LIVERPOOL HOUSING STUDY

Certified B Corporation

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Outlines the purpose and structure of the study.

2 Strategic context

Outlines the planning and current context around housing in the Liverpool LGA.

3 Housing context

Outlines the current housing supply, demographics and housing market characteristics of the Liverpool LGA

4 Capacity analysis

Assesses of the potential existing capacity for housing across the LGA under current planning controls

5 Demand analysis

Models likely future demand for housing in the Liverpool LGA under different scenarios

6 Housing futures

Assesses current housing supply against projected demand

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INTRODUCTION

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Introduction

Liverpool Council (Council) is writing their Local Strategic Planning Statement and reviewing their Local Environmental Plan for the Liverpool Local Government Area (LGA).

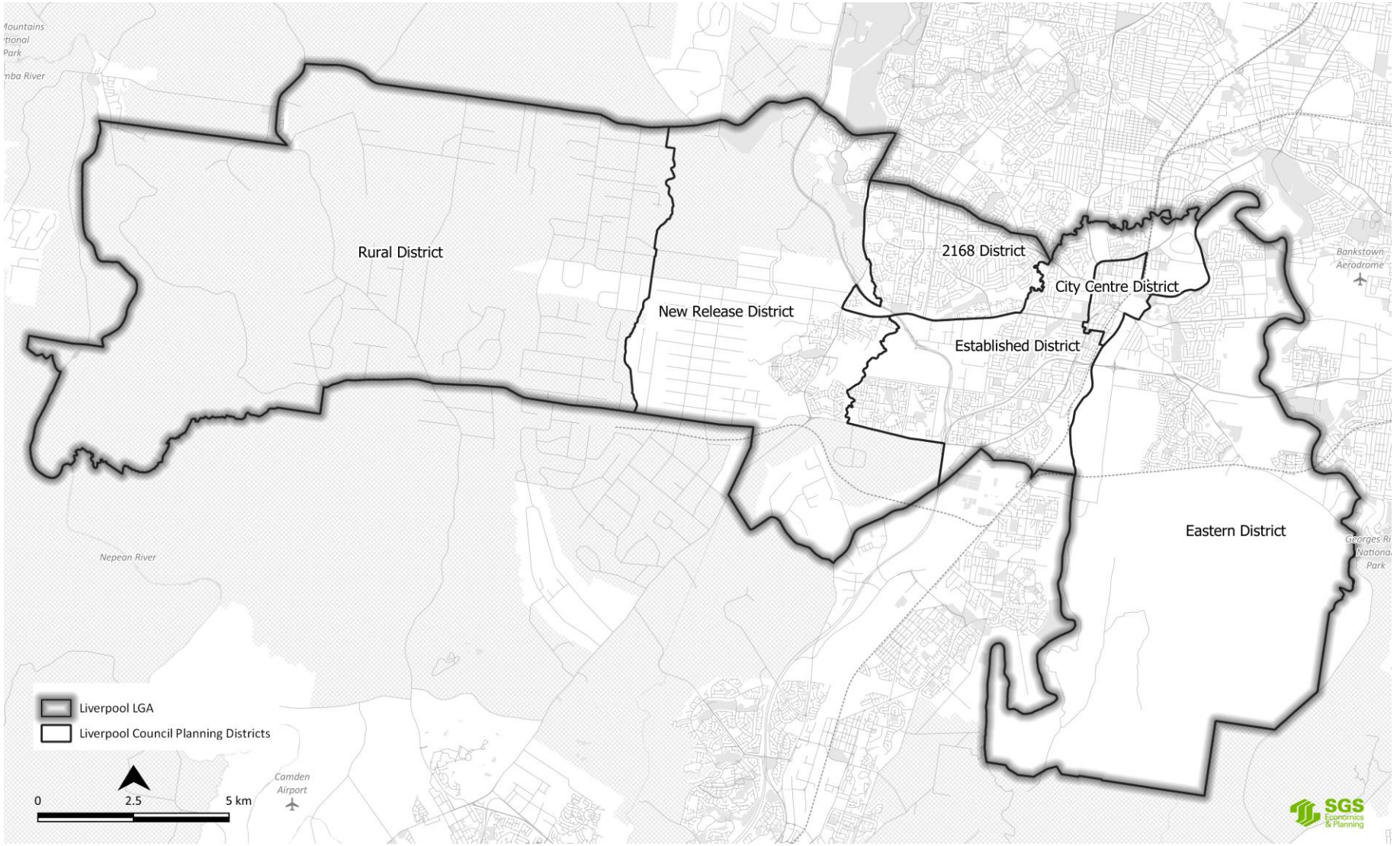
Council has commissioned SGS Economics and Planning to prepare a Local Housing Study (LHS) for the LGA. The Study will provide an evidence base for planning for how housing growth is to be managed, identify the right locations for additional housing supply and inform updates to the LEPs. This study will inform Council's Local Housing Strategy.

