: Strategic recommendations

Problem statement	Recommendation	Expected impact
Missing middle design, and higher density, requires flexibility in land size, which is currently not available on larger blocks, especially in RZ1 zones.	Amend controls 'Subdivision and consolidation of residential blocks, except in RZ1', 'Consolidation of blocks– RZ1' to enable all leases in RZ1 and RZ2 to be consolidated and to access development rights equivalent to RZ2 at least.	Increase flexibility and diversity in design options for leaseholders to achieve modest density increases, especially in RZ1 zones. All other assessment outcomes, assessment requirements, technical specifications, and design guides will remain to assure compliant planning outcomes.
Missing middle design, and higher density, requires flexibility in land size, which is currently not available on larger blocks, especially in RZ1 zones. Further, current RZ1 settings restrict end ownership (dual occupancy on one title, or unit title).	Amend controls 'Subdivision and consolidation of residential blocks, except in RZ1', 'Consolidation of blocks– RZ1' and 'Residential subdivision generally' to enable all leases in RZ1 and RZ2 to be allowed to be subdivided and to access development rights equivalent to RZ2 at least.	In relation to subdivision, enabling leaseholders of larger sized blocks, in particular in RZ1, more flexibility to achieve missing middle options, including single titles, than are available under current controls. All other assessment outcomes, assessment requirements, technical specifications, and design guides will remain to assure compliant planning outcomes. Not allowing subdivision would make all RZ1 missing middle require unit title processes and expenses, and lock in an ownership inequity when compared with newer suburbs.



Problem statement	Recommendation	Expected impact
Rigid land size controls are inconsistent with the flexibility required to increase density, and current controls contribute to a complexity of zone definitions.	Amend controls relating to 'Housing density and minimum block areas,' and 'minimum block sizes' to remove minimum block size controls in RZ1 and RZ2, or If the minimum sizes are not removed completely, then amend controls relating to 'Housing density and minimum block areas' for RZ1 land to allow additional dwelling development (dual occupancy or greater) on blocks larger than 700 sqm.	This change would allow leaseholders to pursue the highest and best valued use of land, including missing middle style developments, based on the outcomes approach enabled by other assessment outcomes, assessment requirements, technical specifications, and design guides. If the minimums are not removed, lowering to 700 sqm will align controls between different types of blocks in RZ1 (except secondary dwellings), and RZ2. If not change occurs controls will leave in distortions and impact on achieving more potential missing middle development.
Rigid site coverage controls are inconsistent with the flexibility required to increase density, and current controls favour newer parts of Canberra where smaller blocks are more regular.	Amend controls relating to 'Site coverage' for land zoned RZ1 and RZ2. In order of priority, the amendment should: Remove links to a block type (large, mid-sized, compact, or multi-unit housing), and Apply a flexible ratio between 40 and 70%, or If the flexible range is not agreed, set a level at least at 50%.	This change will interact with the subdivision, consolidation, and minimum block size recommendations to increase flexibility in design and building diversity to underpin a wide range of missing middle style developments. The flexibility will be controlled by the outcomes approach enabled by other assessment outcomes, assessment requirements, technical specifications, and design guides. Making no adjustment leaves complexity within the zone definitions, and rigidity in controls.
The ACT definition of missing middle supports development to 3 storeys, but RZ2 which mostly allows for missing middle typologies, is restricted to 2 storeys.	Amend the 'number of storeys' control for land zoned RZ2 to allow for 3 storey developments.	Facilitate a wider range of missing middle typologies, especially apartments.



Problem statement	Recommendation	Expected impact
Underdeveloped multi-unit sites on R22 cannot be redeveloped without all owner' corporation members agreeing. This is onerous, and inconsistent with settings in other Australian jurisdictions.	Allow applications for cancellation of a Units Plan to be approved by the Authority following a special resolution (75%) of the Owners Corporation, rather than a unanimous resolution (100%), noting that any changes to the voting requirements must consider options to protect vulnerable owners.	Increase the chance for marginal multi-unit developments on R22 zoned land to be redeveloped to increase density, and improve land utilisation.

Supporting recommendations are set out in Table 20.

Table 20: Supporting recommendations

Problem statement	Recommendation	Expected impact
The R21 policy outcome does not support missing middle type incentives.	Remove R21 Suburban Zone Policy Outcome 3 'Limit the extent of change that can occur particularly with regard to the residential density and original pattern of subdivision'.	Send a signal to leaseholders that the Government is open to increased development of missing middle dwellings in R21.
The R22 policy outcome does not support missing middle type incentives.	Remove R22 Suburban Core Zone Policy Outcome 3 'Provide opportunities for redevelopment by enabling changes to the residential density and original pattern of subdivision' and replace with 'Provide opportunities for redevelopment by enabling change'.	Send a signal to leaseholders that the Government is open to increased development of missing middle dwellings in R22.
Current enabling planning levers favour single dwelling development, and increase the complexity of achieving missing middle development which are typically multi-unit structures.	Consider a modified DA pathway for missing middle designs in R21 and R22 zones that enables faster approval, and removes potential approval delays (like the models in NSW and Victoria, where appropriate to the ACT).	Lower costs and delays for multi-unit dwelling developments that meet missing middle demand.

4.3.2.2 Non-Planning recommendations

The ACT Government has limited influence over most non-planning levers that might improve the feasibility of missing middle development in R21 and R22 zoned land.

The main levers are land supply and pricing, and taxation. Land supply reforms are not in-scope for this project. Recommendations for in-scope non-planning levers are set out in Table 21.



Table 21: Non-planning recommendations

Problem statement	Recommendation	Expected impact
Stamp Duty is a regressive tax that is being phased out in the ACT. In circumstance where land is transferred for missing middle development, removing the tax may increase the incentives to develop.	It is recommended transfer duty ('Stamp Duty') is removed from the sale of land intended to facilitate a missing middle development outcome. Attached to this benefit it is recommended a penalty be included that would recover stamp duty and a penalty if a building approval on an exempt transaction is not applied for within 12 months	Encourage the sale of land suitable for missing middle development.
At the development scale for land in RZ1 and RZ2 settings, and for the leaseholders who must make decision to develop in these settings, the Lease Variation Charge is a disincentive to make a development decision.	It is recommended lease variation charge for missing middle style developments in RZ1 and RZ2 land is changed. The recommended options, in order of preference, are: - Remove LVC for missing middle type developments in RZ1 and RZ2 zones, or - Change the method of taxation for missing middle type developments in RZ1 and RZ2 zones to an outcome based 'super profits' type tax which applies to measured development value gains, adjusted for costs and a reasonable profit margin, or - Introduce an LVC rebate mechanisms or remission for missing middle type developments in RZ1 and RZ2 zones. The amount should be linked to the change in value from development ensuring, at least, any project that generates a loss is compensated to the value of the loss, and providing a rebate to profitable developments where a benchmark return is not achieved. In other cases, the amount would be discretionary based on government policy aims, or - Standardise and lower LVC for missing middle type developments in RZ1 and RZ2 zones such that the tax per dwelling is modest and equal regardless of location and existing lease conditions. These options are structured in order, so if the preferred option is not accepted, then the next best option is considered.	The effect of the recommendation will be to remove, adjust, reduce, or simplify the LVC. All options create a clear positive market signal that development of missing middle dwellings in RZ1 and RZ2 is encouraged by the ACT Government. The impact of selecting the options identified are to increase the relative return from development to the leaseholder, and encouraging more rapid development of missing middle dwellings, completely, or at least in higher prices locations. Removing LVC also removes the perception, and actual risk, that the tax is considered the cause of developments not occurring.



4.3.2.3 Recommendations for further work

Throughout the report several matters that may require additional work were identified. The recommendations for this work are summarised in Table 22.

Table 22: Recommendations for further work

Problem statement	Recommendation	Expected impact
Leaseholders in RZ1 and RZ2 are likely to have significantly different motivating factors compared to professional developers. These motivation assumptions are subjective, and the knowledge gap makes opportunity and constraint identification difficult.	Recommendation 1: Understanding the feasibility of achieving missing middle development from current baselines would benefit from additional research into the characteristics of potential representative stakeholders in RZ1 and RZ2 zones. It is recommended a follow up project is undertaken to analyse potential missing middle stakeholder cohorts to understand their motives and to target incentives to achieve additional development.	Increased policy intelligence to enable better targeted policy changes and incentives to achieve the objective of increasing missing middle development in RZ1 and RZ2.
Planning levers, in particular approval timeframes, impact on the timing of developments, which has a feedback effect on costs.	Recommendation 2: Current approval timeframes add delays to project timeframes which affects project feasibility. It is recommended that EPSDD market test the development application process to assure the development market that all timeframes, processes and costs are fair, reasonable, and competitive.	Market testing and adjustments to development approvals to increase the productivity of the planning levers.
Regulatory and enabling levers have a significant impact on the cost and timing of developments.	Recommendation 3: Current regulatory and enabling levers require the use of a range of expertise and achieving third party endorsements. Most are complicated and add cost and potential delays into development processes. These issues may not be understood by leaseholders who are not professional property developers. It is recommended EPSDD undertake benchmarking of ACT Government owned and controlled red tape involved in development and building approvals processes to assure the development market that all timeframes, processes, and costs are fair, reasonable, and competitive.	Market testing and adjustments to regulatory and enabling levers to increase the productivity of development approvals across a wide spectrum.



Problem statement	Recommendation	Expected impact
There is no current or prospective public record of the success or otherwise of reforms, which means policy cannot be evaluated effectively.	Recommendation 4: Consistent with an outcome-based system it is recommended the ACT Government adopt a monitoring and evaluation framework, utilising and integrating planning, building and revenue data, to measure and report on actual additional development realised through the RZ1 and RZ2 reforms in the Territory Plan 2023, as well as any new agreed reforms from this and concurrent projects. The measures monitored should include dwelling demolition, dwelling creation, dwelling location, change in apparent density, and be reported annually, in a report like the Land and Property report.	An annual update on progress towards missing middle development caused by ACT Government policy changes.

SUPPORTING MATERIALS





ANNEX 1: DETAILED PRECINCT MAPPING

Aerial Imagery

Imagery © Landchecker, Google, 2024



Chifley



Fisher



Macquarie



Monash

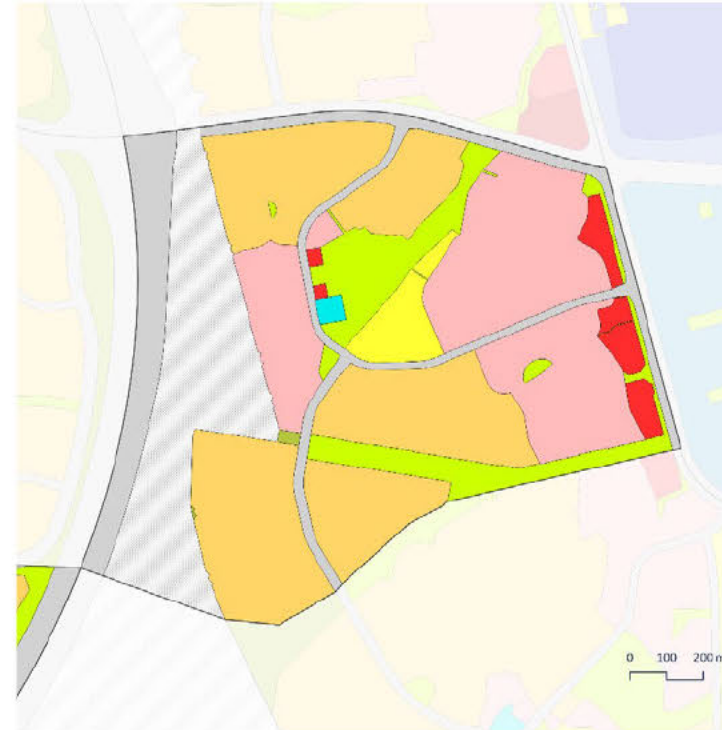


Narrabundah

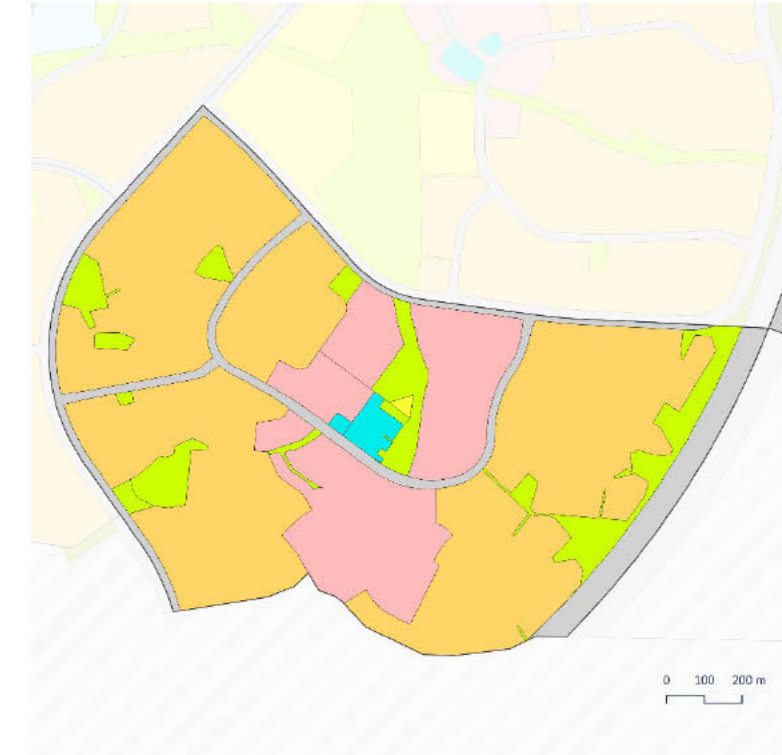
Precinct Zoning

Territory Plan Land Use Zones

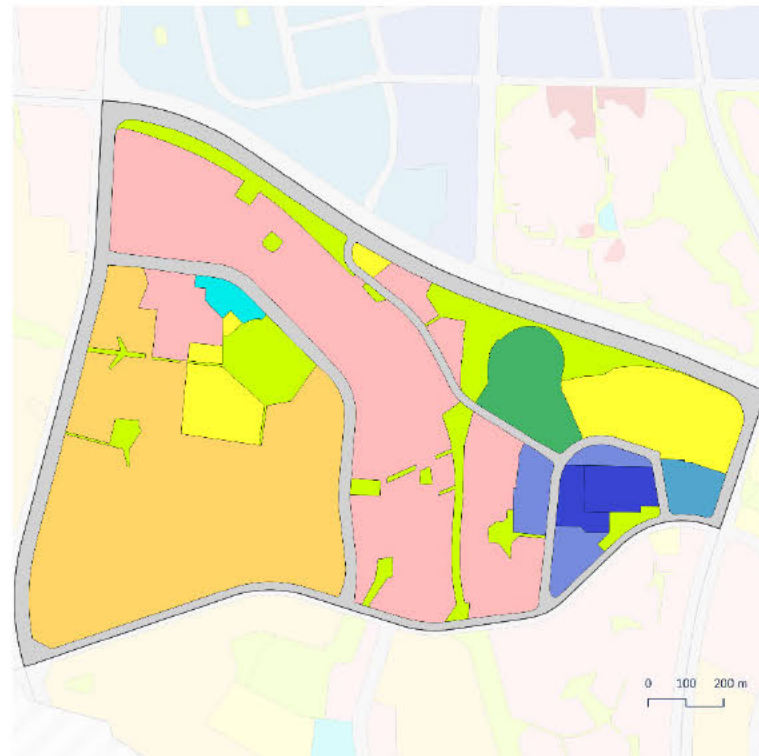
-  Designated Areas
-  Residential - RZ1 - Suburban
-  Residential - RZ2 - Suburban Core
-  Residential - RZ4 - Medium Density Residential
-  Residential - RZ5 - High Density Residential
-  Community Facilities - CFZ
-  Commercial - CZ1 - Core
-  Commercial - CZ2 - Business
-  Commercial - CZ3 - Services
-  Commercial - CZ4 - Local Centre
-  Commercial - CZ6 - Leisure and Accommodation
-  Urban Parks and Recreation - PRZ1 - Urban Open Spaces
-  Urban Parks and Recreation - PRZ2 - Restricted Access Recreation
-  Transport and Services - TSZ1 - Transport
-  Transport and Services - TSZ2 - Services
-  Non Urban - NUZ1 - Broadacre
-  Non Urban - NUZ3 - Hills Ridges and Buffers



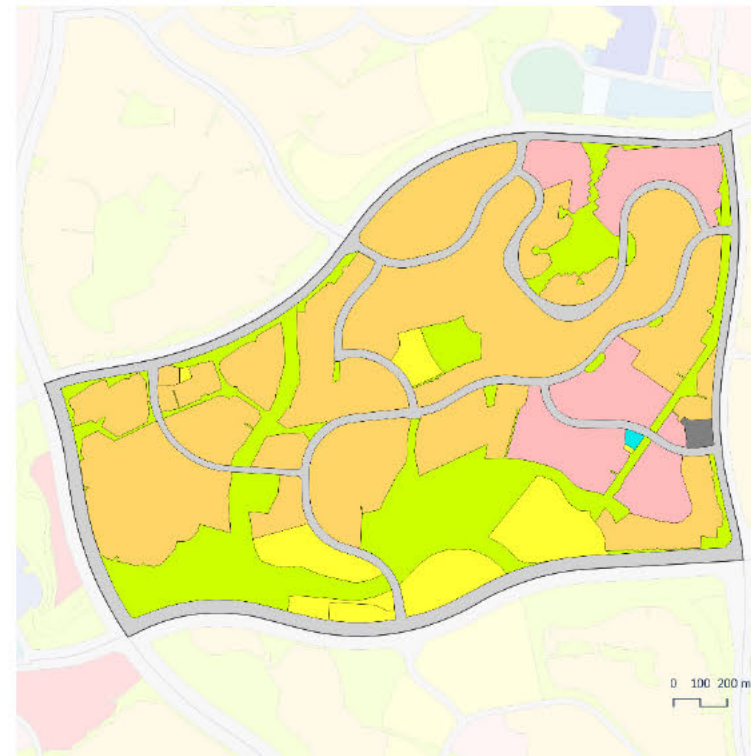
Chifley



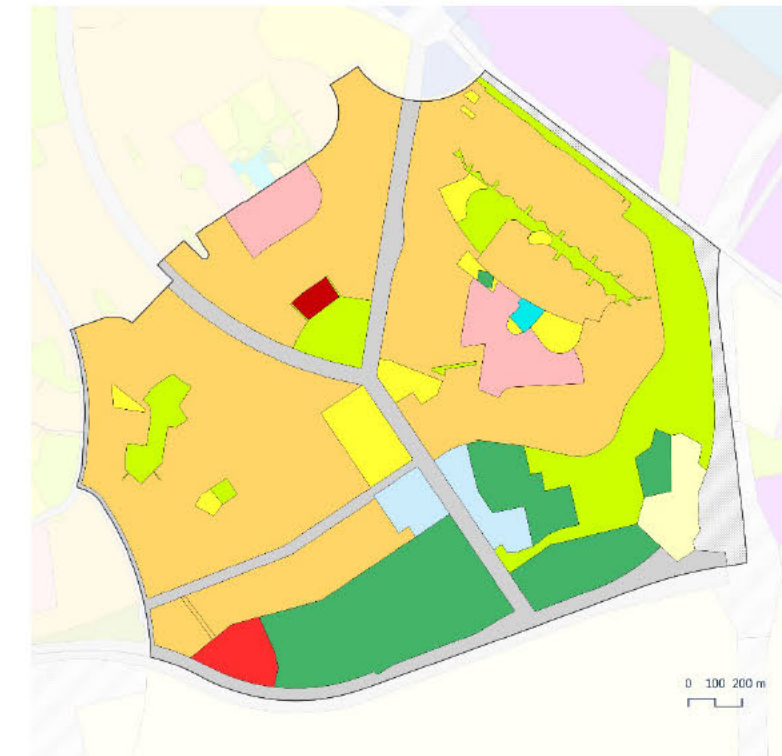
Fisher



Macquarie



Monash

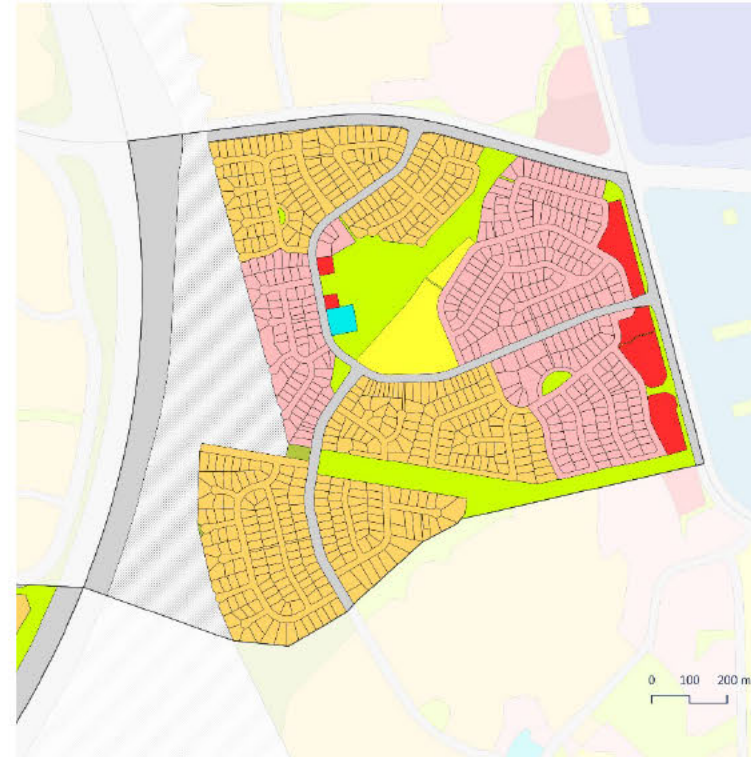


Narrabundah

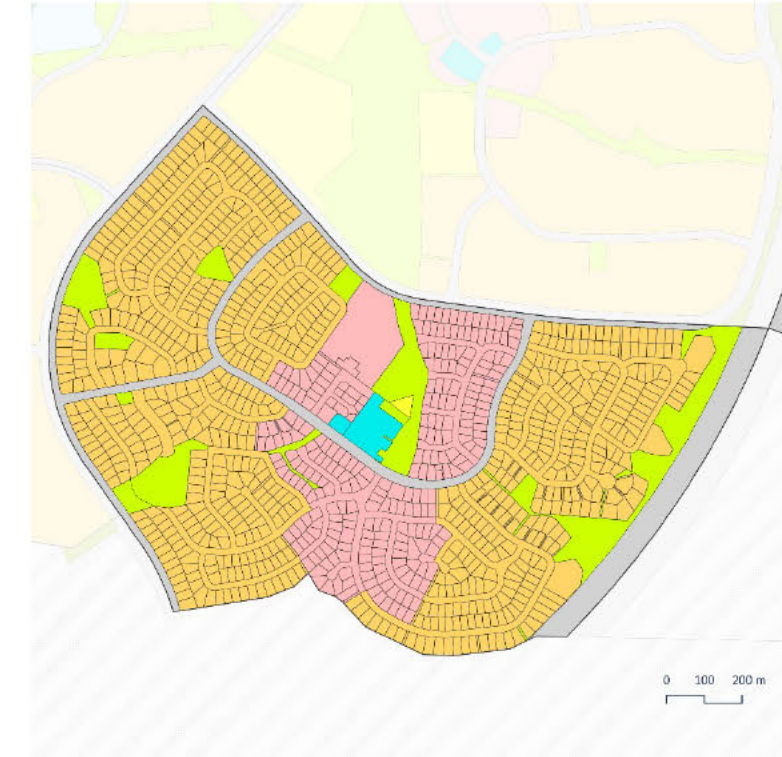
Precinct zoning and blocks

Territory Plan Land Use Zones

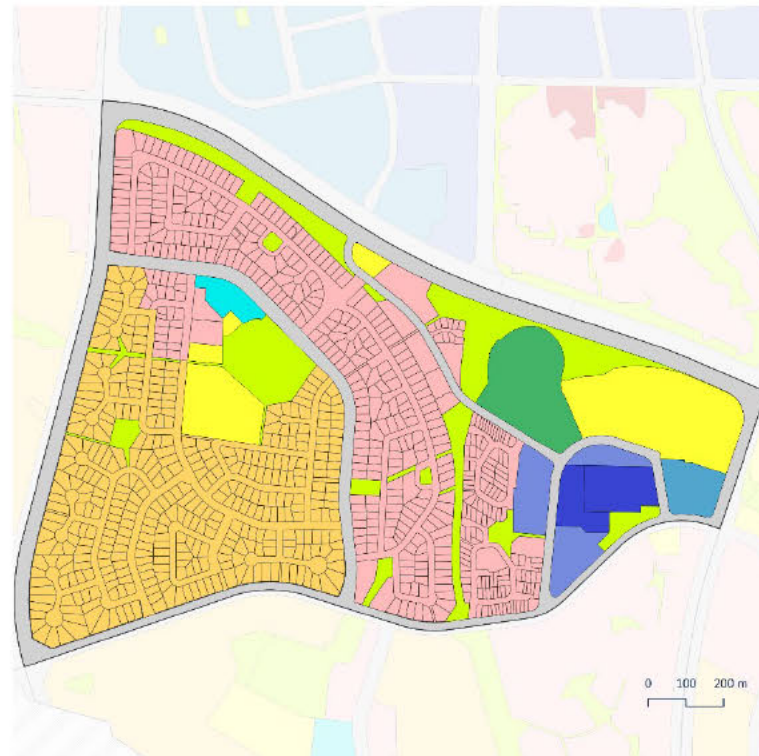
-  Designated Areas
-  Residential - RZ1 - Suburban
-  Residential - RZ2 - Suburban Core
-  Residential - RZ4 - Medium Density Residential
-  Residential - RZ5 - High Density Residential
-  Community Facilities - CFZ
-  Commercial - CZ1 - Core
-  Commercial - CZ2 - Business
-  Commercial - CZ3 - Services
-  Commercial - CZ4 - Local Centre
-  Commercial - CZ6 - Leisure and Accommodation
-  Urban Parks and Recreation - PRZ1 - Urban Open Spaces
-  Urban Parks and Recreation - PRZ2 - Restricted Access Recreation
-  Transport and Services - TSZ1 - Transport
-  Transport and Services - TSZ2 - Services
-  Non Urban - NUZ1 - Broadacre
-  Non Urban - NUZ3 - Hills Ridges and Buffers