This report is structured as follows:

- Section 1 Introduction
- Section 2 Strategy Context
- Section 3 Housing Context
- Section 4 Capacity Analysis
- Section 5 Demand Analysis
- Section 6 Gap Analysis
- Section 7 Opportunities and Constraints
- Section 8 Housing Character
- Section 9 Key Findings and policy options
- Appendix A: Medium density code
- Appendix B: Additional housing character mapping

Introduction

The analysis in this report is structured around Liverpool Council's planning districts. The LGA is split into six districts, the boundaries of which are shown on the right. In some cases in this study, suburbs within the Liverpool LGA are also referred to.



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STRATEGIC CONTEXT

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Greater Sydney's housing challenge

In 2016, Greater Sydney was home to approximately 4.7 million people. The NSW Department of Planning and Environment projects the population to increase to around 6.4 million by 2036. This is an increase of over 1.7 million people or approximately 37% on current population levels. Between 1996 and 2016, Greater Sydney grew by around 1.1 million people. The forecast growth over the next 20 years of 1.7 million people is much higher than this.

Planning for this increased rate of growth while maintaining the liveability of Sydney's suburbs will be challenging. It will require consideration of how to best accommodate more population in established areas as well as at Sydney's fringes. Each part of the Greater Sydney Region is currently proposed to house more people and dwellings, including the Liverpool LGA.

Based on Forecast.id projections, the Liverpool LGA is forecast to grow from 212,232 people in 2016 to 358,871 people by 2036. This is an additional 146,639 people (69% increase or 2.7% annual growth rate). Forecast.id projects an additional 54,449 dwellings in the LGA between 2016 and 2036.

Greater Sydney's housing challenge

Historically most population growth in Greater Sydney has been accommodated in four main ways:

- The development and conversion of rural and agricultural land at Sydney's fringes - this is how most growth in the Liverpool LGA has historically been accommodated,
- The consolidation of established residential neighbourhoods, including policies which allow development of dual occupancy dwellings as well as medium-density forms such as villa housing (e.g. Lurnea),
- The construction of higher-density apartment housing around existing centres and public transport (e.g. Liverpool City Centre), and
- The redevelopment of former industrial sites for high-density apartment complexes (e.g. the Shepherd Street Precinct).

It is likely that each of these kinds of development will have a role in housing Sydney's growing population in the future.

Planning for Liverpool's future must consider what kinds of housing:

- Will most appropriately accommodate the needs of the local community,
- Will be most suitable in the context of climate change and environmental challenges,
- Will aid the amenity, vibrancy and economy of the Liverpool LGA, and
- Will complement planning for the Western Sydney Airport – Badgerys Creek Aerotropolis.

To preserve some of the rural land in the Liverpool LGA and the Sydney Basin more generally, dwellings must continue to be accommodated in existing suburbs. Dwellings built in existing suburbs near public transport are generally better located than similar dwellings built on the urban fringe, often far away from public transport, job and services.

Drivers for housing location and needs

NSW Government strategies outline the most appropriate locations for new dwellings, including for high-density redevelopment and for the replacement of existing houses with villas and townhouses. The most appropriate locations are those which:

- Are accessible to jobs and services,
- Are near railway lines and other public transport services,
- Are pleasant to walk around, with services and shops within a reasonable walking distance,
- Are near significant infrastructure investment which creates opportunities for housing redevelopment, or
- Contain concentrations of social housing which could benefit from redevelopment to provide newer housing close to transport and jobs.

Future housing needs to meet the needs of the changing population. An increasing diversity in household types is likely to continue and means that a diversity of dwelling types must be available to provide a choice of dwelling size and location. Housing which is accessible and adaptable will be required to meet the needs of the increased number of older people in the future.

Strategic planning framework

Housing policy is driven by strategic plans from the NSW Government as well as Council's local policies. In the Liverpool LGA transformational infrastructure investment and development is also proposed under the Western Sydney City Deal, a collaborative agreement between the Australian Government, NSW Government and Councils.