Chifley



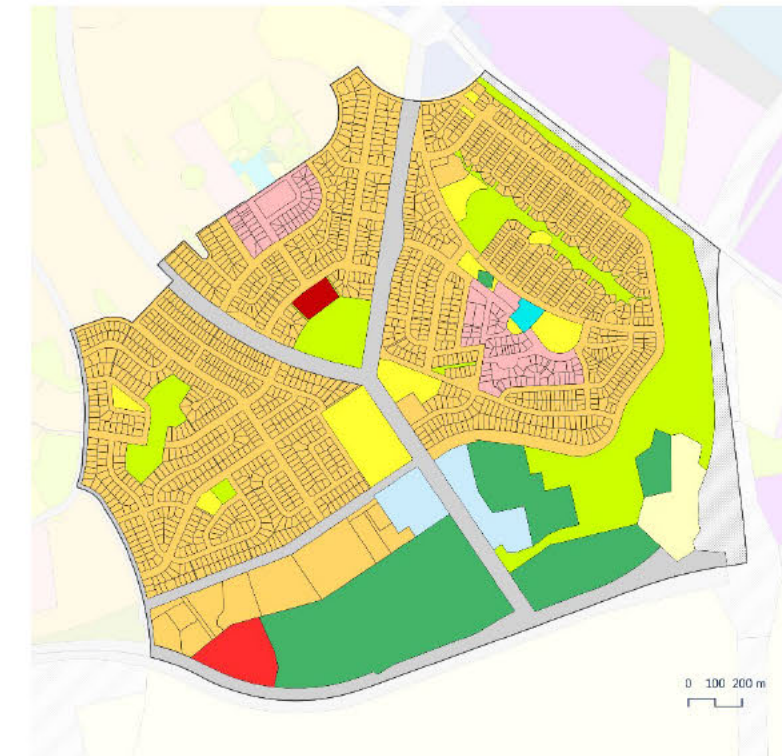
Fisher



Macquarie



Monash

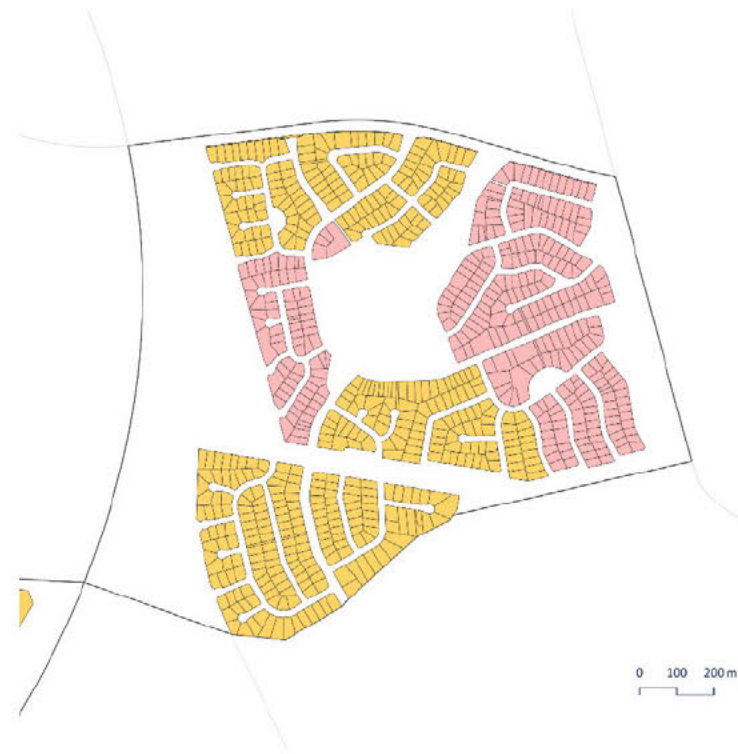


Narrabundah

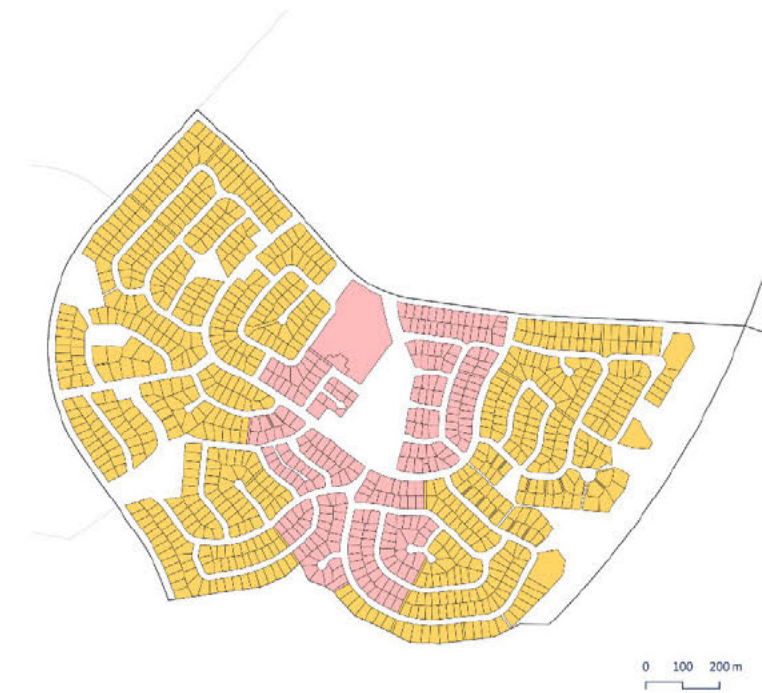
Blocks in scope

Territory Plan Land Use Zones

- Residential - RZ1 - Suburban
- Residential - RZ2 - Suburban Core



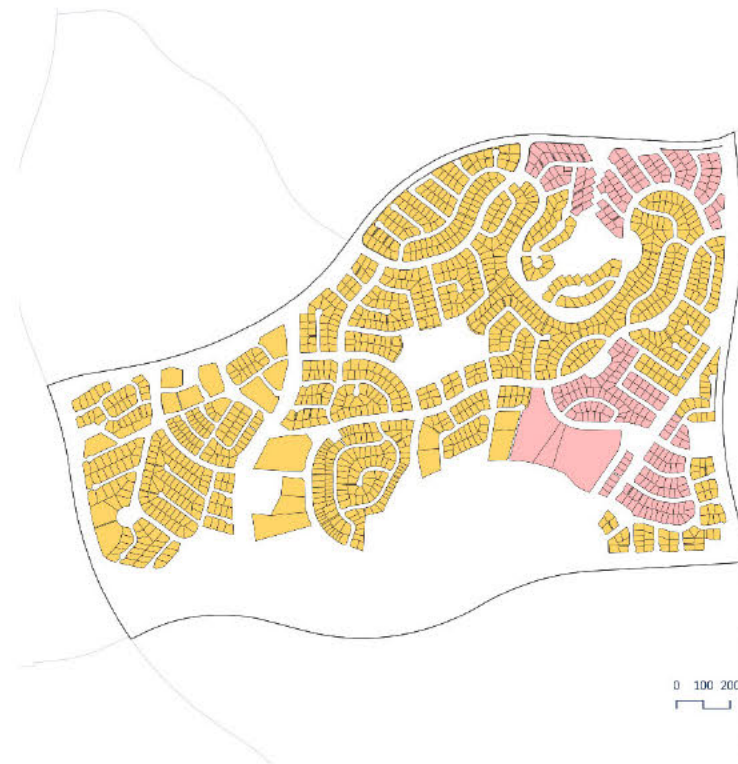
Chifley



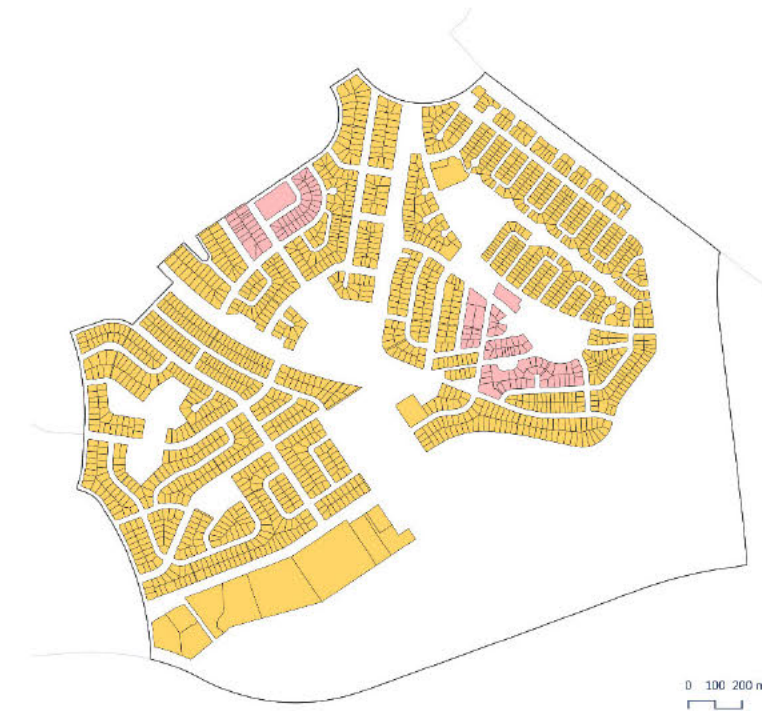
Fisher



Macquarie



Monash



Narrabundah

Slope characteristics

0% Slope  >20% Slope



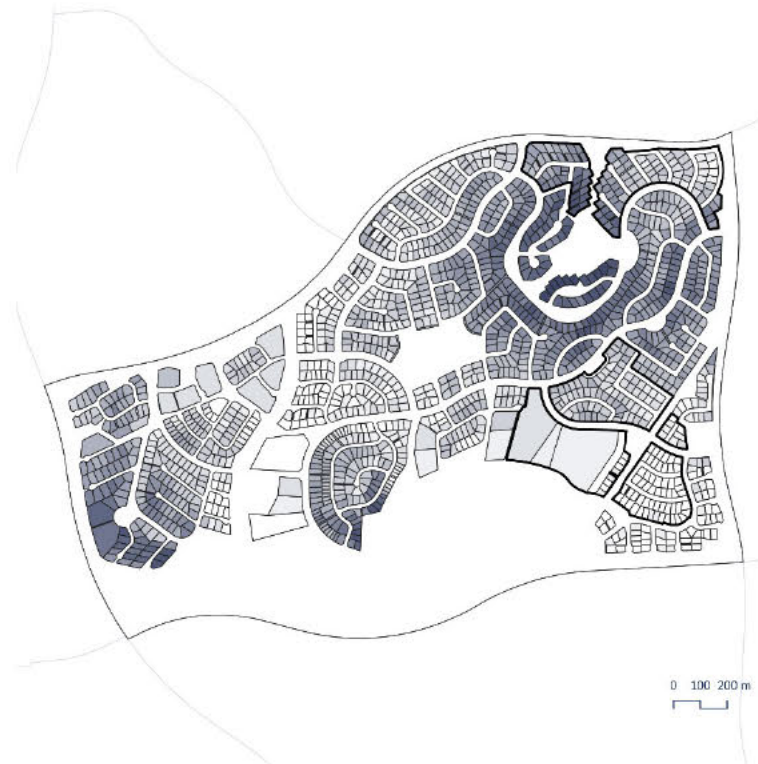
Chifley



Fisher



Macquarie

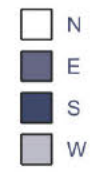


Monash



Narrabundah

Orientation



Chifley



Fisher



Macquarie



Monash



Narrabundah

Canopy

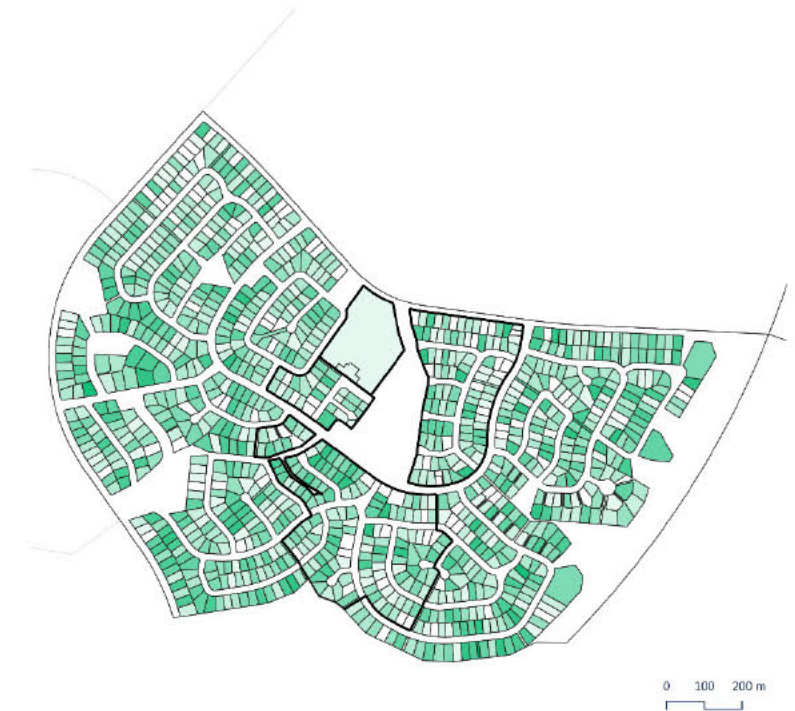
0% canopy Coverage



100% Canopy Coverage



Chifley



Fisher



Macquarie



Monash



Narrabundah

Complexity

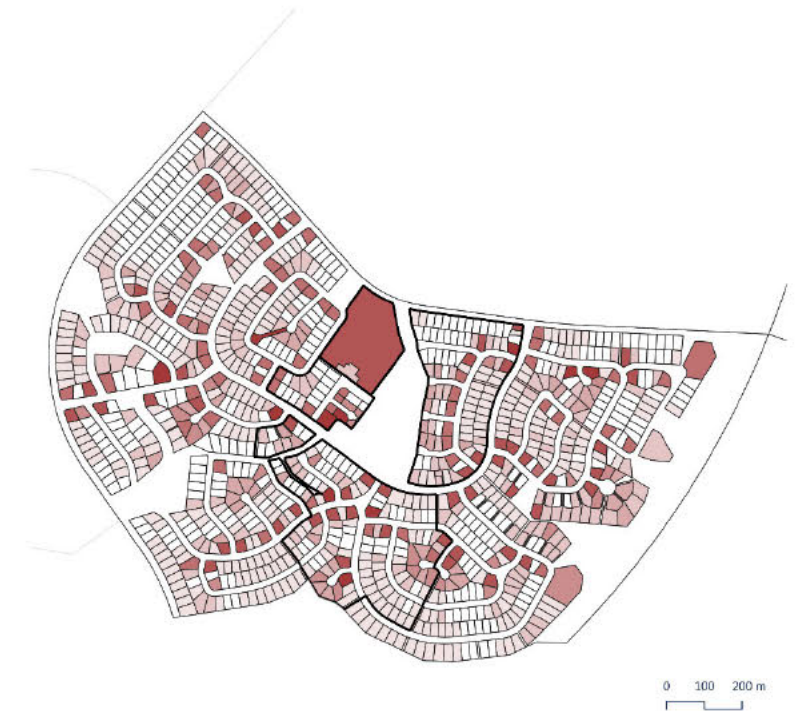
More Complex



Less Complex



Chifley



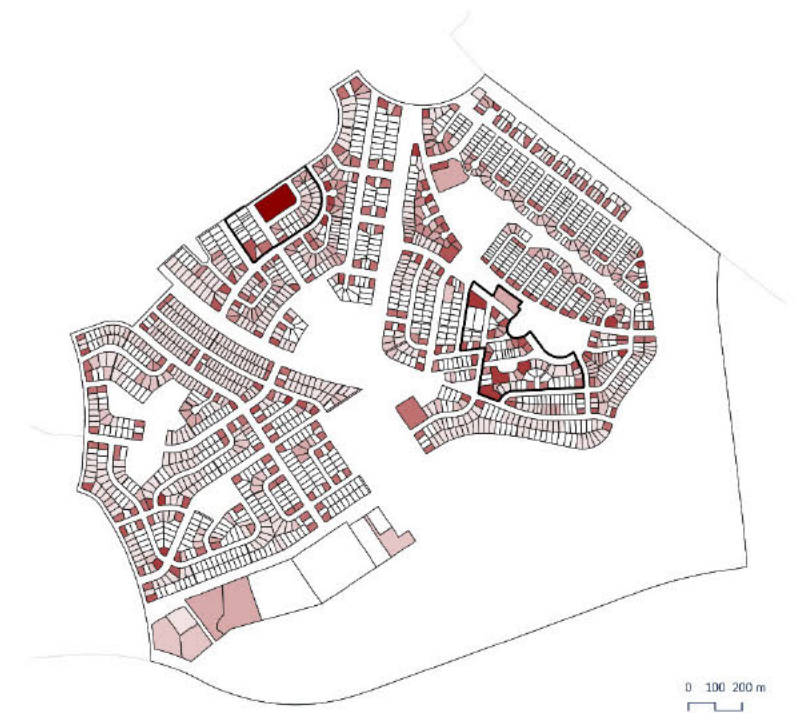
Fisher



Macquarie



Monash



Narrabundah

Block dwellings

1 Dwelling  20+ dwellings



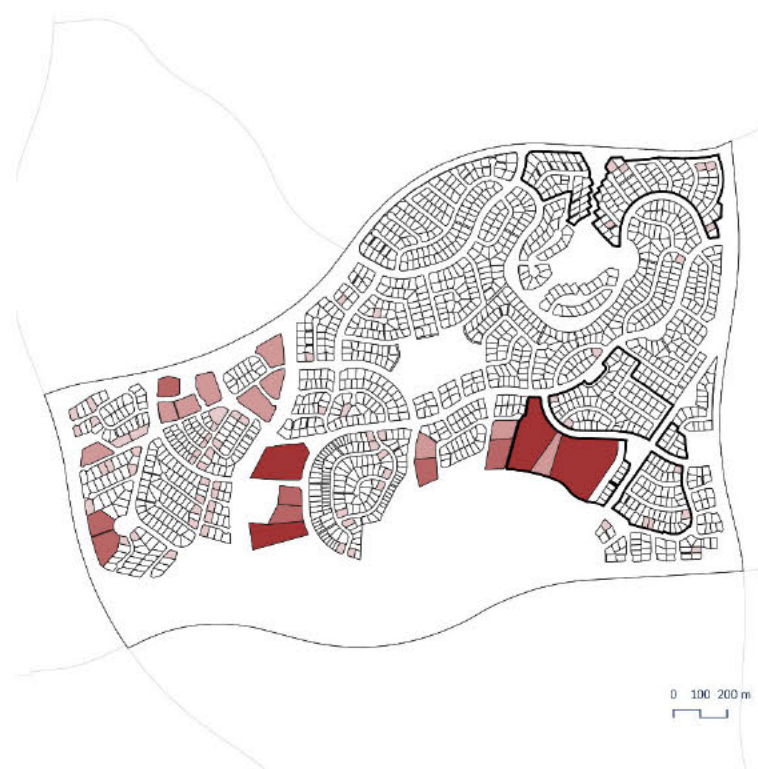
Chifley



Fisher



Macquarie



Monash



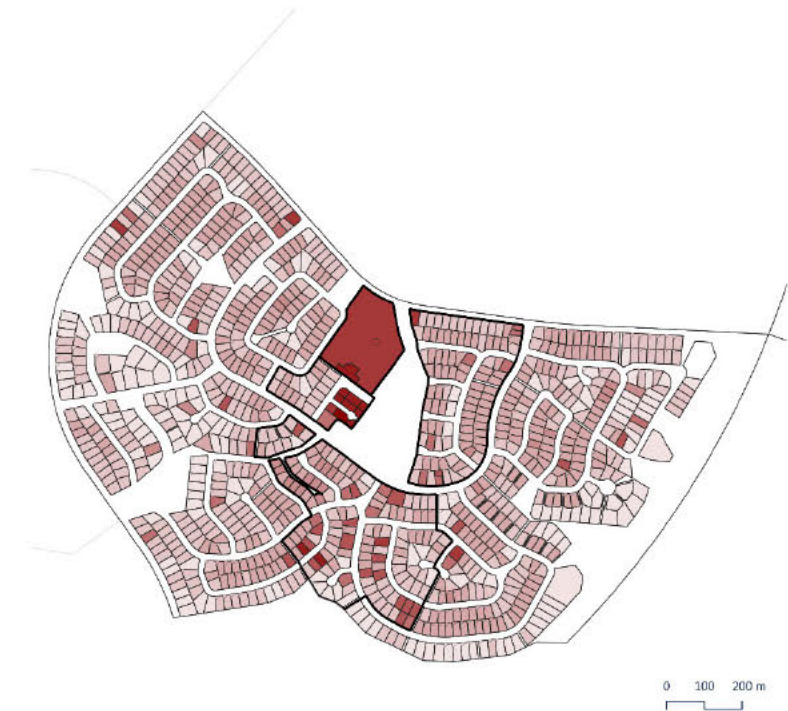
Narrabundah

Block scale density

Less dw/ha  More dw/ha



Chifley



Fisher



Macquarie



Monash

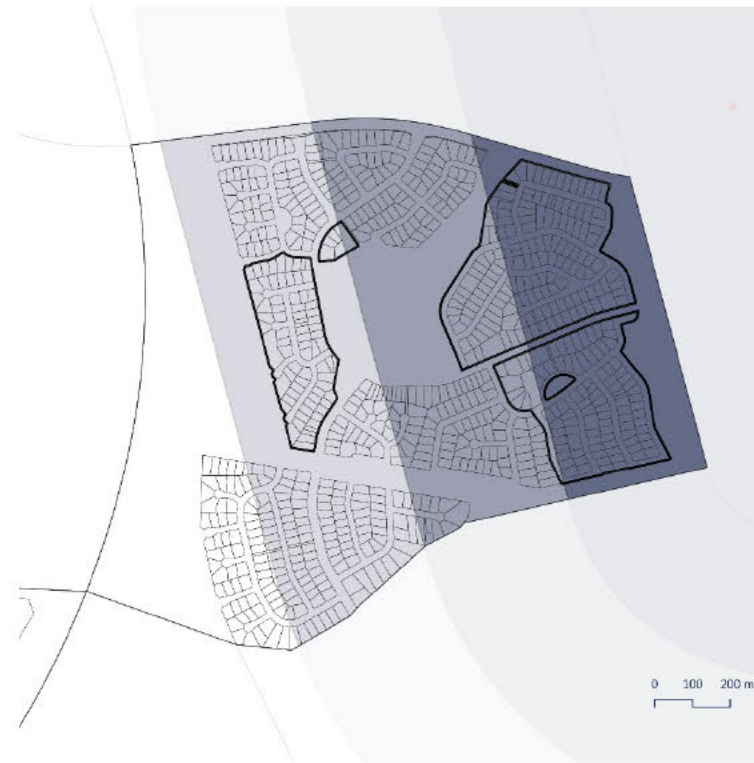


Narrabundah

Location to Town Centres

Town Centre Distance

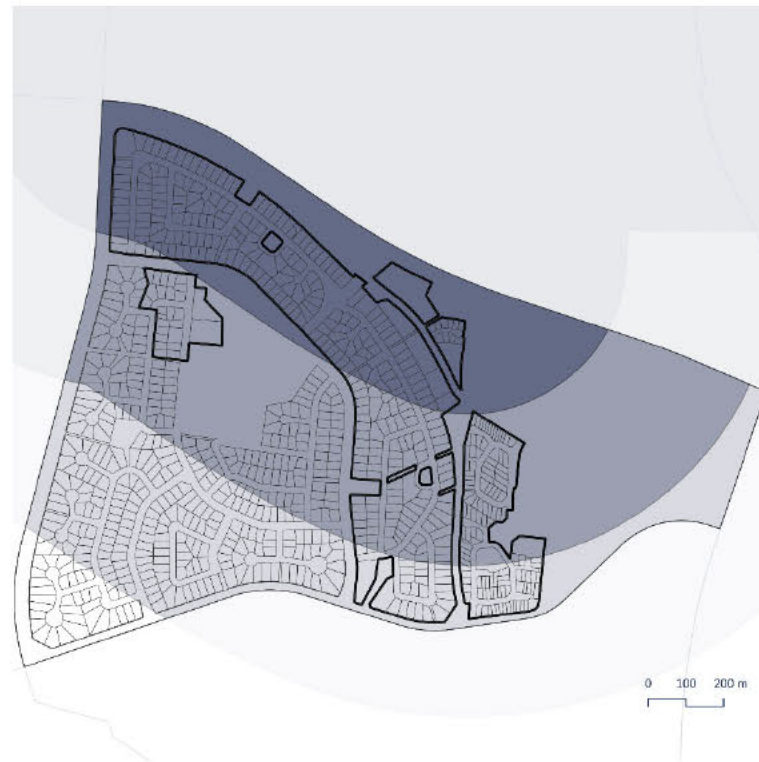
- 400m buffer
- 800m buffer
- 1200m buffer



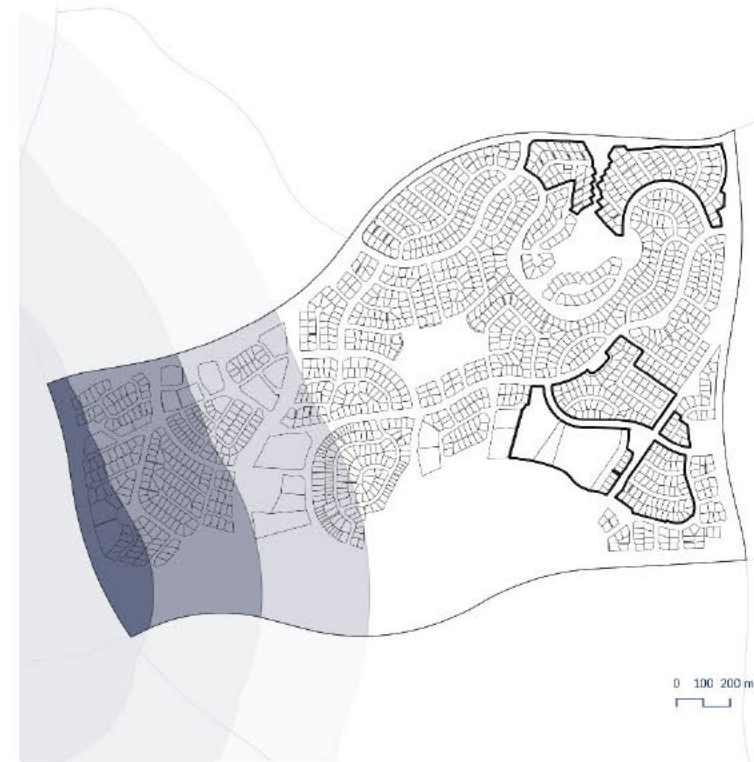
Chifley



Fisher



Macquarie



Monash



Narrabundah

Location to Group Centres

Group Centre Distance

- 400m buffer
- 800m buffer
- 1200m buffer



Chifley



Fisher



Macquarie



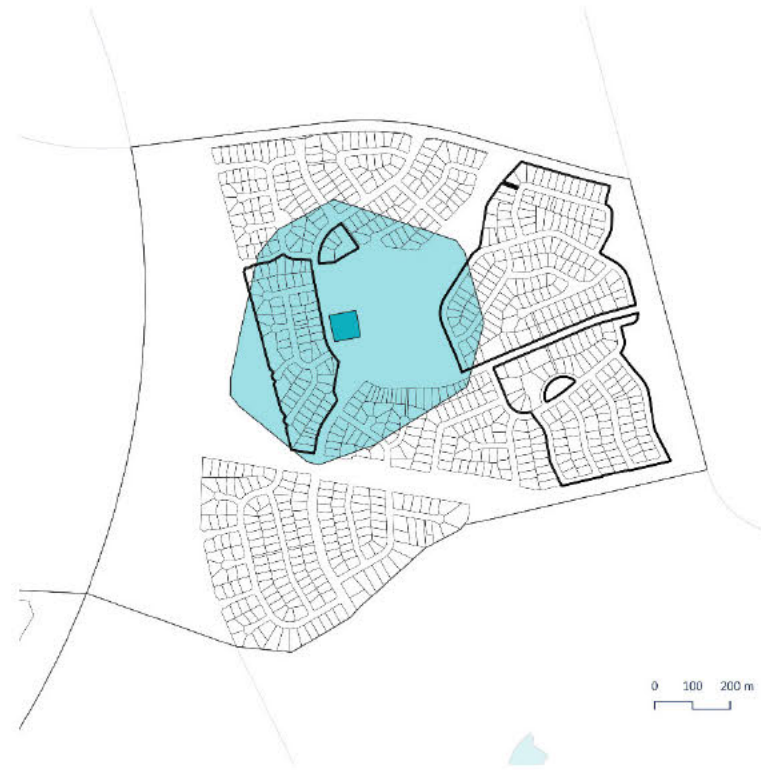
Monash



Narrabundah

Walkability to Local Centres

Local Centre Walkability
 400m Walking Isocrone



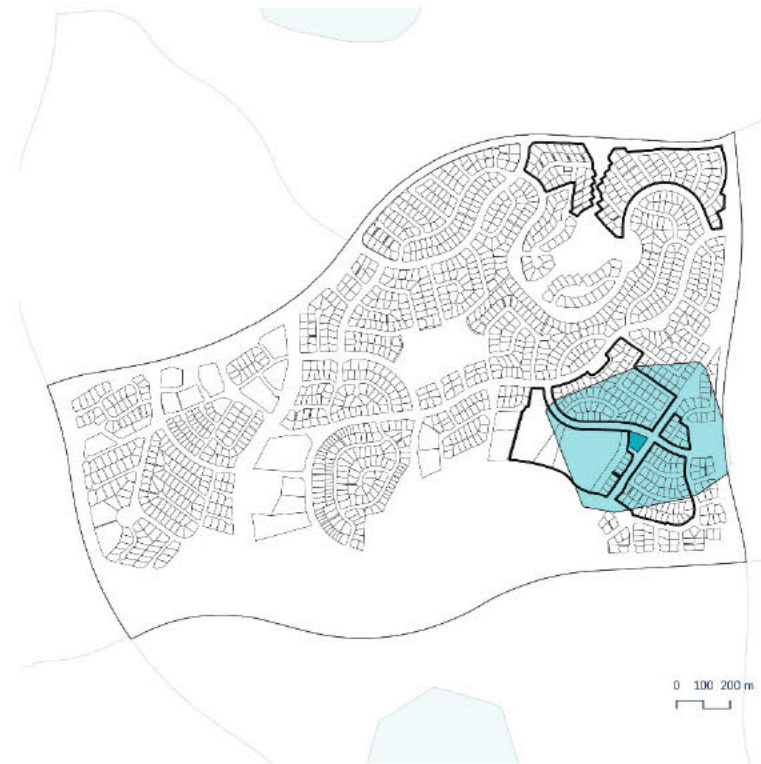
Chifley



Fisher



Macquarie



Monash



Narrabundah

Access to public transport

- Public Transport
- Park and Ride
 - Kiss and Ride
 - Network 2020 Stops w/400m catchment
 - Bus Network



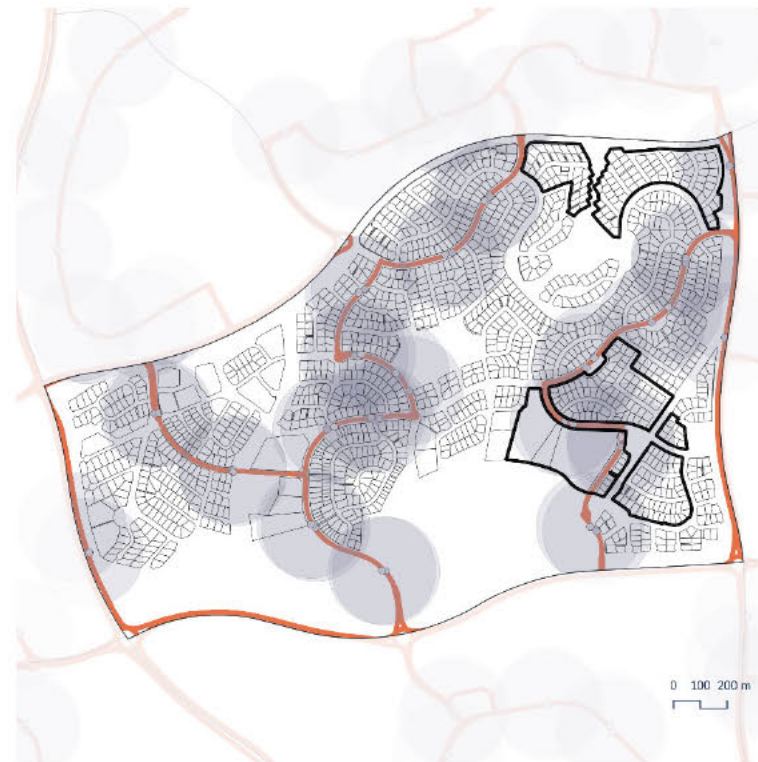
Chifley



Fisher



Macquarie



Monash



Narrabundah



ANNEX 2: DETAILED CASE STUDY RESULTS

The results for each precinct are set out in subsequent tables.

Please note, for each of the detailed tables:

- 'Least' refers to the least gain scenario.
- 'Modest' refers to the modest gain/Territory Plan 2023 compliant scenario.
- 'MM Reform' refers to the options that require missing middle reform.
- 'Exempt' means no LVC is incurred.
- 'Limit' means LVC assumes a lease defines a dwelling limit (Schedule 2 or codified variation).
- 'No limit' means LVC is applied assuming the lease does not define a dwelling limit (Schedule 1 variation).
- For all summary and detailed tables 'Dwellings: Final' is the number of all dwellings after the development occurs. The modelling tool number will not match as the modelling tool measures the number of dwellings constructed. For example, the 'least' option will have a base dwelling plus one as the final count, but measure 1 constructed dwelling in the modelling tool.

For more detailed explanation of the meaning of the scenarios please refer to Section 4.2.1 and Table 13 for further information. For more discussion on the LVC categories please refer to Section 4.2.3.5 Taxes.



Table 23: Chifley detailed

Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
Land	Block size	sqm	593	593	593	1,103	1,103	981	981	981	981	981	981
	Base: CIV Price	\$	\$1,015,000	\$1,015,000	\$1,015,000	\$1,985,000	\$1,985,000	\$1,466,667	\$1,466,667	\$1,466,667	\$1,466,667	\$1,466,667	\$1,466,667
	Base: UV	2024\$	\$609,000	\$609,000	\$609,000	\$1,191,000	\$1,191,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000	\$880,000
	Dwellings: Base	#	1	1	1	2	2	1	1	1	1	1	1
	Trees:hinder	#	3	3	3	3	3	2	2	2	2	2	2
	Frontage	m	10.36	10.36	10.36	20.72	20.72	24.32	24.32	24.32	24.32	24.32	24.32
	Purchase Costs	\$											
Planning	Block type		Large	Large	Large	Multi	Multi	Large	Large	Large	Large	Large	Large
	Site Coverage	%	40%	40%	40%	45%	45%	40%	40%	40%	40%	40%	40%
	Planting	%	30%	30%	30%	35%	35%	30%	30%	30%	30%	30%	30%
	Planting area	sqm	178	178	178	386	386	294	294	294	294	294	294
Fees and costs	Designer	\$				\$120,000	\$120,000	\$30,000	\$30,000	\$90,000	\$90,000	\$120,000	\$120,000
	DA fee	\$				\$11,927	\$11,927	\$2,316	\$2,316	\$9,616	\$9,616	\$11,683	\$11,683
	BA fee	\$				\$28,000	\$28,000	\$7,000	\$7,000	\$21,000	\$21,000	\$28,000	\$28,000
	Professional fees	\$				\$200,000	\$200,000	\$50,000	\$50,000	\$150,000	\$150,000	\$200,000	\$200,000
	Power connection	\$				\$60,000	\$60,000	\$15,000	\$15,000	\$45,000	\$45,000	\$60,000	\$60,000
	Water connection	\$				\$40,000	\$40,000	\$10,000	\$10,000	\$30,000	\$30,000	\$40,000	\$40,000
	Infrastructure	\$				\$20,000	\$20,000	\$5,000	\$5,000	\$15,000	\$15,000	\$20,000	\$20,000
	Trees	\$				\$30,000	\$30,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000
	Legals (conveyance)	\$				\$6,000	\$6,000	\$1,500	\$1,500	\$4,500	\$4,500	\$6,000	\$6,000
	Sales Cost	\$				\$86,400	\$86,400	\$21,600	\$21,600	\$64,800	\$64,800	\$97,200	\$97,200
	Unit Title	\$				\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
	C of O	\$				\$20,000	\$20,000	\$5,000	\$5,000	\$15,000	\$15,000	\$20,000	\$20,000
	Other Holding	\$				\$4,000	\$4,000	\$2,500	\$2,500	\$4,000	\$4,000	\$5,000	\$5,000
	Subtotal	\$	\$0	\$0	\$0	\$641,327	\$641,327	\$184,916	\$184,916	\$483,916	\$483,916	\$642,883	\$642,883
Development	Coverage [Max]	sqm				496	496	392	392	392	392	392	392
	Residual	sqm				221	221	295	295	295	295	295	295
	Dwellings: demolish	#				2	2			1	1	1	1
	Sub Cons: Blocks	#				1	1					2	2
	Sub Cons: Area	sqm				1103	1103					490.5	490.5
	Sub Cons: Utilised	sqm				110	110					105	105
	Sub Cons: GFA	sqm				880	880					840	840
	Dwellings/Block	#				4	4	1	1	3	3	2	2



Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
	Storeys	#				2	2	1	1	2	2	2	2
	Other GFA: utilised	sqm						120	120	110	110		
	Other GFA: total	sqm						120	120	660	660		
	Dwellings: Final	#				4	4	2	2	3	3	4	4
	\$/GFA	\$				\$3,400	\$3,400	\$3,200	\$3,200	\$3,400	\$3,400	\$3,500	\$3,500
	Demolition	\$				\$60,000	\$60,000	\$0	\$0	\$30,000	\$30,000	\$30,000	\$30,000
	Construction	\$				\$2,992,000	\$2,992,000	\$384,000	\$384,000	\$2,244,000	\$2,244,000	\$2,940,000	\$2,940,000
	Landscaping	\$				\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
	Contingency [10%]	\$				\$306,200	\$306,200	\$39,400	\$39,400	\$228,400	\$228,400	\$298,000	\$298,000
	Subtotal	\$	\$0	\$0	\$0	\$3,368,200	\$3,368,200	\$433,400	\$433,400	\$2,512,400	\$2,512,400	\$3,278,000	\$3,278,000
	Duration: pre-build	m				12	12	6	6	12	12	18	18
	Duration: build	m				12	12	9	9	12	12	12	12
	Duration	m	0	0	0	24	24	15	15	24	24	30	30
Taxes	LVC: Lease type		Exempt	No limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
	LVC Sch 1	\$				\$167,500	\$7,500	\$40,000		\$120,000		\$7,500	\$7,500
	LVC Sch 2	\$					\$120,000		\$99,375		\$150,000	\$180,000	\$180,000
	LVC Total	\$	\$0	\$0	\$0	\$167,500	\$127,500	\$40,000	\$99,375	\$120,000	\$150,000	\$187,500	\$187,500
	Stamp duty	\$											
	Rates	\$	\$0			\$14,000	\$14,000	\$4,375	\$4,375	\$7,000	\$7,000	\$8,750	\$8,750
	Subtotal	\$	\$0	\$0	\$0	\$181,500	\$141,500	\$44,375	\$103,750	\$127,000	\$157,000	\$196,250	\$196,250
Finance	Debt: ratio	%	0.0%	0.0%	0.0%	61.1%	60.5%	24.9%	27.1%	61.6%	62.2%	60.0%	60.0%
	Debt: max	%	\$0	\$0	\$0	\$2,933,719	\$2,905,719	\$662,691	\$722,066	\$3,123,316	\$3,153,316	\$4,117,133	\$4,117,133
	Equity: residual	\$	\$0	\$0	\$0	\$1,257,308	\$1,245,308	\$0	\$0	\$0	\$0	\$0	\$0
	Establishment costs	\$	\$0	\$0	\$0	\$44,006	\$43,586	\$9,940	\$10,831	\$46,850	\$47,300	\$61,757	\$61,757
	Interest	\$	\$0	\$0	\$0	\$381,383	\$377,743	\$53,844	\$58,668	\$406,031	\$409,931	\$669,034	\$669,034
	Out of pocket	\$	\$0	\$0	\$0	\$1,682,697	\$1,666,637	\$63,784	\$69,499	\$452,881	\$457,231	\$730,791	\$730,791
Outcomes	Price (market)	\$				\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,350,000	\$1,350,000
	Project cost	\$				\$4,616,416	\$4,572,356	\$726,475	\$791,564	\$3,576,197	\$3,610,547	\$4,847,924	\$4,847,924
	Gross revenue	\$				\$4,800,000	\$4,800,000	\$1,200,000	\$1,200,000	\$3,600,000	\$3,600,000	\$5,400,000	\$5,400,000
	Pre-tax gross return	\$				\$183,584	\$227,644	\$473,525	\$408,436	\$23,803	-\$10,547	\$552,076	\$552,076
	Gross ROI: ex-land	%				4.0%	5.0%	65.2%	51.6%	0.7%	-0.3%	11.4%	11.4%
	Gross ROI: inc-land	%				2.8%	3.5%	21.6%	18.1%	0.5%	-0.2%	8.7%	8.7%
	End CIV	\$	\$1,015,000	\$1,015,000	\$1,015,000	\$4,800,000	\$4,800,000	\$2,666,667	\$2,666,667	\$5,066,667	\$5,066,667	\$6,866,667	\$6,866,667
	CIV change	%	0%	0%	0%	142%	142%	82%	82%	245%	245%	368%	368%



Table 24: Fisher Detailed

Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
Land	Block size	sqm	691	691	691	691	691	944	944	944	944	944	944
	Base: CIV Price	\$	\$1,025,000	\$1,025,000	\$1,025,000	\$1,025,000	\$1,025,002	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667
	Base: UV	2024\$	\$615,000	\$615,000	\$615,000	\$615,000	\$615,001	\$679,000	\$679,000	\$679,000	\$679,000	\$679,000	\$679,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
	Trees:hinder	#	1	1	1	1	1	2	2	2	2	2	2
	Frontage	m	20.69	20.69	20.69	20.69	20.69	44.96	44.96	44.96	44.96	44.96	44.96
	Purchase Costs	\$											
Planning	Block type		Large	Large	Large	Mid	Mid	Large	Large	Multi	Multi	Mid	Mid
	Site Coverage	%	40%	40%	40%	60%	60%	40%	40%	45%	45%	60%	60%
	Planting	%	30%	30%	30%	20%	20%	30%	30%	35%	35%	20%	20%
	Planting area	sqm	207	207	207	138	138	283	283	330	330	189	189
Fees and costs	Designer	\$	\$30,000			\$60,000	\$60,000			\$120,000	\$120,000	\$90,000	\$90,000
	DA fee	\$	\$1,851			\$7,193	\$7,193			\$6,976	\$6,976	\$8,449	\$8,449
	BA fee	\$	\$7,000			\$14,000	\$14,000			\$28,000	\$28,000	\$21,000	\$21,000
	Professional fees	\$	\$50,000			\$100,000	\$100,000			\$200,000	\$200,000	\$150,000	\$150,000
	Power connection	\$	\$15,000			\$15,000	\$15,000			\$60,000	\$60,000	\$45,000	\$45,000
	Water connection	\$	\$10,000			\$10,000	\$10,000			\$40,000	\$40,000	\$30,000	\$30,000
	Infrastructure	\$	\$5,000			\$5,000	\$5,000			\$20,000	\$20,000	\$15,000	\$15,000
	Trees	\$	\$10,000			\$10,000	\$10,000			\$20,000	\$20,000	\$20,000	\$20,000
	Legals (conveyance)	\$	\$1,500			\$3,000	\$3,000			\$6,000	\$6,000	\$4,500	\$4,500
	Sales Cost	\$	\$16,650			\$39,600	\$39,600			\$86,400	\$86,400	\$70,200	\$70,200
	Unit Title	\$								\$15,000	\$15,000		
	C of O	\$	\$5,000			\$10,000	\$10,000			\$20,000	\$20,000	\$15,000	\$15,000
	Other Holding	\$	\$2,000			\$3,500	\$3,500			\$3,000	\$3,000	\$4,000	\$4,000
	Subtotal	\$	\$154,001	\$0	\$0	\$277,293	\$277,293	\$0	\$0	\$625,376	\$625,376	\$473,149	\$473,149
Development	Coverage [Max]	sqm	276	276	276	415	415	378	378	425	425	566	566
	Residual	sqm	208	208	208	138	138	283	283	189	189	189	189
	Dwellings: demolish	#				1	1			1	1	1	1
	Sub Cons: Blocks	#				2	2					3	3
	Sub Cons: Area	sqm				345.5	345.5					315	315
	Sub Cons: Utilised	sqm				105	105					88	88
	Sub Cons: GFA	sqm				420	420					529	529
	Dwellings/Block	#	1			1	1			4	4	1	1



Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
	Storeys	#	1			2	2			2	2	2	2
	Other GFA: utilised	sqm	90							100	100		
	Other GFA: total	sqm	90							400	400		
	Dwellings: Final	#	2			2	2			4	4	3	3
	\$/GFA	\$	\$3,200			\$3,400	\$3,400			\$3,400	\$3,400	\$3,500	\$3,500
	Demolition	\$	\$0			\$30,000	\$30,000			\$30,000	\$30,000	\$30,000	\$30,000
	Construction	\$	\$288,000			\$1,428,000	\$1,428,000			\$1,360,000	\$1,360,000	\$1,851,150	\$1,851,150
	Landscaping	\$	\$2,500			\$10,000	\$10,000			\$5,000	\$5,000	\$10,000	\$10,000
	Contingency [10%]	\$	\$29,050			\$146,800	\$146,800			\$139,500	\$139,500	\$189,115	\$189,115
	Subtotal	\$	\$319,550	\$0	\$0	\$1,614,800	\$1,614,800	\$0	\$0	\$1,534,500	\$1,534,500	\$2,080,265	\$2,080,265
	Duration: pre-build	m	6			9	9			6	6	12	12
	Duration: build	m	6			12	12			12	12	12	12
	Duration	m	12	0	0	21	21	0	0	18	18	24	24
Taxes	LVC: Lease type		Exempt	No limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
	LVC Sch 1	\$				\$7,500	\$7,500			\$160,000		\$7,500	\$7,500
	LVC Sch 2	\$				\$53,750	\$53,750				\$135,000	\$102,500	\$102,500
	LVC Total	\$	\$0	\$0	\$0	\$61,250	\$61,250	\$0	\$0	\$160,000	\$135,000	\$110,000	\$110,000
	Stamp duty	\$											
	Rates	\$	\$3,500	\$0	\$0	\$6,125	\$6,125	\$0	\$0	\$5,250	\$5,250	\$7,000	\$7,000
	Subtotal	\$	\$3,500	\$0	\$0	\$67,375	\$67,375	\$0	\$0	\$165,250	\$140,250	\$117,000	\$117,000
Finance	Debt: ratio	%	24.5%			60.8%	60.8%			39.2%	38.8%	53.1%	53.1%
	Debt: max	%	\$477,051			\$1,959,468	\$1,959,468			\$2,325,126	\$2,300,126	\$2,670,414	\$2,670,414
	Equity: residual	\$	\$0			\$0	\$0			\$0	\$0	\$0	\$0
	Establishment costs	\$	\$7,156			\$29,392	\$29,392			\$34,877	\$34,502	\$40,056	\$40,056
	Interest	\$	\$31,008			\$222,889	\$222,889			\$226,700	\$224,262	\$347,154	\$347,154
	Out of pocket	\$	\$38,164			\$252,281	\$252,281			\$261,577	\$258,764	\$387,210	\$387,210
Outcomes	Price (market)	\$	\$925,000			\$1,100,000	\$1,100,000			\$1,200,000	\$1,200,000	\$1,300,000	\$1,300,000
	Project cost	\$	\$515,215			\$2,211,749	\$2,211,749			\$2,586,702	\$2,558,890	\$3,057,624	\$3,057,624
	Gross revenue	\$	\$925,000			\$2,200,000	\$2,200,000			\$4,800,000	\$4,800,000	\$3,900,000	\$3,900,000
	Pre-tax gross return	\$	\$409,785			-\$11,749	-\$11,749			\$2,213,298	\$2,241,110	\$842,376	\$842,376
	Gross ROI: ex-land	%	79.5%			-0.5%	-0.5%			85.6%	87.6%	27.6%	27.6%
	Gross ROI: inc-land	%	26.6%			-0.4%	-0.4%			59.5%	60.7%	20.1%	20.1%
	End CIV	\$	\$1,950,000	\$1,025,000	\$1,025,000	\$3,225,000	\$3,225,002	\$1,131,667	\$1,131,667	\$5,931,667	\$5,931,667	\$5,031,667	\$5,031,667
	CIV change	%	90%	0%	0%	215%	215%	0%	0%	424%	424%	345%	345%



Table 25: Macquarie detailed

Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
Land	Block size	sqm	747	747	747	747	747	925	925	925	925	925	925
	Base: CIV Price	\$	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,131,667	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000	\$1,135,000
	Base: UV	2024\$	\$679,000	\$679,000	\$679,000	\$679,000	\$679,000	\$681,000	\$681,000	\$681,000	\$681,000	\$681,000	\$681,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
	Trees:hinder	#	0	0	0	0	0	0	0	0	0	0	0
	Frontage	m	21.34	21.34	21.34	21.34	21.34	22.86	22.86	22.86	22.86	22.86	22.86
	Purchase Costs	\$											
Planning	Block type		Large	Large	Large	Multi	Multi	Large	Large	Multi	Multi	Mid	Mid
	Site Coverage	%	40%	40%	40%	45%	45%	40%	40%	45%	45%	60%	60%
	Planting	%	30%	30%	30%	35%	35%	30%	30%	35%	35%	20%	20%
	Planting area	sqm	224	224	224	261	261	278	278	324	324	185	185
Fees and costs	Designer	\$				\$60,000	\$60,000	\$30,000	\$30,000	\$60,000	\$60,000	\$90,000	\$90,000
	DA fee	\$				\$7,130	\$7,130	\$2,390	\$2,390	\$7,380	\$7,380	\$13,243	\$13,243
	BA fee	\$				\$14,000	\$14,000	\$7,000	\$7,000	\$14,000	\$14,000	\$21,000	\$21,000
	Professional fees	\$				\$100,000	\$100,000	\$50,000	\$50,000	\$100,000	\$100,000	\$150,000	\$150,000
	Power connection	\$				\$30,000	\$30,000	\$15,000	\$15,000	\$30,000	\$30,000	\$45,000	\$45,000
	Water connection	\$				\$20,000	\$20,000	\$10,000	\$10,000	\$20,000	\$20,000	\$30,000	\$30,000
	Infrastructure	\$				\$10,000	\$10,000	\$5,000	\$5,000	\$10,000	\$10,000	\$15,000	\$15,000
	Trees	\$				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Legals (conveyance)	\$				\$3,000	\$3,000	\$1,500	\$1,500	\$3,000	\$3,000	\$4,500	\$4,500
	Sales Cost	\$				\$45,000	\$45,000	\$21,600	\$21,600	\$43,200	\$43,200	\$64,800	\$64,800
	Unit Title	\$				\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000		
	C of O	\$				\$10,000	\$10,000	\$5,000	\$5,000	\$10,000	\$10,000	\$15,000	\$15,000
	Other Holding	\$				\$3,500	\$3,500	\$2,500	\$2,500	\$3,000	\$3,000	\$4,000	\$4,000
	Subtotal	\$	\$0	\$0	\$0	\$317,630	\$317,630	\$164,990	\$164,990	\$315,580	\$315,580	\$452,543	\$452,543
Development	Coverage [Max]	sqm	299	299	299	336	336	370	370	416	416	555	555
	Residual	sqm	224	224	224	150	150	277	277	185	185	185	185
	Dwellings: demolish	#				1	1			1	1	1	1
	Sub Cons: Blocks	#										3	3
	Sub Cons: Area	sqm										308	308
	Sub Cons: Utilised	sqm										110	110
	Sub Cons: GFA	sqm						0	0	0	0	990	990
	Dwellings/Block	#				2	2	1	1	2	2	1	1



Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
	Storeys	#				2	2	2	2	2	2	3	3
	Other GFA: utilised	sqm				101	101	60	60	110	110		
	Other GFA: total	sqm				402	402	120	120	440	440		
	Dwellings: Final	#				2	2	2	2	2	2	3	3
	\$/GFA	\$				\$3,500	\$3,500	\$3,400	\$3,400	\$3,400	\$3,400	\$3,500	\$3,500
	Demolition	\$				\$30,000	\$30,000	\$0	\$0	\$30,000	\$30,000	\$30,000	\$30,000
	Construction	\$				\$1,407,000	\$1,407,000	\$408,000	\$408,000	\$1,496,000	\$1,496,000	\$3,465,000	\$3,465,000
	Landscaping	\$				\$10,000	\$10,000	\$2,500	\$2,500	\$5,000	\$5,000	\$10,000	\$10,000
	Contingency [10%]	\$				\$144,700	\$144,700	\$41,050	\$41,050	\$153,100	\$153,100	\$350,500	\$350,500
	Subtotal	\$	\$0	\$0	\$0	\$1,591,700	\$1,591,700	\$451,550	\$451,550	\$1,684,100	\$1,684,100	\$3,855,500	\$3,855,500
	Duration: pre-build	m				9	9	6	6	9	9	12	12
	Duration: build	m				12	12	9	9	9	9	12	12
	Duration	m	0	0	0	21	21	15	15	18	18	24	24
Taxes	LVC: Lease type		Exempt	No limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
	LVC Sch 1	\$				\$80,000		\$40,000		\$80,000		\$7,500	\$7,500
	LVC Sch 2	\$					\$71,875		\$71,875		\$71,875	\$121,250	\$121,250
	LVC Total	\$	\$0	\$0	\$0	\$80,000	\$71,875	\$40,000	\$71,875	\$80,000	\$71,875	\$128,750	\$128,750
	Stamp duty	\$											
	Rates	\$		\$0	\$0	\$6,125	\$6,125	\$4,375	\$4,375	\$5,250	\$5,250	\$7,000	\$7,000
	Subtotal	\$	\$0	\$0	\$0	\$86,125	\$78,000	\$44,375	\$76,250	\$85,250	\$77,125	\$135,750	\$135,750
Finance	Debt: ratio	%				54.9%	54.7%	28.3%	29.7%	59.0%	58.7%	65.7%	65.7%
	Debt: max	%				\$1,995,455	\$1,987,330	\$660,915	\$692,790	\$2,084,930	\$2,076,805	\$3,110,655	\$3,110,655
	Equity: residual	\$				\$0	\$0	\$0	\$0	\$0	\$0	\$1,333,138	\$1,333,138
	Establishment costs	\$				\$29,932	\$29,810	\$9,914	\$10,392	\$31,274	\$31,152	\$46,660	\$46,660
	Interest	\$				\$226,983	\$226,059	\$53,699	\$56,289	\$203,281	\$202,488	\$404,385	\$404,385
	Out of pocket	\$				\$256,915	\$255,869	\$63,613	\$66,681	\$234,555	\$233,641	\$1,784,183	\$1,784,183
Outcomes	Price (market)	\$				\$1,250,000	\$1,250,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000
	Project cost	\$				\$2,252,370	\$2,243,199	\$724,528	\$759,471	\$2,319,484	\$2,310,445	\$4,894,837	\$4,894,837
	Gross revenue	\$				\$2,500,000	\$2,500,000	\$1,200,000	\$1,200,000	\$2,400,000	\$2,400,000	\$3,600,000	\$3,600,000
	Pre-tax gross return	\$				\$247,630	\$256,801	\$475,472	\$440,529	\$80,516	\$89,555	-\$1,294,837	-\$1,294,837
	Gross ROI: ex-land	%				11.0%	11.4%	65.6%	58.0%	3.5%	3.9%	-26.5%	-26.5%
	Gross ROI: inc-land	%				7.3%	7.6%	25.6%	23.3%	2.3%	2.6%	-21.5%	-21.5%
	End CIV	\$	\$1,131,667	\$1,131,667	\$1,131,667	\$3,631,667	\$3,631,667	\$2,335,000	\$2,335,000	\$3,535,000	\$3,535,000	\$4,735,000	\$4,735,000
	CIV change	%	0%	0%	0%	221%	221%	106%	106%	211%	211%	317%	317%



Table 26: Monash detailed

Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
Land	Block size	sqm	1,050	1,050	1,050	1,050	1,050	758	758	758	758	758	758
	Base: CIV Price	\$	\$820,000	\$820,000	\$820,000	\$820,000	\$820,000	\$741,667	\$741,667	\$741,667	\$741,667	\$741,667	\$741,667
	Base: UV	2024\$	\$492,000	\$492,000	\$492,000	\$492,000	\$492,000	\$445,000	\$445,000	\$445,000	\$445,000	\$445,000	\$445,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1	1
	Trees:hinder	#	1	1	1	1	1	1	1	1	1	1	1
	Frontage	m	7	7	7	7	7	23	23	23	23	23	23
	Purchase Costs	\$											
Planning	Block type		Large	Large	Large	Mid	Mid	Large	Large	Multi	Multi	Mid	Mid
	Site Coverage	%	40%	40%	40%	60%	60%	40%	40%	45%	45%	60%	60%
	Planting	%	30%	30%	30%	20%	20%	30%	30%	35%	35%	20%	20%
	Planting area	sqm	315	315	315	210	210	227	227	265	265	152	152
Fees and costs	Designer	\$		\$60,000	\$60,000	\$90,000	\$90,000			\$60,000	\$60,000	\$180,000	\$180,000
	DA fee	\$		\$3,179	\$3,179	\$9,283	\$9,283			\$7,784	\$7,784	\$10,249	\$10,249
	BA fee	\$		\$14,000	\$14,000	\$21,000	\$21,000			\$14,000	\$14,000	\$42,000	\$42,000
	Professional fees	\$		\$100,000	\$100,000	\$150,000	\$150,000			\$100,000	\$100,000	\$300,000	\$300,000
	Power connection	\$		\$30,000	\$30,000	\$45,000	\$45,000			\$30,000	\$30,000	\$90,000	\$90,000
	Water connection	\$		\$20,000	\$20,000	\$30,000	\$30,000			\$20,000	\$20,000	\$60,000	\$60,000
	Infrastructure	\$		\$10,000	\$10,000	\$15,000	\$15,000			\$10,000	\$10,000	\$30,000	\$30,000
	Trees	\$		\$10,000	\$10,000	\$10,000	\$10,000			\$10,000	\$10,000	\$10,000	\$10,000
	Legals (conveyance)	\$		\$3,000	\$3,000	\$4,500	\$4,500			\$3,000	\$3,000	\$9,000	\$9,000
	Sales Cost	\$		\$32,400	\$32,400	\$59,400	\$59,400			\$43,200	\$43,200	\$108,000	\$108,000
	Unit Title	\$		\$15,000	\$15,000					\$15,000	\$15,000	\$15,000	\$15,000
	C of O	\$		\$10,000	\$10,000	\$15,000	\$15,000			\$10,000	\$10,000	\$30,000	\$30,000
	Other Holding	\$		\$2,500	\$2,500	\$4,000	\$4,000			\$3,000	\$3,000	\$4,000	\$4,000
	Subtotal	\$	\$0	\$310,079	\$310,079	\$453,183	\$453,183	\$0	\$0	\$325,984	\$325,984	\$888,249	\$888,249
Development	Coverage [Max]	sqm	420	420	420	630	630	303	303	341	341	455	455
	Residual	sqm	315	315	315	210	210	228	228	152	152	151	151
	Dwellings: demolish	#		1	1	1	1			1	1	1	1
	Sub Cons: Blocks	#				3	3					1	1
	Sub Cons: Area	sqm				350	350					758	758
	Sub Cons: Utilised	sqm				105	105					110	110
	Sub Cons: GFA	sqm				627	627					630	630
	Dwellings/Block	#		2	2	1	1			2	2	6	6



Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
	Storeys	#		1	1	2	2			2	2	2	2
	Other GFA: utilised	sqm		360	360					120	120		
	Other GFA: total	sqm		360	360					480	480		
	Dwellings: Final	#		2	2	3	3			2	2	6	6
	\$/GFA	\$		\$3,200	\$3,200	\$3,400	\$3,400			\$3,400	\$3,400	\$3,900	\$3,900
	Demolition	\$		\$30,000	\$30,000	\$30,000	\$30,000			\$30,000	\$30,000	\$30,000	\$30,000
	Construction	\$		\$1,152,000	\$1,152,000	\$2,131,800	\$2,131,800			\$1,632,000	\$1,632,000	\$2,457,000	\$2,457,000
	Landscaping	\$		\$5,000	\$5,000	\$10,000	\$10,000			\$5,000	\$5,000	\$10,000	\$10,000
	Contingency [10%]	\$		\$118,700	\$118,700	\$217,180	\$217,180			\$166,700	\$166,700	\$249,700	\$249,700
	Subtotal	\$	\$0	\$1,305,700	\$1,305,700	\$2,388,980	\$2,388,980	\$0	\$0	\$1,833,700	\$1,833,700	\$2,746,700	\$2,746,700
	Duration: pre-build	m		6	6	12	12			9	9	12	12
	Duration: build	m		9	9	12	12			9	9	12	12
	Duration	m	0	15	15	24	24	0	0	18	18	24	24
Taxes	LVC: Lease type		Exempt	No limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
	LVC Sch 1	\$		\$80,000		\$7,500	\$7,500			\$80,000		\$240,000	
	LVC Sch 2	\$			\$51,250	\$97,500	\$97,500				\$51,250		\$190,625
	LVC Total	\$	\$0	\$80,000	\$51,250	\$105,000	\$105,000	\$0	\$0	\$80,000	\$51,250	\$240,000	\$190,625
	Stamp duty	\$											
	Rates	\$		\$4,375	\$4,375	\$7,000	\$7,000	\$0	\$0	\$5,250	\$5,250	\$7,000	\$7,000
	Subtotal	\$	\$0	\$84,375	\$55,625	\$112,000	\$112,000	\$0	\$0	\$85,250	\$56,500	\$247,000	\$197,625
Finance	Debt: ratio	%		64.9%	63.8%	50.2%	50.2%			50.0%	49.4%	57.6%	56.8%
	Debt: max	%		\$1,700,154	\$1,671,404	\$2,067,914	\$2,067,914			\$1,571,454	\$1,551,329	\$3,881,949	\$3,832,574
	Equity: residual	\$		\$0	\$0	\$886,249	\$886,249			\$673,480	\$664,855	\$0	\$0
	Establishment costs	\$		\$25,502	\$25,071	\$31,019	\$31,019			\$23,572	\$23,270	\$58,229	\$57,489
	Interest	\$		\$138,138	\$135,802	\$268,829	\$268,829			\$153,217	\$151,255	\$504,653	\$498,235
	Out of pocket	\$		\$163,640	\$160,873	\$1,186,096	\$1,186,096			\$850,269	\$839,380	\$562,883	\$555,723
Outcomes	Price (market)	\$		\$900,000	\$900,000	\$1,100,000	\$1,100,000			\$1,200,000	\$1,200,000	\$1,000,000	\$1,000,000
	Project cost	\$		\$1,863,794	\$1,832,277	\$3,254,010	\$3,254,010			\$2,421,722	\$2,390,708	\$4,444,831	\$4,388,297
	Gross revenue	\$		\$1,800,000	\$1,800,000	\$3,300,000	\$3,300,000			\$2,400,000	\$2,400,000	\$6,000,000	\$6,000,000
	Pre-tax gross return	\$		-\$63,794	-\$32,277	\$45,990	\$45,990			-\$21,722	\$9,292	\$1,555,169	\$1,611,703
	Gross ROI: ex-land	%		-3.4%	-1.8%	1.4%	1.4%			-0.9%	0.4%	35.0%	36.7%
	Gross ROI: inc-land	%		-2.4%	-1.2%	1.1%	1.1%			-0.7%	0.3%	30.0%	31.4%
	End CIV	\$	\$820,000	\$2,620,000	\$2,620,000	\$4,120,000	\$4,120,000	\$741,667	\$741,667	\$3,141,667	\$3,141,667	\$6,741,667	\$6,741,667
CIV change	%	0%	220%	220%	402%	402%	0%	0%	324%	324%	809%	809%	