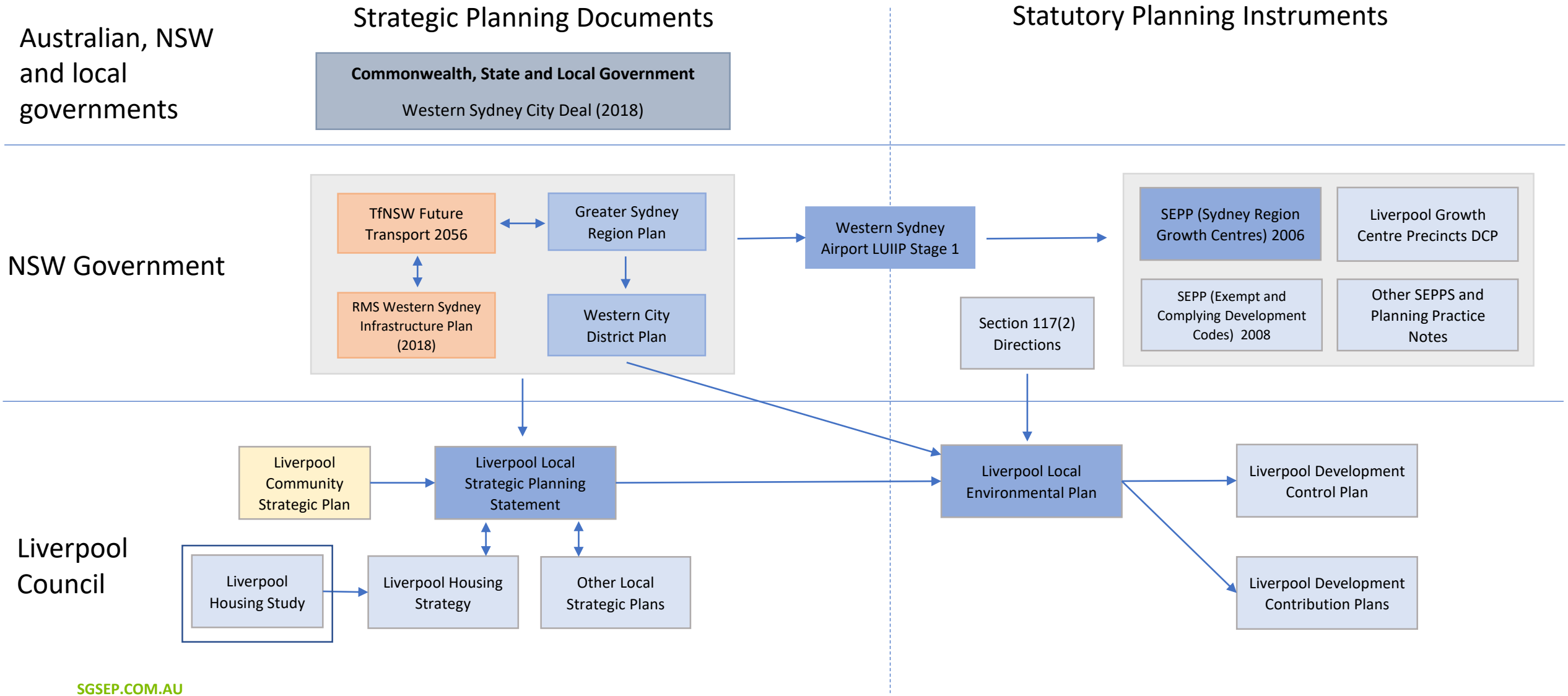
The local housing strategy will inform a review of the local environmental plan in Liverpool and can inform Council planning policies and advocacy to the NSW Government.

The diagram on the following page shows the policy and statutory framework which influences housing outcomes. Both NSW and Council planning controls have a significant impact on built form outcomes, particularly in land-release precincts

Glossary

- **Local Strategic Planning Statement (LSPS):** A 20-year strategic plan for the land uses and infrastructure in a Council area prepared by the Council.
- **Local Environment Plans (LEPs):** Statutory planning instruments which apply to most of the land within a Council area.
- **Community Strategic Plans:** Strategic Plans which set Council's vision and objectives across all operations and activities.
- **State Environmental Planning Policies (SEPPs):** Statutory planning instruments which the NSW Government are responsible for.
- **Development Control Plans (DCPs)**: Documents containing planning controls and design guidelines governing the design of development.