Table 27: Narrabundah detailed

Stage	Item	Unit	RZ1					RZ2				
			Least	Modest		MM Reform		Least	Modest		MM Reform	
Land	Block size	sqm	536	536	536	536	536	844	844	844	844	844
	Base: CIV Price	\$	\$1,166,667	\$1,166,667	\$1,166,667	\$1,166,667	\$1,166,667	\$2,016,667	\$2,016,667	\$2,016,667	\$2,016,667	\$2,016,667
	Base: UV	2024\$	\$700,000	\$700,000	\$700,000	\$700,000	\$700,000	\$1,210,000	\$1,210,000	\$1,210,000	\$1,210,000	\$1,210,000
	Dwellings: Base	#	1	1	1	1	1	1	1	1	1	1
	Trees:hinder	#	0	0	0	0	0	1	1	1	1	1
	Frontage	m	7.82	7.82	7.82	7.82	7.82	34.62	34.62	34.62	34.62	34.62
	Purchase Costs	\$										
Planning	Block type		Large	Large	Large	Large	Large	Large	Large	Mid	Mid	Multi
	Site Coverage	%	40%	40%	40%	40%	40%	40%	40%	60%	60%	45%
	Planting	%	30%	30%	30%	30%	30%	30%	30%	20%	20%	35%
	Planting area	sqm	161	161	161	161	161	253	253	169	169	295
Fees and costs	Designer	\$	\$30,000			\$90,000	\$90,000	\$30,000	\$30,000	\$60,000	\$60,000	\$270,000
	DA fee	\$	\$1,993			\$7,723	\$7,723	\$2,282	\$2,282	\$7,804	\$7,804	\$11,673
	BA fee	\$	\$7,000			\$21,000	\$21,000	\$7,000	\$7,000	\$14,000	\$14,000	\$63,000
	Professional fees	\$	\$50,000			\$150,000	\$150,000	\$50,000	\$50,000	\$100,000	\$100,000	\$450,000
	Power connection	\$	\$15,000			\$45,000	\$45,000	\$15,000	\$15,000	\$30,000	\$30,000	\$135,000
	Water connection	\$	\$10,000			\$30,000	\$30,000	\$10,000	\$10,000	\$20,000	\$20,000	\$90,000
	Infrastructure	\$	\$5,000			\$15,000	\$15,000	\$5,000	\$5,000	\$10,000	\$10,000	\$45,000
	Trees	\$	\$0			\$0	\$0	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
	Legals (conveyance)	\$	\$1,500			\$4,500	\$4,500	\$1,500	\$1,500	\$3,000	\$3,000	\$13,500
	Sales Cost	\$	\$18,000			\$59,400	\$59,400	\$23,400	\$23,400	\$46,800	\$46,800	\$210,600
	Unit Title	\$				\$15,000	\$15,000	\$15,000	\$15,000			\$15,000
	C of O	\$	\$5,000			\$15,000	\$15,000	\$5,000	\$5,000	\$10,000	\$10,000	\$45,000
	Other Holding	\$	\$2,500			\$4,000	\$4,000	\$2,500	\$2,500	\$3,000	\$3,000	\$5,000
	Subtotal	\$	\$145,993	\$0	\$0	\$456,623	\$456,623	\$176,682	\$176,682	\$314,604	\$314,604	\$1,363,773
Development	Coverage [Max]	sqm	214	214	214	214	214	338	338	506	506	380
	Residual	sqm	161	161	161	161	161	253	253	169	169	169
	Dwellings: demolish	#				1	1			1	1	1
	Sub Cons: Blocks	#				1	1			2	2	1
	Sub Cons: Area	sqm				536	536			422	422	844
	Sub Cons: Utilised	sqm				77	77			120.5	120.5	84
	Sub Cons: GFA	sqm				459	459			482	482	753
	Dwellings/Block	#	1			3	3	1	1	1	1	9
	Storeys	#	2			2	2	1	1	2	2	3



Stage	Item	Unit	RZ1					RZ2					
			Least	Modest		MM Reform		Least		Modest		MM Reform	
	Other GFA: utilised	sqm	47					120	120				
	Other GFA: total	sqm	94					120	120				
	Dwellings: Final	#	2			3	3	2	2	2	2	9	9
	\$/GFA	\$	\$3,400			\$3,500	\$3,500	\$3,200	\$3,200	\$3,400	\$3,400	\$3,900	\$3,900
	Demolition	\$	\$0			\$30,000	\$30,000	\$0	\$0	\$30,000	\$30,000	\$30,000	\$30,000
	Construction	\$	\$319,600			\$1,606,500	\$1,606,500	\$384,000	\$384,000	\$1,638,800	\$1,638,800	\$2,936,700	\$2,936,700
	Landscaping	\$	\$2,500			\$10,000	\$10,000	\$2,500	\$2,500	\$5,000	\$5,000	\$10,000	\$10,000
	Contingency [10%]	\$	\$32,210			\$164,650	\$164,650	\$38,650	\$38,650	\$167,380	\$167,380	\$297,670	\$297,670
	Subtotal	\$	\$354,310	\$0	\$0	\$1,811,150	\$1,811,150	\$425,150	\$425,150	\$1,841,180	\$1,841,180	\$3,274,370	\$3,274,370
	Duration: pre-build	m	6			12	12	6	6	9	9	18	18
	Duration: build	m	9			12	12	9	9	9	9	12	12
	Duration	m	15	0	0	24	24	15	15	18	18	30	30
Taxes	LVC: Lease type		Exempt	No limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit	No Limit	Limit
	LVC Sch 1	\$				\$120,000		\$40,000		\$7,500	\$7,500	\$320,000	
	LVC Sch 2	\$					\$262,500		\$150,000	\$150,000	\$150,000		\$420,000
	LVC Total	\$	\$0	\$0	\$0	\$120,000	\$262,500	\$40,000	\$150,000	\$157,500	\$157,500	\$320,000	\$420,000
	Stamp duty	\$											
	Rates	\$	\$4,375	\$0	\$0	\$7,000	\$7,000	\$4,375	\$4,375	\$5,250	\$5,250	\$8,750	\$8,750
	Subtotal	\$	\$4,375	\$0	\$0	\$127,000	\$269,500	\$44,375	\$154,375	\$162,750	\$162,750	\$328,750	\$428,750
Finance	Debt: ratio	%	23.3%			53.6%	56.8%	19.5%	22.8%	50.2%	50.2%	36.2%	36.9%
	Debt: max	%	\$504,678			\$2,394,773	\$2,537,273	\$646,207	\$756,207	\$2,318,534	\$2,318,534	\$4,966,893	\$5,066,893
	Equity: residual	\$	\$0			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Establishment costs	\$	\$7,570			\$35,922	\$38,059	\$9,693	\$11,343	\$34,778	\$34,778	\$74,503	\$76,003
	Interest	\$	\$41,005			\$311,320	\$329,845	\$52,504	\$61,442	\$226,057	\$226,057	\$807,120	\$823,370
	Out of pocket	\$	\$48,575			\$347,242	\$367,905	\$62,197	\$72,785	\$260,835	\$260,835	\$881,624	\$899,374
Outcomes	Price (market)	\$	\$1,000,000			\$1,100,000	\$1,100,000	\$1,300,000	\$1,300,000	\$1,300,000	\$1,300,000	\$1,300,000	\$1,300,000
	Project cost	\$	\$553,253			\$2,742,015	\$2,905,177	\$708,404	\$828,992	\$2,579,369	\$2,579,369	\$5,848,517	\$5,966,267
	Gross revenue	\$	\$1,000,000			\$3,300,000	\$3,300,000	\$1,300,000	\$1,300,000	\$2,600,000	\$2,600,000	\$11,700,000	\$11,700,000
	Pre-tax gross return	\$	\$446,747			\$557,985	\$394,823	\$591,596	\$471,008	\$20,631	\$20,631	\$5,851,483	\$5,733,733
	Gross ROI: ex-land	%	80.7%			20.3%	13.6%	83.5%	56.8%	0.8%	0.8%	100.1%	96.1%
	Gross ROI: inc-land	%	26.0%			14.3%	9.7%	21.7%	16.6%	0.4%	0.4%	74.4%	71.8%
	End CIV	\$	\$2,166,667	\$1,166,667	\$1,166,667	\$4,466,667	\$4,466,667	\$3,316,667	\$3,316,667	\$4,616,667	\$4,616,667	\$13,716,667	\$13,716,667
	CIV change	%	86%	0%	0%	283%	283%	64%	64%	129%	129%	580%	580%

ANNEX 3: INFORMATION QUALITY STATEMENT

The project has relied on a range of research, data and policies accessed from EPSDD, from a targeted literature review, and from existing Purdon data assets and methods. Annex 5 outlines the resources relied upon to deliver the project. These resources have limitations, and these limitations require assumptions that affect the quality of the project deliverables.

Key limitations

The three key limitations in research and analytics project are the availability of information (including data), the quality of available information, and the comparability of quality information that is available. Specific limitations that have affected the project analyses and conclusions are set out below.

Availability of relevant information

During project initiation Purdon set out a preferred hierarchy for shared data:

- *Administrative data:* spatial and administrative data owned by the ACT government will have the highest quality and comparability for this project. For example, cadastral data linked to rates and 'transfer price' or settlement data would provide an effective census of land baseline economics.
- *Official data:* where something is not available, or not shared, from within administrative data the next best solution will be ABS/AIHW/Productivity Commission style data and research which has a georeferenced component. These will provide useful insights but will suffer issues such as sample size and selection, location definitions and, in some cases, a lack of availability.
- *Market data:* where neither administrative or official data can be accessed, the next best solution would be market or subscription data, such as CoreLogic, LandChecker, or Geoscape. As proprietary products, they will provide information they have available based on methods that sometimes have limited transparency. It is of a lower quality (biased sources, smaller samples) and coverage than administrative or official data.

There are few gaps, and most of what was sought in project team discussions was made available, reflected in the data source list in the Resources section. Information otherwise not readily available for this project included:

- ACT revenue transfer price/settlements data. The project utilised sample data from CoreLogic, allhomes, and the ABS instead. Where feasible unimproved data has been used as an administrative data source.
- Administrative data for slope, orientation, street frontage, year of existing developments or lease formation, or building footprints for blocks was not available. Slope and orientation data have been derived from elevation sources. Street frontages are derived from block data (and from data shared by Landchecker for the precincts). A sample of the year of initial construction is available for commercial sources, but the sample size was insufficient. Samples exists for building footprints; however, the sample is small, and conflates structures (e.g. one block can have a dwelling and a 'shed' which appear to be counted as two footprints). Age and footprint were excluded due to these quality issues.
- Lease variation charge administrative data, by development, for areas in case study precincts, or evidence of applications ceased that had applied for LVC was not available. The absence of LVC data precludes formal analysis of the impact of LVC from administrative data.
- Some dimensions of development application and building approval data were low quality. Some DA and BA data was openly shared, however there were gaps and comparability issues (in particular, time series unit record DA data, and BA data for DA exempt dwellings). For the purposes of the project descriptive analytics high-level public DA data and ABS BA data suffice.
- Time series cadastral data, to compare land use between say 2011 and 2023, was not readily accessible. This would be a complex data series, but responding to the question of changes in land use over time would require a well-structured time series of several ACT geospatial files (e.g. BLOCKS, ADDRESSES, UNIT TITLE). Where time series comparisons are required, the project has relied on Census or other ABS sources as a statistical proxy.

- There is no sole source of truth about the number of dwellings on land parcels in the ACT on the public record. The project has linked several data sets to estimate address counts as an approximation for the count of dwellings. This affects dwelling counts and density calculations.

Some findings within the report are drawn from research that is not on the public record. Other administrative data gaps were discussed with the Project Team, and this discussion reflects the final position on availability.

These gaps in availability means the report cannot deal with all issues for the project. It also leads to the need for assumptions in modelling, which are discussed in the relevant sections.

The quality of available information

The information which is available to underpin the report is generally of a high quality, however there are limitations that must be considered. For example:

- All spatial records are based on a specific point in time. For ACT Geospatial files the extract date is July 2024. For G-NAF records it is May-2024. These data sets are updated regularly, and on different timelines. This means the data in the project models will not match data available today.
- Geographic boundaries are set under different frameworks. This means the project has had to make concordance assumptions to link blocks to suburbs, and then blocks and suburbs to ABS statistical geography. This is discussed further as it materially impacts on descriptive elements of the project.
- ACT BLOCK data includes a zoning column. The column has multiple records that include more than one zone. This directly affects zone allocation in the project. For the case study precincts this field was completely cleansed using the TP ZONE spatial file, and human intervention. For blocks in the general description sections not all multiple zoned blocks are cleansed.
- There is no formal taxonomy within geospatial records for the usage of blocks. There are some fields in ADDRESS records and the G-NAF. However, existing usage has been estimated based on a bespoke classification system. Market data does have some usage information; however the sample is limited, and the language is different when compared to administrative data.
- Most ACT data in official and market sources, especially when based on surveys, have very high standard errors. This means all data (population, dwellings, building activity) will have a wide range of potential values rather than a single point estimate.
- Market data has been extracted based on the time frame 2011 to 2024. This affects the sample, as only activity which occurred in that time frame will have records. For example, if a dwelling was not sold in the time frame there is no market data, or if a property was sold in 2012 but not again, only the 2012 record is available. This is a key reason the unimproved value data has been used, as it is a continuous time series at the address scale.
- A lot of data sources require human input at the point of collection. This opens a real and significant issue of language, spelling and lower quality results which affect both the construction of linked data sets and the analysis of data.

Where any adjustments or assumptions are made to improve quality, these are discussed in the context the information is used.

The comparability of available and quality information

Even where information is available, and is of sufficient quality, the methods used to generate the information may be different compromising the ability to combine sources to draw conclusions. For this project, comparability issues include:

- There is little ACT specific research. Research findings from other jurisdictions, domestic or international, are potentially irrelevant in the ACT. First because the ACT has a unique leasehold system. More broadly, the ACT is a small, concentrated polity which is young in global terms. This does not invalidate findings from other jurisdictions, but it does mean findings may not be completely transferable to the ACT. When comparing outcomes from other areas, further research has been undertaken to expand the range of sources to look for

patterns before drawing inferences. Occasionally these inferences inform assumptions. Where there is little confirmation or transferability to the ACT context findings are excluded.

- Data linking includes a comparability challenges. False matches are possible (matched keys that do not relate to matchable data fields). In large data sets, with different time frames, data which should link exactly may have gaps. Different data systems might use different language for the same item (units, for example, have a specific meaning in ACT spatial data, but generic meaning in market data). These issues are controlled by quality assessments of linked sets, however the potential for errors remains, and occasionally leads to smaller samples.
- Findings about case study precincts may not be comparable with all divisions in the ACT. As noted, each precinct is unique and is impacted by local factors, which will be the same for all divisions.

Where any adjustments or assumptions are made to improve quality, these are discussed in the context the information is used.

Key assumptions, limitations, and constraints

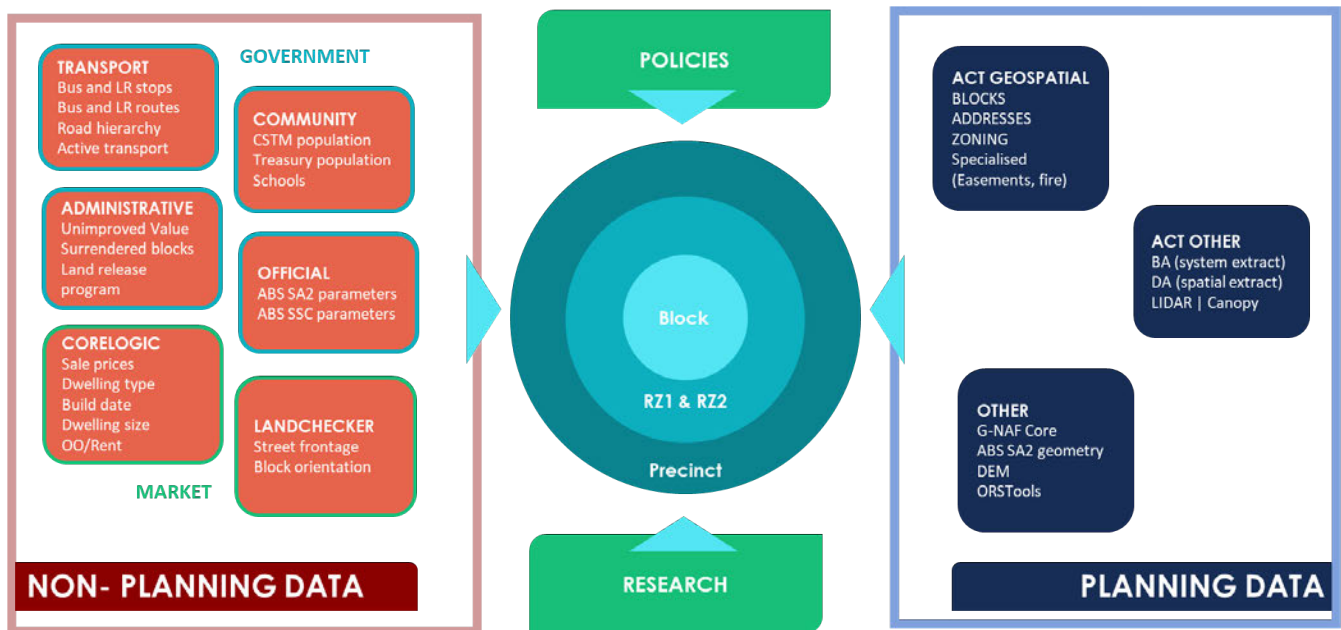
Most assumptions which impact the developability index and case studies are reported in section 3.7.1 Developability index (p. 99) and section 4.2.3 Case study assumptions (p. 123) respectively. Data linking is a key assumption for the land use aspect of these sections, as well as in section 2.0 Zones and precincts.

Data linkage

There is no single data source, at least publicly available, which provides all the spatial intelligence requirements to deliver the analysis required for this project. To address this the project has drawn together a wide range of data sets, and policy and research information, and linked the results to create the intelligence and insights required.

While all resources are set out in Annex 5, the broad spatial intelligence framework is illustrated in Figure 50. Market and government data, combined with geospatial, open data, other spatial data, policies, and third-party research have been linked to derive insights about precincts, RZ1 and RZ2 zones and blocks.

Figure 50: Creating insights



A key challenge is that each source relies on its own geography (e.g., address, section and block, unit numbers, or polygons or point estimates). Formal concordance between these data systems does not exist, and needs to be created. The method used is summarised in Figure 51. The method starts by attaching a common key to all data fields in all data sets. These keys could be native to the data set, or derived based on the keys in another dataset to which the fields need to be linked. The most obvious example is that ABS geography includes both a name and code

for statistical area 2 (SA2) geographic definitions, the names can be matched to ACT divisions, and then the ABS code can be used to connect ACT data sources to ABS SA2 data sources.

As far as possible this method allows unit record data (blocks) to be assessed individually, or grouped into a range of other layers (Sections, Zones, Divisions, Districts, SA3 etc).