Strategic planning framework



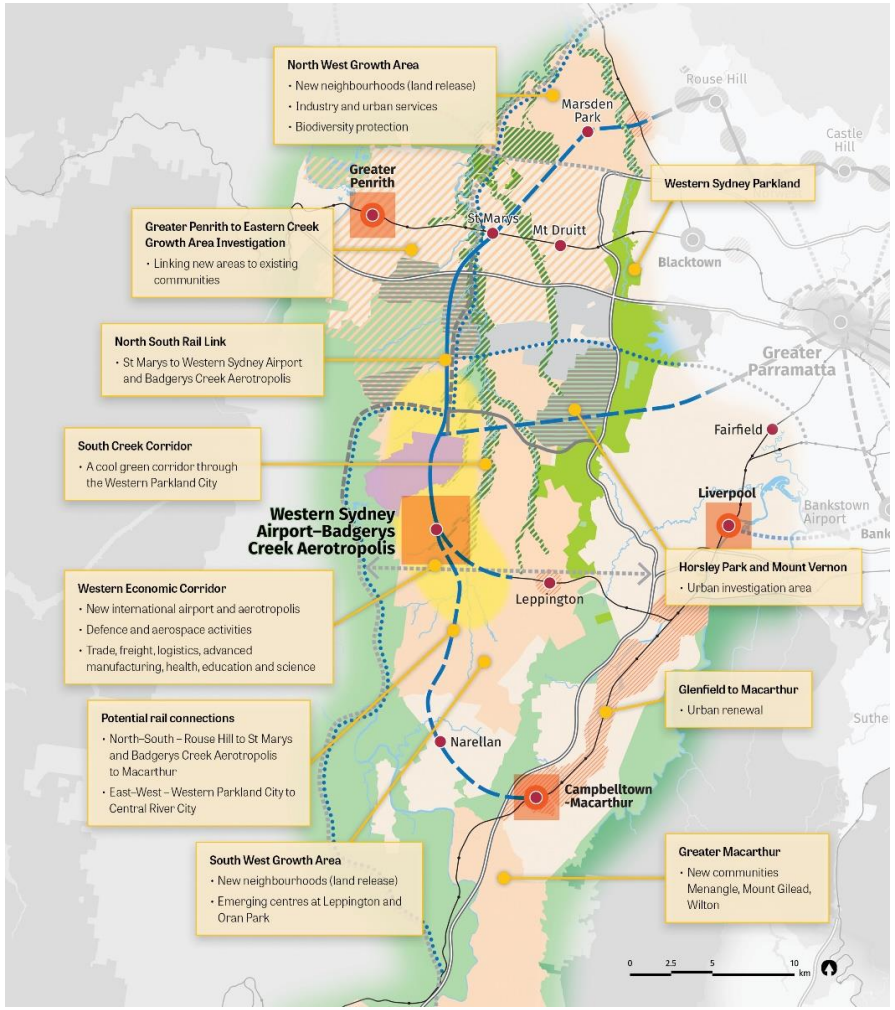
Western Sydney City Deal

The Western Sydney City Deal is an agreement between the Australian Government, NSW Government and Councils in the Western City District. The City Deal aims to leverage the construction of the Western Sydney Airport to create an Aerotropolis and improve the productivity, sustainability and liveability of the Western Parkland City. The Western Sydney City Deal contains several commitments which are relevant to the future of housing in Liverpool.

Rapid bus services are to run from Penrith, Liverpool and Campbelltown to the Western Sydney Airport before it opens in 2026. These services would create opportunities for housing intensification and transit oriented development along their routes.

Major economic development initiatives are identified, including for Liverpool City Centre. The Aerotropolis will provide a catalyst for growth for Liverpool, including the land surrounding Western Sydney Airport and to the Liverpool City Centre. Increased job accessibility and improved infrastructure availability would increase the viability of medium and high-density housing types in multiple places in the Liverpool LGA.

Funding is committed for amenity improvements in Western Sydney. Increased amenity, liveability and social infrastructure is important for increasing housing intensity.



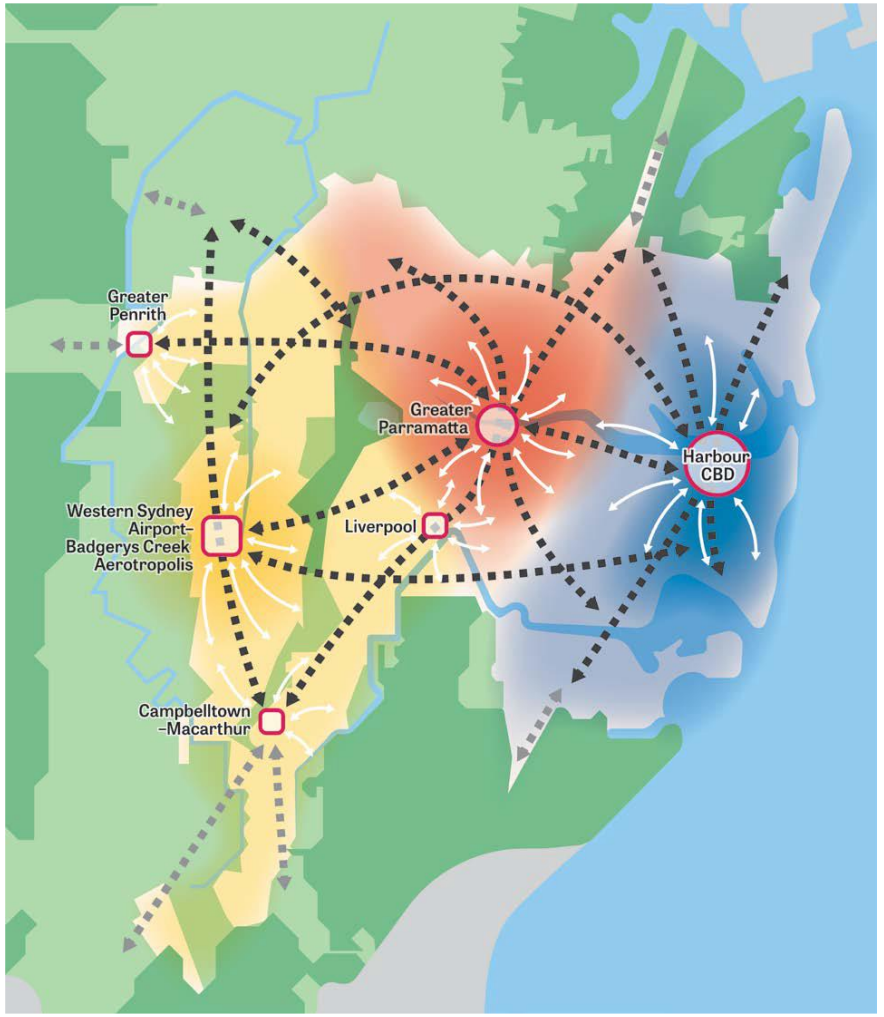
Greater Sydney Region Plan

The Greater Sydney Region Plan is the NSW Government strategic plan for the Greater Sydney Region.

The Liverpool LGA is part of the Western Parkland City, which is to one of three cities of Greater Sydney. The Western Parkland City is centred around the Metropolitan Cluster of Western Sydney Airport – Badgerys Creek Aerotropolis, Liverpool, Penrith and Campbelltown-Macarthur. The Metropolitan Cluster is to initially focus on the existing centres of Liverpool, Penrith and Campbelltown-Macarthur.