The system is imperfect, as there are gaps and definitional issues. For example, unimproved value and G-NAF core data are based on street addresses, and there is an imperfect match between the BLOCK file because of the need to incorporate unit numbers (more than one record per block). This means estimates of land use, dwelling counts, and block counts may not be completely accurate based on the gaps between the files.

Data cleansing

Prior to linking data each source must be 'cleansed' to ensure the files are complete and comparable. Most of the cleansing has been to geospatial data.

The first cleansing step is extracting just the blocks that are relevant. This means excluding rural, proposed, or land in transition. The remaining records provides details that are potentially in-scope as well as 'well-known text' (wkt) geometry fields that can be used to re-map linked data sets at a later stage.

The data then goes through a range of cleansing steps. The main steps are (capitalised words are file names):

- ACTGOV BLOCK CURRENT fields are matched with ACTGOV UNIT to determine unit titled land.
- ACTGOV BLOCK CURRENT fields are matched with ACTGOV ADDRESSES (initially block to addresses, and then counts of addresses back to blocks).
- Surrendered block data is matched to ACTGOV BLOCK CURRENT.
- Zone fields in ACTGOV BLOCK CURRENT are filtered and cleansed using the ACTGOV TP LAND USE ZONE file (using spatial analytics and manual filtering).
- Records are filtered to identify corner blocks, counts of addresses and block keys, and any other fields that assist in nuancing definitions of land use (e.g. detached, unit titled, dual occupancy, corner block)
- Additional location keys fields are created to link with other relevant data sets.

- A range of analytical stratum are calculated, such as block size ranges, dwelling counts, apparent density, and any others relevant to the project.

The matching is managed through a separate file 'ACT urban analytics.' Once a clean, linked, complete data set is created, it can then be filtered for selected precincts. The filtered precinct file is then further adjusted to:

- Link additional analytical fields.
- Derive block level analytics for all fields.
- Remove unnecessary fields.
- Undertake statistical analysis and create no-spatial visualisation or reporting tables.

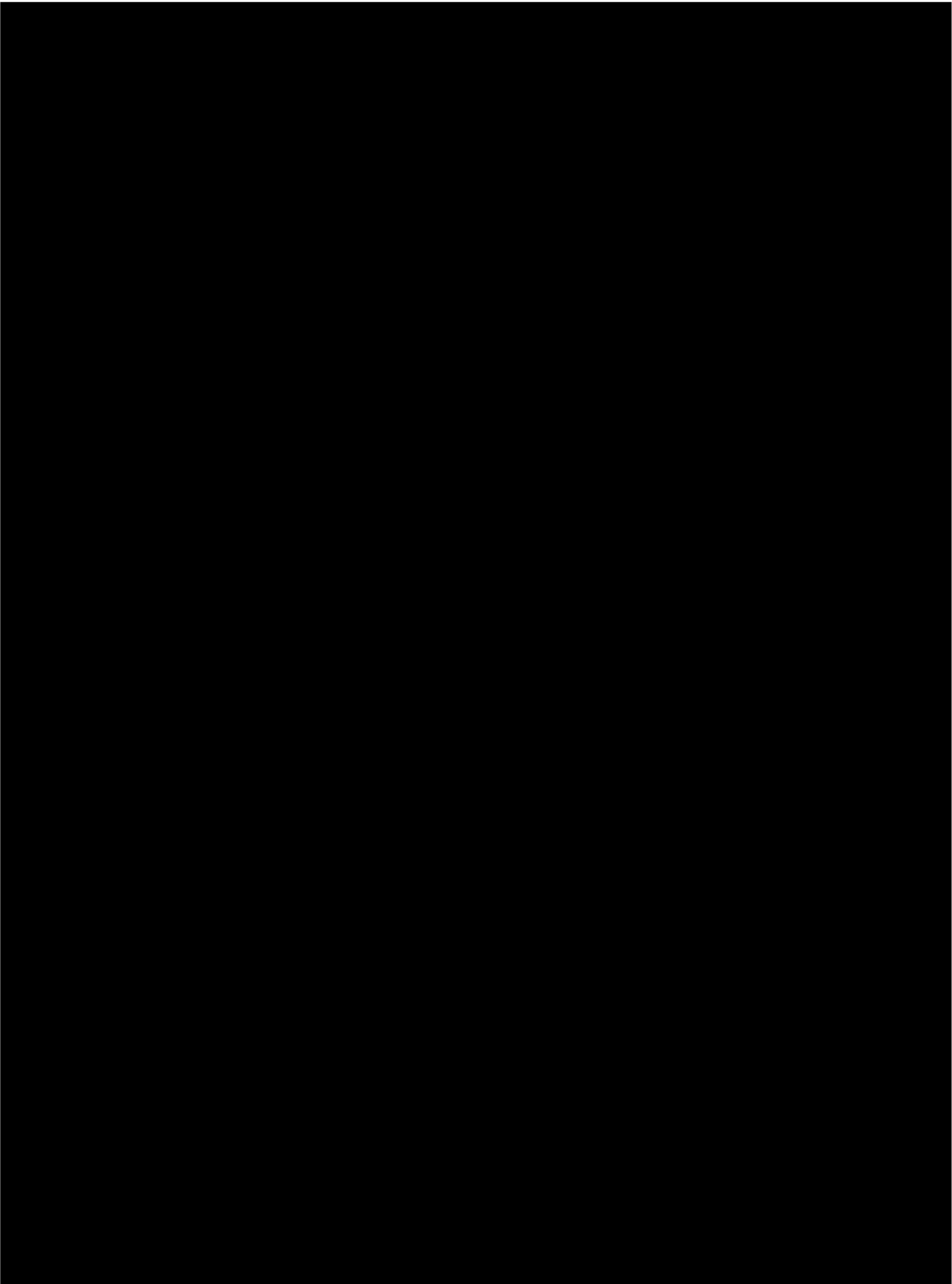
While the approach is defensible, and creates rich linked data sets, each stage introduces risks. Also, it means the data sets are unique to the project and may not be repeatable without guidance.

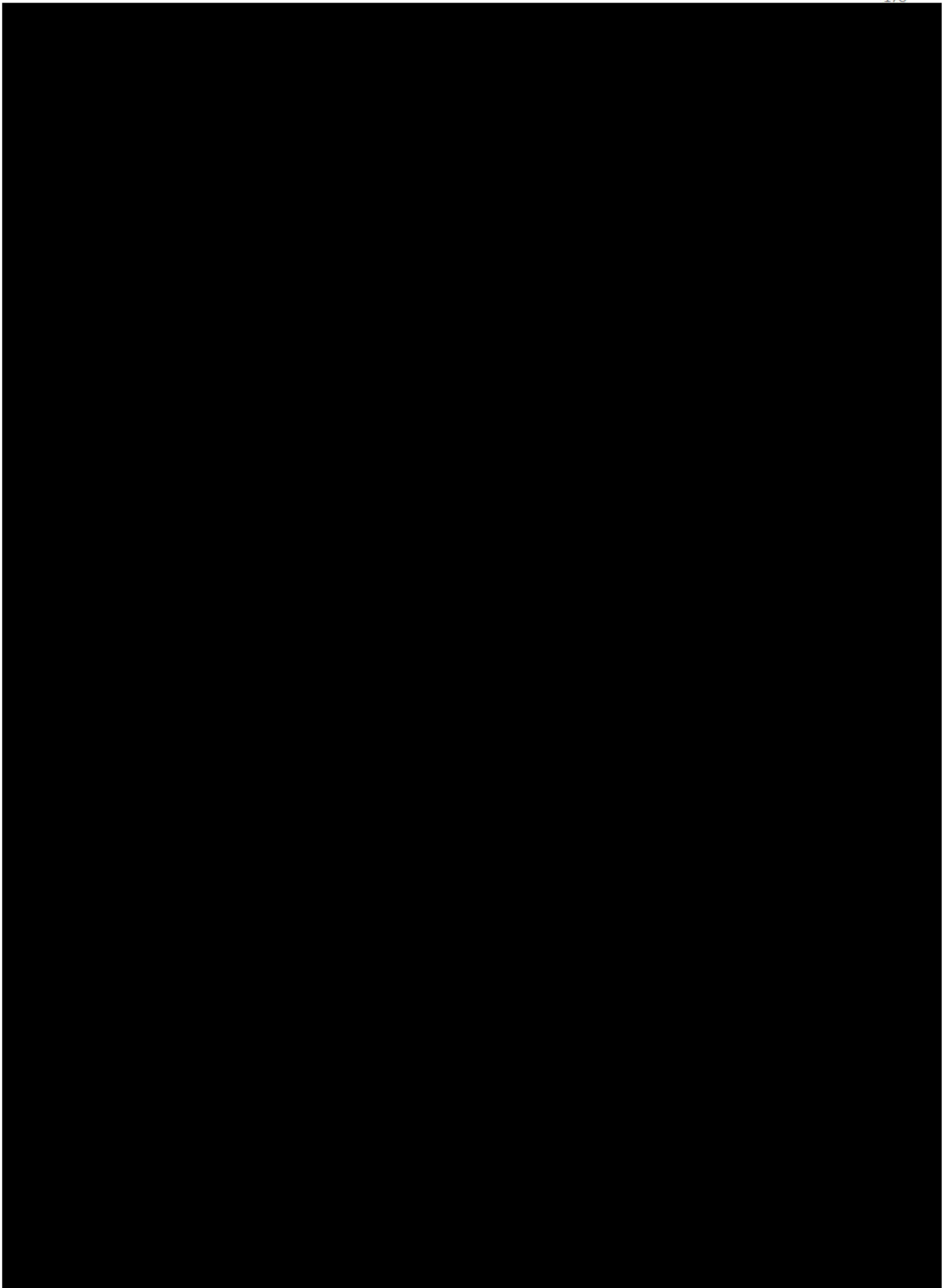
Precinct selection

The reductive approach to precinct selection led to the exclusion of the suburbs set out in Table 28.

Table 28: Locations excluded from precinct selection

Excluded (no blocks, non-res, no forecasts)	Exclude newer districts	Bad comparators	No RZ1 (after exclusions)	No RZ2 (after exclusions)
ACT - South West	Lawson	Acton	Belconnen	Ainslie
Arboretum	McNamara	Barton	Forrest	Banks
Beard	Strathnairn	Braddon	Greenway	Bruce
Black Mountain	Amaroo	City		Dunlop
Canberra Airport	Bonner	Parkes		Isabella Plains
Canberra East	Casey	Russell		Kingston
Capital Hill	Crace	Pialligo		Macarthur
Duntroon	Forde			O'Malley
Fyshwick	Franklin			Oxley
Gooromon (CSIRO)	Gungahlin			Reid
Gungahlin - East	Harrison			Turner
Gungahlin - West	Jacka			
Hume	Kenny			
Kowen	Moncrieff			
Lake Burley Griffin	Ngunnawal			
Mitchell	Nicholls			
Molonglo - East	Palmerston			
Molonglo Corridor	Taylor			
Mount Taylor	Throsby			
Namadgi	Hall			
Parkes - South	Coombs			
Scrivener	Denman Prospect			
Tharwa	Molonglo			
Tuggeranong	Whitlam			
Tuggeranong - West	Wright			
Uriarra Village				
West Belconnen				







Engagement sessions

Stakeholders were invited to attend two formal workshops. The session and objectives are summarised below.

Session 1			
Date	23 July 2024	Time	1400 to 1600
Location	In-person: 480 Northbourne, 480NBA 00.031 (Capacity 18, TV, Video Conf), Webex: Meeting access code: 2652 148 7254		
Objective	• Understand the project context, objectives, and expected outcomes. • Outline methods and early findings. • Discuss challenges and opportunities from other ACT Government agency perspective. • Increase viability of future recommendations.		
Session 2			
Date	9 September 2024	Time	1300 to 1500
Location	In-person: 480 Northbourne, 480NBA 00.031 (Capacity 18, TV, Video Conf), Webex: Meeting access code: 2653 939 2661.		
Objective	• Recap project, update progress. • Outline and test feasibility method and results. • Increase viability of future recommendations. • Discuss challenges and opportunities from other ACT Government agency perspective.		

During the project initiation and insights development stages a range of one-to-one sessions were held with the Project Team and:

- TCCS on the CSTM and the location of Transport infrastructure.
- EPSDD (multiple people and teams) on data, concepts, findings, and analysis structure.
- CMTEDD on preliminary findings, in relation to valuation and taxation.

Finally, a targeted Executive Briefing session on the penultimate draft was delivered as described below.

Executive Session			
Date	4 November 2024	Time	1300 to 1400
Location	<i>In-person:</i> 480 Northbourne, 480NBA 02.127 Gungahlin Room (Capacity 10, Webex Board)		
Objective	• Present broad method, insights, results, observations and recommendations. • Stress test project recommendations.		



ANNEX 5: RESOURCES

Bibliography

ACT Chief Minister, Treasury and Economic Development Directorate. "Review of the Lease Variation Charge: Consultation Paper," September 2018. https://hdp-au-prod-app-act-yoursay-files.s3.ap-southeast-2.amazonaws.com/6215/3688/6997/Lease_Variation_Charge_consultation_paper_PDF.pdf.

ACT Government. "ACT Housing Strategy," October 2018.

https://www.act.gov.au/__data/assets/pdf_file/0004/1265638/ACT-Housing-Strategy-2018.pdf.

———. "Detailed Consultation Report: Review of the Lease Variation Charge," February 2019. https://hdp-au-prod-app-act-yoursay-files.s3.ap-southeast-2.amazonaws.com/8615/5132/8561/Detailed_Consultation_Report.pdf.

———. "District Strategies 2023: Volume Five, Glossary of Terms," September 11, 2023.

https://www.planning.act.gov.au/__data/assets/pdf_file/0003/2324694/district-strategies-2023-volume-5-glossary-of-terms.pdf.

———. "District Strategies 2023: Volume One, Metropolitan Context and Big Drivers," September 11, 2023.

https://www.planning.act.gov.au/__data/assets/pdf_file/0005/2280794/district-strategies-2023-volume-1-metropolitan-context-and-big-drivers.pdf.

———. "District Strategies 2023: Volume Three, Indicative Implementation Plan," 2023.

https://www.planning.act.gov.au/__data/assets/pdf_file/0010/2324692/district-strategies-2023-volume-3-implementation.pdf.

———. "National Planning Reform Blueprint and Progress Report: ACT." Progress report, March 2024.

<https://treasury.gov.au/sites/default/files/inline-files/p2024-560520-act-report-march-2024.pdf>.

———. "Unimproved Value." Open Data Portal dataACT, July 16, 2024.

https://www.data.act.gov.au/dataset/Unimproved-value/rbu5-se5b/about_data.

———. "Urban Forest Strategy 2021-2045," 2021. https://hdp-au-prod-app-act-yoursay-files.s3.ap-southeast-2.amazonaws.com/5616/1710/4101/Urban_Forest_Strategy_2021-2045.pdf.

ACT Revenue Office. "RZ1 LVC Partial Waiver." ACT Revenue Office - Website. ACT Revenue Office, February 19, 2024. <https://www.revenue.act.gov.au/lvc/rz1-lvc-partial-waiver>.

ACT Taxation Review Panel. "ACT Taxation Review," May 2012.

https://www.treasury.act.gov.au/__data/assets/pdf_file/0004/423409/tax-review-may2012.pdf.

Adams, Philip D, Jason Nassios, and Nicholas Sheard. "The Economic and Efficiency Impacts of Altering Elements of the ACT's Tax Mix." Centre of Policy Studies, Victoria University, April 2, 2020.

https://www.treasury.act.gov.au/__data/assets/pdf_file/0009/1618407/cops-final-report.pdf.

AECOM. "Greenfield and Infill Developments in the ACT: Comparative Cost Study." Prepared for ACT EPSDD, November 1, 2018. https://www.parliament.act.gov.au/__data/assets/pdf_file/0016/1360600/Answer-QToN-5.pdf.

Anagol, Santosh, Fernando V. Ferreira, and Jonah M. Rexer. "Estimating the Economic Value of Zoning Reform." Working Paper. National Bureau of Economic Research, October 2021. <https://doi.org/10.3386/w29440>.

Arundel, Jonathan, Melanie Lowe, Paula Hooper, Rebecca Roberts, Julianna Rozek, Carl Higgs, and Billie Giles-Corti. "Creating Liveable Cities in Australia." Report. Centre for Urban Research, October 12, 2017. Australia.

<https://apo.org.au/node/113921>.

Australian Taxation Office. "Property and capital gains tax." Content. scheme=AGLSTERMS.AglsAgent; corporateName=Australian Taxation Office; address=GPO Box 9990 Canberra ACT 2600; contact=13 28 65, Current. <https://www.ato.gov.au/individuals-and-families/investments-and-assets/capital-gains-tax/property-and-capital-gains-tax>.