Liverpool is also identified as a Collaboration area and a Health and Education Precinct.

The GSRP aims to create a 30-minute city would require both better public transport to existing dwellings and ensuring that new dwellings are built in places with good access to public transport.



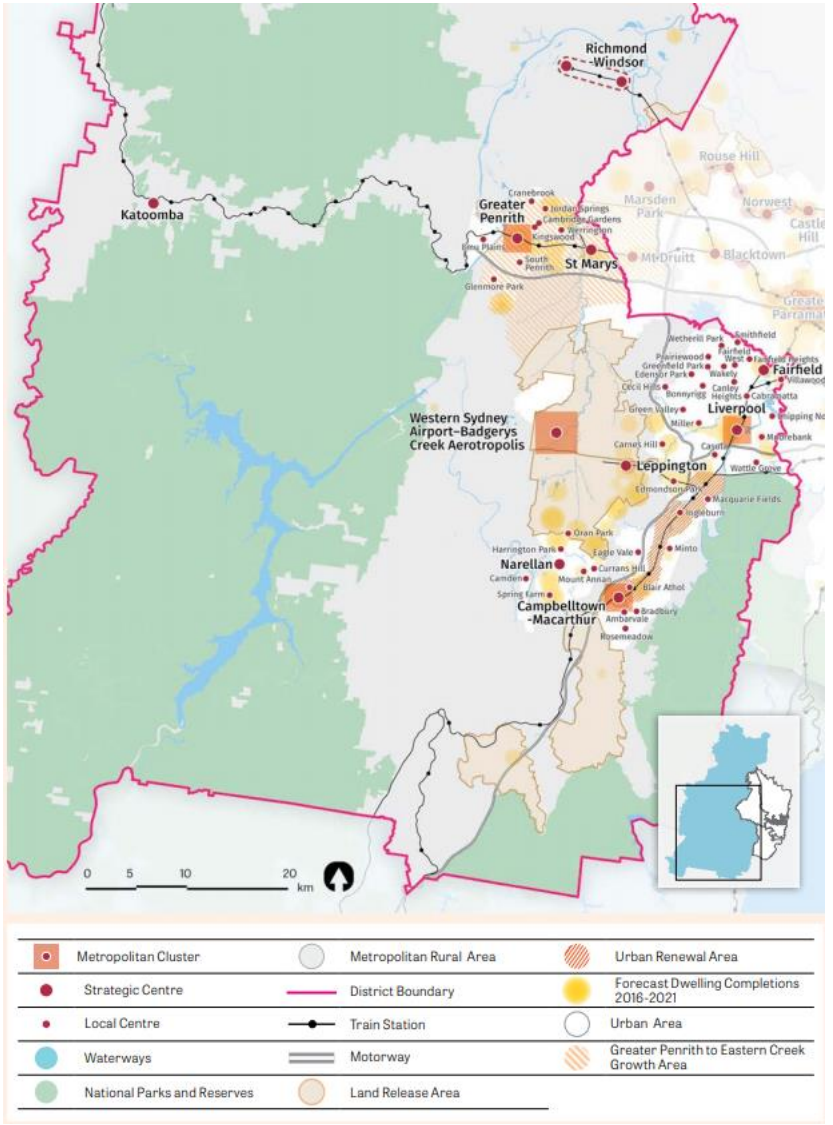
Western City District Plan

This document provides priorities and actions for the Western City District. The plan gives effect to the objectives established in *A Metropolis of Three Cities*.

The Plan identifies a housing supply target of an additional 184,500 homes which will be required by the District in 2036.

Directions which are relevant to future planning for housing include:

- Housing is to become more diverse and affordable
- Housing intensification should be concentrated in appropriate locations
- Industrial lands should be reviewed to ensure they are not needed for employment purposes before being redeveloped for housing
- The metropolitan rural area should be preserved



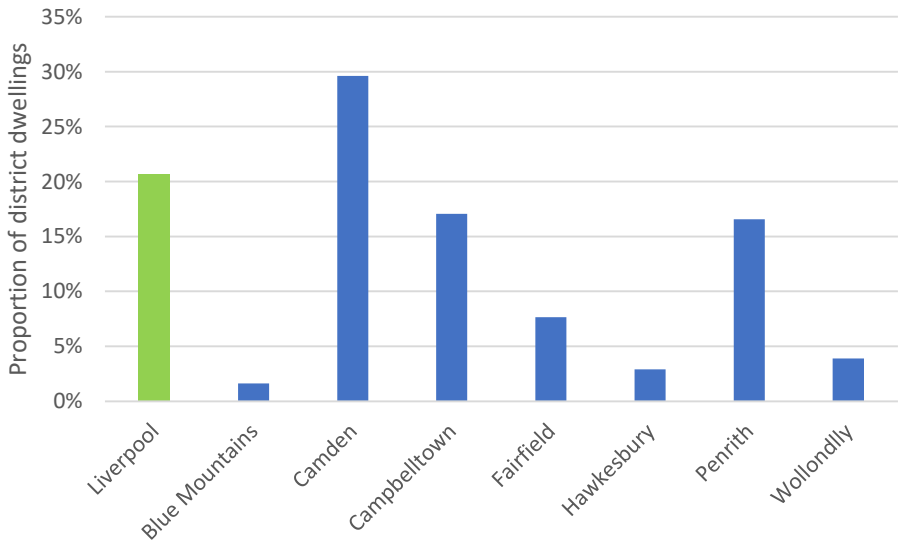
Housing targets

The GSC's Western City District Plan includes 0-5 year housing targets for LGAs and 20-year housing targets for the District identified in the Greater Sydney Region Plan. Under the Plan, Councils are expected to develop 6-10 year housing targets through the process of developing their housing strategy.