- . “Property development, building and renovating.” Content. scheme=AGLSTERMS.AglsAgent; corporateName=Australian Taxation Office; address=GPO Box 9990 Canberra ACT 2600; contact=13 28 65, July 1, 2021. <https://www.ato.gov.au/businesses-and-organisations/assets-and-property/property/property-development-building-and-renovating>.
- . “Subdividing land.” Content. scheme=AGLSTERMS.AglsAgent; corporateName=Australian Taxation Office; address=GPO Box 9990 Canberra ACT 2600; contact=13 28 65, June 17, 2024. <https://www.ato.gov.au/individuals-and-families/investments-and-assets/land-vacant-land-and-subdividing/subdividing-land>.
- . “Taxation statistics 2021–22.” scheme=AGLSTERMS.AglsAgent; corporateName=Australian Taxation Office; address=GPO Box 9990 Canberra ACT 2600; contact=13 28 65, 2021. <https://www.ato.gov.au/about-ato/research-and-statistics/in-detail/taxation-statistics/taxation-statistics-2021-22>.
- BMT Quantity Surveying. “How Much Does It Cost to Build a House in 2024? | Average Building Costs.” Accessed September 15, 2024. <https://www.bmtqs.com.au/construction-cost-table>.
- CoreLogic. “CoreLogic Australia Residential Property Index Series,” October 2023. https://www.corelogic.com.au/__data/assets/pdf_file/0015/4083/clau-residential-property-index-series.pdf?v0.3.0.
- Davidoff, Ian, and Andrew Leigh. “How Much Do Public Schools Really Cost? Estimating the Relationship between House Prices and School Quality.” *Economic Record* 84, no. 265 (2008): 193–206. <https://doi.org/10.1111/j.1475-4932.2008.00462.x>.
- House of Representatives Standing Committee on Infrastructure, Transport and Cities. “Building Up & Moving Out: Inquiry into the Australian Government’s Role in the Development of Cities.” Inquiry Report, September 2018. Australia. https://www.aph.gov.au/Parliamentary_Business/Committees/House/Former_Committees/ITC/DevelopmentofCities/Report.
- Jafari, Afshin, Dharendra Singh, and Billie Giles-Corti. “Residential Density and 20-Minute Neighbourhoods: A Multi-Neighbourhood Destination Location Optimisation Approach.” *Health & Place* 83 (September 1, 2023): 103070. <https://doi.org/10.1016/j.healthplace.2023.103070>.
- Macroeconomics. “Final Report on the Review of the Change of Use Charges System in the ACT,” November 29, 2010.
- Murray, Cameron. “The First Interval – Evaluating ACT’s Land Value Tax Transition.” Prosper, August 2016. <https://www.prosper.org.au/2016/09/the-first-interval-evaluating-acts-land-value-tax-transition-full-report/>.
- NSW Productivity Commission. “Building More Homes Where Infrastructure Costs Less.” Report. NSW Productivity Commission, August 2023. https://www.productivity.nsw.gov.au/sites/default/files/2023-08/202308_NSW-Productivity-Commission_Building-more-homes-where-infrastructure-costs-less_accessible-v2.pdf.
- Piggott, John. “Reforming the Change of Use Charges (CUC) in the ACT: An Independent Economic Assessment,” November 25, 2010.
- Productivity Commission. “Realising the Productive Potential of Land, Shifting the Dial: 5 Year Productivity Review Supporting Paper.” Inquiry Supporting Paper. Productivity Commission, August 3, 2017. <https://www.pc.gov.au/inquiries/completed/productivity-review/report/productivity-review-supporting10.pdf>.
- Smith, Warwick, and Jesse Hermans. “THE SECOND INTERVAL: Evaluating the ACT’s 20 Year Land Value Taxation Transition after 8 Years.” Prosper, October 2020. <https://www.prosper.org.au/campaigns/stamp-duty-to-land-tax/a-c-t-land-tax-transition/>.
- Steele (Minister for Planning), C. “Statement of Planning Priorities 2024-25,” June 2024. https://www.planning.act.gov.au/__data/assets/pdf_file/0010/2457028/minister-statement-of-planning-priorities-2024.pdf.

Tax and Transfer Policy Institute, and National Centre for Social and Economic Modelling. "Analysis of the Impacts and Outcomes of the ACT Tax Reform," June 24, 2020.

https://www.treasury.act.gov.au/__data/assets/pdf_file/0006/1618413/natsem-ttpi-final-report-and-appendices.pdf.

The Town Paper Publisher. "SmartCode v. 9.2," 2021. <https://transect.org/codes.html>.

Tulip, Peter. "Misunderstandings about Planning Restrictions." Centre for Independent Studies, December 2021. <http://petertulip.com/misunderstandings.pdf>.

Tulip, Peter, and Trent Saunders. "A Model of the Australian Housing Market." RBA Research Discussion Paper, 2019. <https://www.rba.gov.au/publications/rdp/2019/pdf/rdp2019-01.pdf>.

Urban Development Institute of Australia. "UDAI State of The Land 2024," April 4, 2024. <https://udia.com.au/research-insights/state-of-the-land/>.

Wright, Bruce. *Cornerstone of the Capital A History of Public Housing in Canberra*. ACT Housing, 2005. <https://web.archive.org/web/20050709201205/http://www.dhcs.act.gov.au/hcs/Publications/NewLetters/ACTHOU3.PDF>.

Other government sites and regulations

ACT Government, Demonstration Housing Project, <https://www.planning.act.gov.au/projects-priorities/demonstration-housing-project>

ACT Government, Planning (Lease Variation Charges) Determination 2024 DI2024–184, commenced 1 July 2024

ACT Government, Sothorn Gateway Planning Framework, <https://www.planning.act.gov.au/projects-priorities/southern-gateway-planning-framework>

Duties Act 1999 [1/7/2024]

NSW Architect, Good Design for Housing, <https://www.planning.nsw.gov.au/government-architect-nsw/housing-design/good-design-for-housing>

Planning Act 2023 [R4, 11/7/24].

Rates Act 2004 [R44, 1/7/24]

Data

Market and government

ABS, 8731.0 Building Approvals, Australia, <https://www.abs.gov.au/statistics/industry/building-and-construction/building-approvals-australia>

ABS, Building Activity (8752.0), Australia, September 2023, 17 Jan 2024.

ABS, Data by region methodology, 2011-2023, November 2023, Family and community, ASGS and LGA, 2011, 2016-2021 https://www.abs.gov.au/methodologies/data-region-methodology/2011-23/14100DO0007_2011-23.xlsx

ABS, Data by region methodology, 2011-2023, November 2023, <https://www.abs.gov.au/methodologies/data-region-methodology/2011-23#data-downloads>

ABS, Data by region methodology, 2011-2023, November 2023, Land and environment, ASGS, LGA, ILOC, IARE, IREG and RA, 2015-2022 https://www.abs.gov.au/methodologies/data-region-methodology/2011-23/14100DO0009_2011-23.xlsx

ABS, Data by region methodology, 2011-2023, November 2023, Population and people, ASGS, LGA, and RA, 2011, 2016-2023 https://www.abs.gov.au/methodologies/data-region-methodology/2011-23/14100DO0001_2011-23.xlsx

ABS, Producer Price Indexes, Australia, June Qtr 2024, <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/producer-price-indexes-australia/latest-release>

ACT EPSDD, Development Statistics, 2019-20 to 2024-25, <https://www.planning.act.gov.au/applications-and-assessments/development-applications/development-statistics>

ACT Government, ACT Land and Property Report: September Quarter 2017 to June 2023 half yearly report.

ACT Government, Indicative land release program (various years)

ACT Government, Unimproved value, Open data portal, https://www.data.act.gov.au/dataset/Unimproved-value/rbu5-se5b/about_data

AUO, Liveability, <https://auo.org.au/portal/metadata/urban-liveability-index/>

AUO, Social Infrastructure, <https://auo.org.au/portal/metadata/social-infrastructure-mix-index/>

Australian Government, Skills Priority List filtered for ACT across all ANZSCO major groups that are designated as in 'shortage', <https://www.jobsandskills.gov.au/data/skills-shortages-analysis/skills-priority-list>.

Corelogic: Cordell Connect

Corelogic: RPData

Genevieve Jacobs, ACT Budget 2019: Rates rises revealed for your suburb, Riotact, 4-Jun-19, <https://the-riotact.com/act-budget-2019-rates-rises-revealed-for-your-suburb/305824>

Ian Bushnell, ACT Budget: How much your rates will rise suburb by suburb, Riotact, 1-Jul-23, <https://the-riotact.com/act-budget-how-much-your-rates-will-rise-suburb-by-suburb/676420>

Ian Bushnell, ACT Budget: See what your rates bill will look like in 2024-25, Riotact, 26-Jun-24, https://the-riotact.com/act-budget-see-what-your-rates-bill-will-look-like-in-2024-25/782288?utm_source=newsletter&utm_medium=daily&utm_campaign=2024-06-26

Ian Bushnell, What your rates bill will be in 2022-23, Riotact, 18-Jul-22, <https://the-riotact.com/what-your-rates-bill-will-be-in-2022-23/576727>

Ian Bushnell, ACT Budget: Your rates and what you will pay, Riotact, 7-Oct-22, <https://the-riotact.com/act-budget-your-rates-and-what-you-will-pay/501011>

Ian Bushnell, ACT Budget: Your rates bill to increase, stamp duty to go for first-home buyers, Riotact, 5-Jun-18, <https://the-riotact.com/act-budget-rates-up-7-per-cent-stamp-duty-to-go-for-first-home-buyers/248993>

Joe Tonna, Question Time Brief, Issue: Rates Charges for 2017-18, ACT Government FOI Register, 7-Mar-18, https://www.cmtedd.act.gov.au/__data/assets/pdf_file/0014/2201090/Treasurer-QTBs-March-2018.PDF

LandChecker

Demographics

ACT Government, Latest ACT Population Projections, 2022, <https://www.treasury.act.gov.au/snapshot/demography/act>

ABS 3105.0.65.001 Australian Historical Population Statistics, 2019,
<https://www.abs.gov.au/statistics/people/population/historical-population/latest-release>

ABS, Population Projections, Australia, 2022 (base) – 2071,
<https://www.abs.gov.au/statistics/people/population/population-projections-australia/2022-base-2071#data-downloads>

ABS, Census, 1912 to 2021.

ABS, 3101.0 National, state and territory population, December 2022, 15/06/2023,
<https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/jun-2023#data-downloads>

Australian Government (Centre for Population), Capital city and rest-of-state projections, 2021-22 to 2032-33,
Australian Government (The Treasury), 2023 Intergenerational Report, 24 August 2023.

TCCS, Canberra Strategic Transport Model (CSTM): Precincts extract.

Dwellings

ABS Tablebuilder: Dwelling Structure and Number of Bedrooms in Private Dwelling by SA4 and Number of Persons
Usually Resident in Dwelling

ABS, Administrative data snapshot of population and housing - experimental housing data, 30 June 2021 — Australia

ABS, Census: Time series profile for ACT SA2 including 2001-2011, 2006-2016, and 2011-21

ABS, Estimated dwelling stock, June Quarter 2022, 31/10/2022, <https://www.abs.gov.au/statistics/industry/building-and-construction/estimated-dwelling-stock/jun-quarter-2022>

ABS, Housing Occupancy and Costs, Australia, 2019–20, 25 May 2022.

Geospatial

ABS, Australian Statistical Geography Standard (ASGS) Edition 3
(<https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/latest-release>)

ACT Geospatial Catalogue, <https://actmapi-actgov.opendata.arcgis.com/>:

- ACTGOV ADDRESSES
- ACTGOV BLOCK CURRENT
- ACTGOV DISTRICT
- ACTGOV DIVISION
- ACTGOV EASEMENT
- ACTGOV OPEN SPACE
- ACTGOV SECTION CURRENT
- ACTGOV TP LAND USE ZONE
- ACTGOV UNIT
- ACTGOV_BUILDING_FOOTPRINTS
- ACTGOV ACT Canopy Cover Map 2020



- ACTGOV Canopy Cover 2020 1m - Districts
- ACTGOV Canopy Cover 2020 Statistics
- Road Centrelines
- Road Edges

Spatial or related data in ACT Government Open Data Portal:

- Light Rail Route (<https://www.data.act.gov.au/Transport/Light-Rail-Route/aqwx-hqk9>)
- Kiss and Ride Locations (<https://www.data.act.gov.au/Transport/Kiss-and-Ride-Locations/bb5d-efgh>)
- Bus Stops - New Network July 2020 (https://www.data.act.gov.au/Transport/Bus-Stops-New-Network-July-2020/vdh8-ug3k/about_data)
- Bus routes (<https://www.data.act.gov.au/Transport/Bus-routes/knhu-hrs2>) [no specification of high frequency stops]
- Canberra Park and Ride Locations <https://www.data.act.gov.au/Transport/Canberra-Park-and-Ride-Locations/pf3k-da6x>
- Light Rail Stops (<https://www.data.act.gov.au/Transport/Light-Rail-Stops/28a2-f2xq>) [Missing latter stages]

Digital elevation model: <https://elevation.fsdf.org.au/>, and 2020 LIDAR - 1m DEM
<https://www.actmapi.act.gov.au/access-imagery-and-elevation>

Geoscape Australia: G-NAF Core, May 2024 <https://geoscape.com.au/data/g-naf-core/>

ANNEX 6: ACCESSIBILITY ASSISTANCE

Figures with data

The report presents simplified visual presentations of detailed input data in the form of Figures. These figures are mostly self-contained.

Where feasible, important aspects of the data are highlighted within the figures.

Other figures report the outcomes of modelling. For example Figure 47 and Figure 49 are based on summary tables (Table 14 through to Table 18), which summarise the detailed tables (Table 23 through to Table 27).

Where the figures are not accessible, especially for more detailed figures or those which report multiple variables, a data file is available upon request that included all the numbers used to generate the figures. The data tables are not reproduced in this annex to limit the file size and detail.

Descriptive figures

Two figures are visual simplifications of relatively complex processes. This annex provides a simplification of the figures into components. However, the flow of the diagrams is difficult to emulate in written format.

In Figure 25 a 'development feasibility framework' is summarised into sequences and stages. Reading left to right and top to bottom the figure:

- First shows a time bound process from 'idea' to 'outcome', which includes development options available to leaseholders, and the potential duration of those options, then
- Sets out a top to bottom chevron diagram that goes through stages concept, design, approval, development, closure and post-occupancy. These stages dissect the next sections to broadly align activities to the stages.
- Identifies in simplified language the 'planning' components described in Section 3.3 Planning levers.
- Identifies in simplified language the 'non-planning' components described in Section 3.5 Non-planning Levers.
- Illustrates the intersection between 'planning' and 'non-planning' matters as described in Section 3.4 Regulatory and enabling levers.

All the components of the visual framework are set out in detail in *Part 3.0 Feasibility of the Missing Middle*.

In Figure 26, a range of timelines are layered to illustrate the history of major planning events and planning systems that have led up to the creation of the *Territory Plan 2023*, and pose a question of the system from 2025 onwards. The figure is described in terms of the impact on the project in Section 3.3.2 Urban Character and History, and the figure and description influence a range of observations and recommendations. The following table sets out some of the key time frame sequences which may be difficult to read from the image. The columns are not date aligned, but reflect the sequences and key points in the figure.



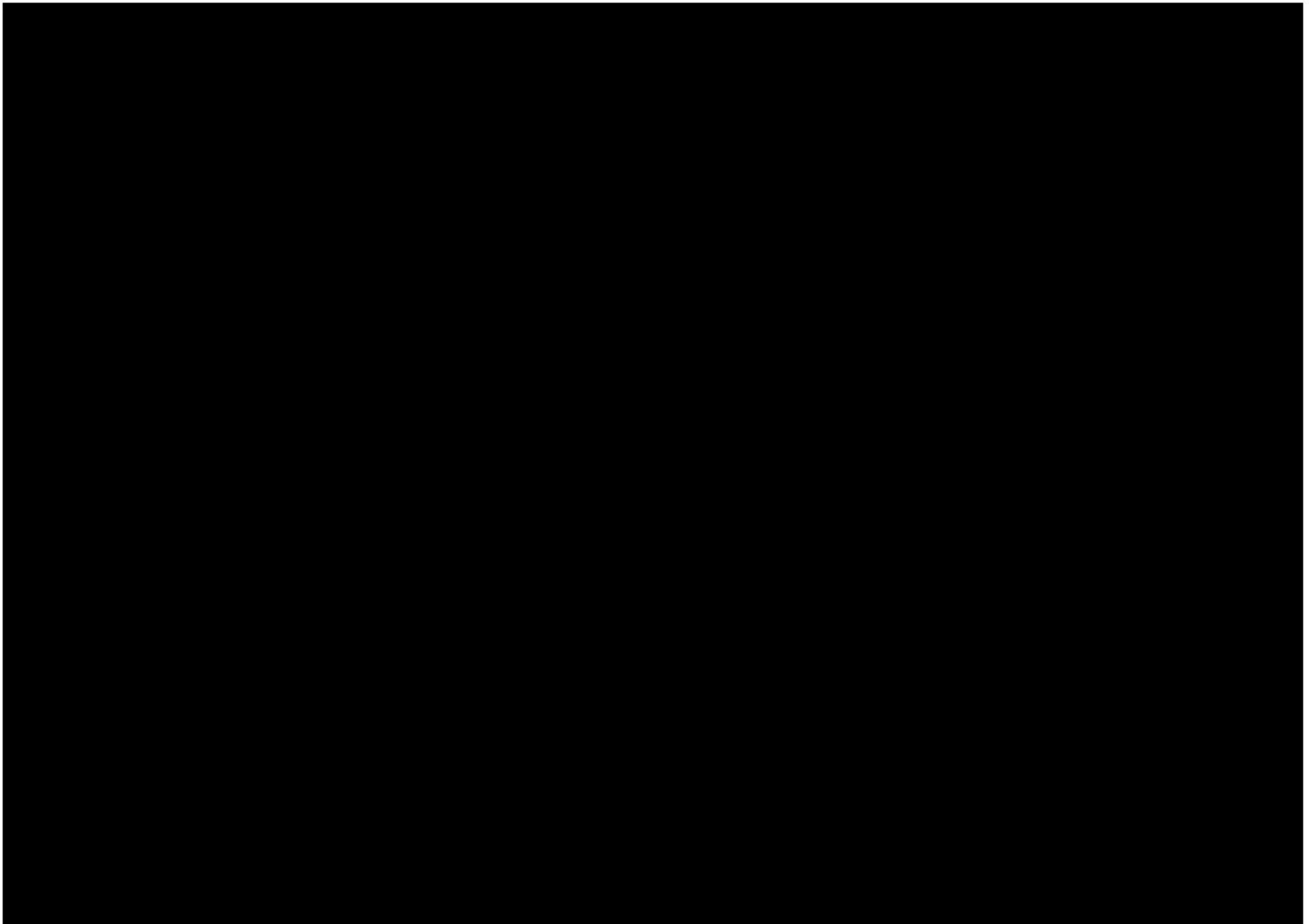
Major events	Systems	Eras	Other items
1913 Canberra Named	1911-1920 Walter Burley Giffin, Federal Capital Director of design and construction	1911 to 1988: Australian Government	1947 Narrabundah established
1930 ACT Advisory Council	Up to 1924 Federal Capital Advisory Committee	1989 onwards Self Government	1966 Chifley established
1967 Y-Plan	Up to 1938 Federal Capital Commission		1967 Macquarie established
1970 Land Rent ends	Up to 1967 National Capital Planning and Development Committee		1968 Fisher established
1984 Metropolitan Policy plan	Up to 1988 National Capital Development Commission		1978 Monash established
1990 National Capital Plan 1.0	1988-1991 Interim ACT Authority		2008 RZ2 zone added
1993 Territory Plan 1.0	Up to 2007 Land (Planning and Environment) Act 1991		1998 Planning and Land Management entity established.
2002 Territory Plan 2002	Up to 2023 Planning and Development Act 2007		2011 EPSDD entity established.
2004 Spatial Plan	Since 2023 Planning Act 2023		
2008 Territory Plan 2008 (Garden City)	After 2024 Future Settings?		
2018 Planning Strategy			
2023 Territory Plan 2023 (Outcomes based)			

Other matters

If any remaining information is not accessible, please make contact and someone will endeavour to assist with your circumstances.



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