There is a target for an additional 184,500 dwellings by 2036 across the Western City District. The Liverpool housing supply target for 2016-2021 is for 8,250 additional dwellings.

The Liverpool target represents 21 per cent of the 39,850 dwelling target for the Western City District over this timeframe. The target is 4.4% of the Greater Sydney 0-5 year housing supply target, while in 2016 Liverpool LGA contained 3.9% of the dwellings in Greater Sydney.

LGA	0–5 year housing supply target: 2016–2021
Blue Mountains	650
Camden	11,800
Campbelltown	6,800
Fairfield	3,050
Hawkesbury	1,150
Liverpool	8,250
Penrith	6,600
Wollondilly	1,550
Western City District Total	**39,850**

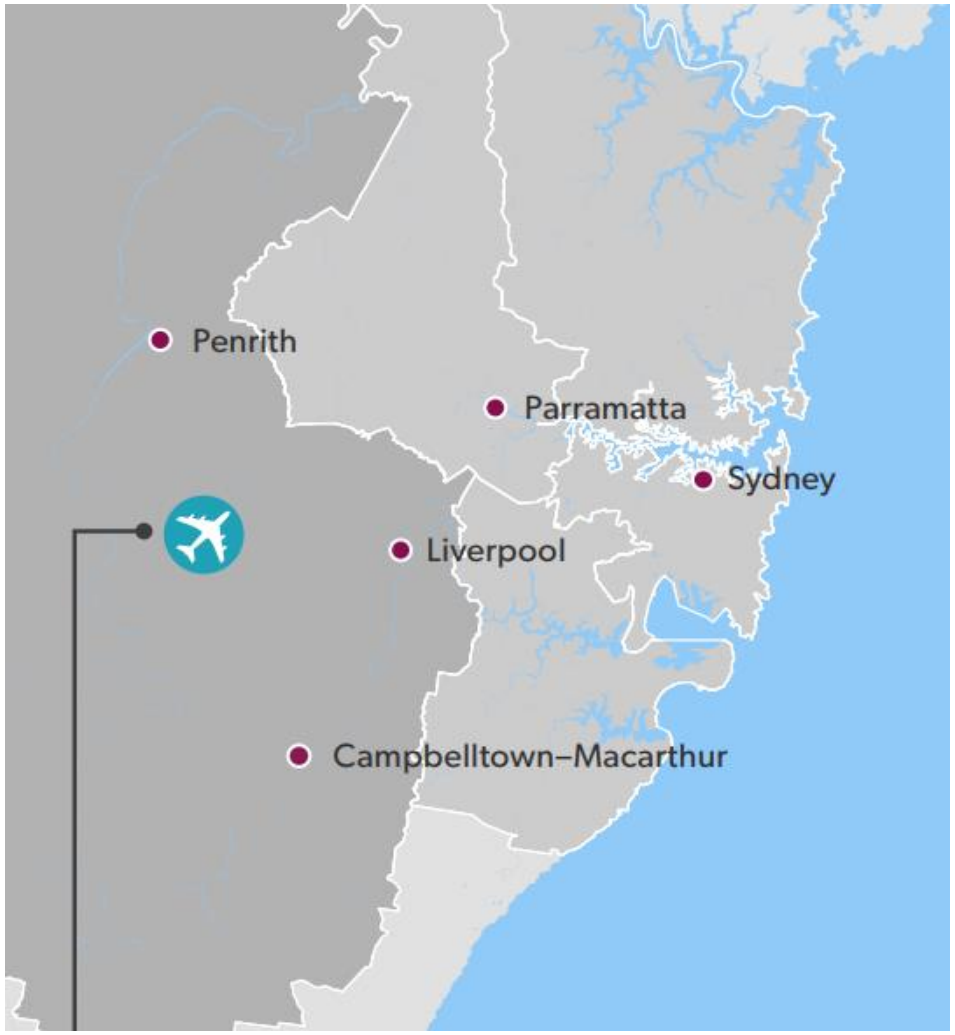


Western Sydney Aerotropolis Land Use & Infrastructure Plan (LUIIP)

The LUIIP is a preliminary planning framework for the Western Sydney Aerotropolis around the Western Sydney Airport. The Aerotropolis is expected to generate 200,000 jobs for Western Sydney residents, which would drive demand for new housing in the area which is accessible to these new jobs.

The plan aims to connect Liverpool to the Aerotropolis through rapid bus connections. This could catalyse housing developments along the route. 8,500 homes are anticipated to be delivered in the Aerotropolis Area at full capacity, although this would not be expected to occur until well after the opening of the Airport in 2026.

The plan has a vision to create a liveable, compact and connected Western Sydney. Central to this notion is *delivering a diversity of jobs and housing*. The plan identifies the need to ensure that housing is located within 10 minutes of centres and five minutes from parks and open spaces.

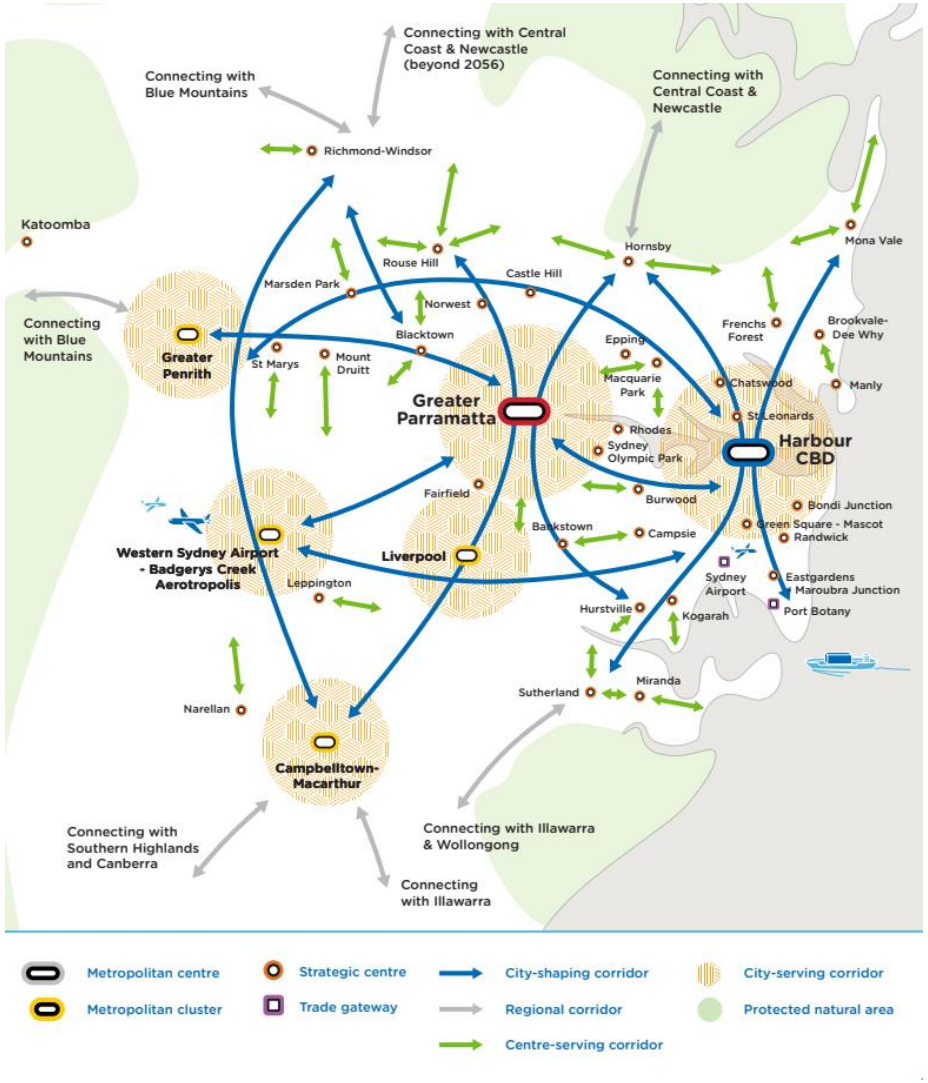


Future Transport 2056

Future Transport 2056 is the NSW Government's long-term transport strategy. The Plan provides transport infrastructure priorities and aims to achieve the aspiration of a 30-minute city set out in the GSRP. New and upgraded transport connections are identified for this purpose.

The future transport infrastructure projects in Liverpool LGA are:

- Initiatives for investigation (0-10 years)
  - Infrastructure to support Rapid Bus Connections and Improved Bus Connections between Western Sydney Airport – Badgerys Creek Aerotropolis and Penrith, Liverpool, Blacktown and Campbelltown – Macarthur
- Initiatives for investigation (20+ years)
  - Sydney Metro City and Southwest Extension to Liverpool
  - M5 motorway extension from Liverpool to Outer Sydney Orbital



Liverpool Collaboration Area Place Strategy

The Liverpool Collaboration Area Strategy provides a planning framework developed in collaboration with diverse stakeholders for the future planning of the Liverpool Collaboratior Area.

Liverpool's role as a strategic centre is discussed, including the provision of capacity for additional housing in the following areas:

- South of the Liverpool City Centre is identified for High Density Residential development.
- Hargrave Park is identified for Diverse Residential Housing.
- Georges River South is identified for Mixed Use Development.
- The plan seeks to encourage a diverse range of housing to support people at all life stages.

Priority 4 of the strategy is to Create and Renew Great Places, this is guided by two actions that have implications for housing:

1. *Deliver great places by prioritising a people-friendly public realm and open spaces providing fine grain and diverse urban form; a diverse land use and housing mix, high amenity and walkability; and recognising and celebrating the character of the place and its people.*
2. *Investigate the potential for master planned precincts (such as NSW Land and Housing Corporation properties in Warwick Farm and rezoned land) to improve and increase social and affordable housing above the targets set out in A Metropolis of Three Cities*.

Our Home, Liverpool 2027

Liverpool Council's Community Strategic Plan is the whole of local government strategic plan for the Liverpool LGA. It informs local policies and strategies.

The vision for Liverpool is as follows:

> "*Rich in nature,*
> *rich in opportunity*
> *Creating community;*
> *our place to share and grow*"

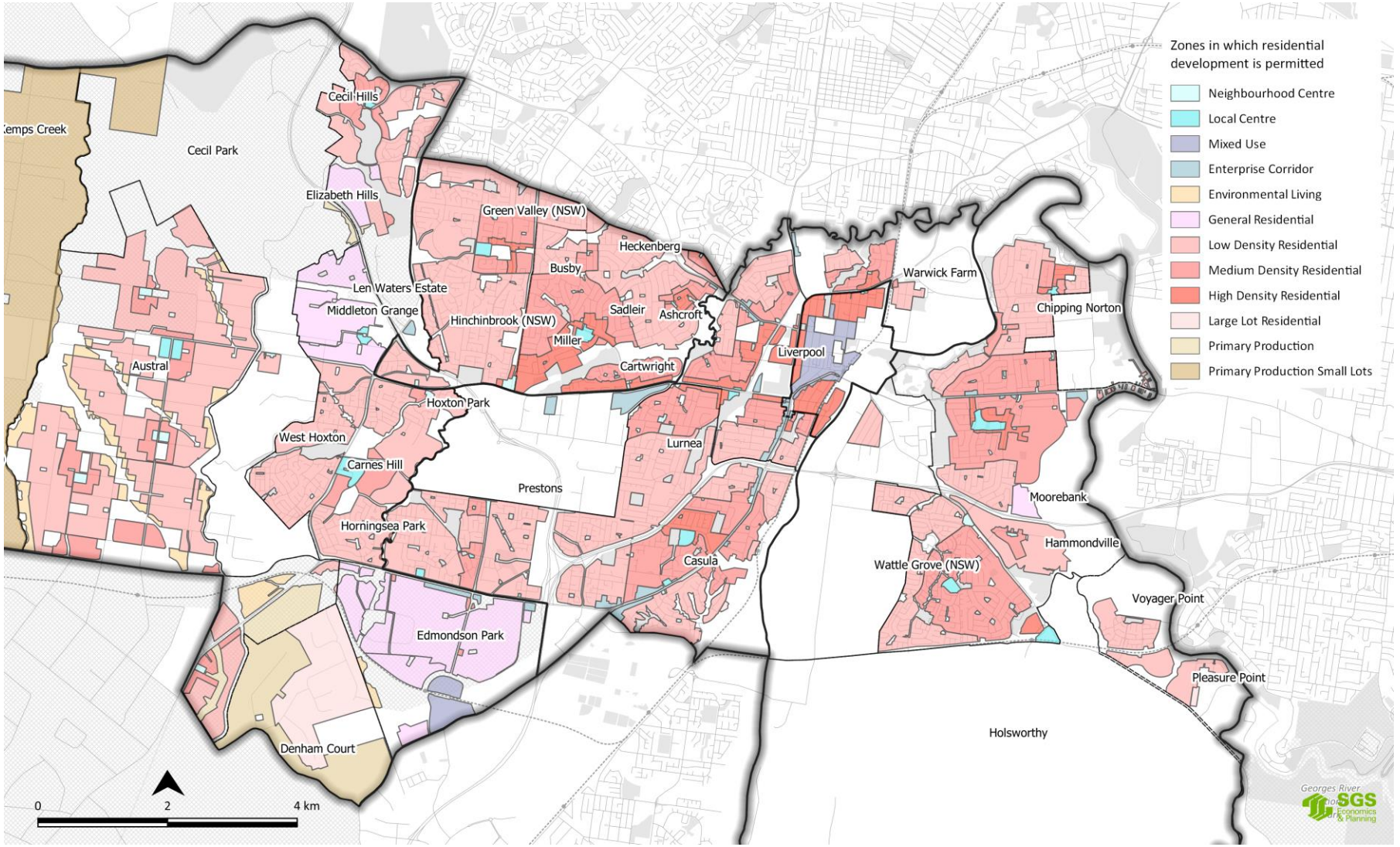
Directions in the plan are for:

1. Creating Connection
2. Strengthening and Protecting our Environment
3. Generating Opportunity
4. Leading through Collaboration

Land Zoning

Land in the Liverpool LGA is zoned under the *Liverpool Local Environmental Plan 2008* (Liverpool LEP), *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* and *State Environmental Planning Policy (State Significant Precincts) 2005* (referred to as SEPPs). Land zones in which residential development is permitted are shown on the right.

In the established parts of Liverpool land zoning currently follows a centres-based framework. There is a large amount of land zoned R4 – High Density Residential and R3 – Medium Density Residential around the centres of Liverpool, Moorebank, Holsworthy, Casula, Miller, Green Valley, Warwick Farm, Chipping Norton and Ashcroft.



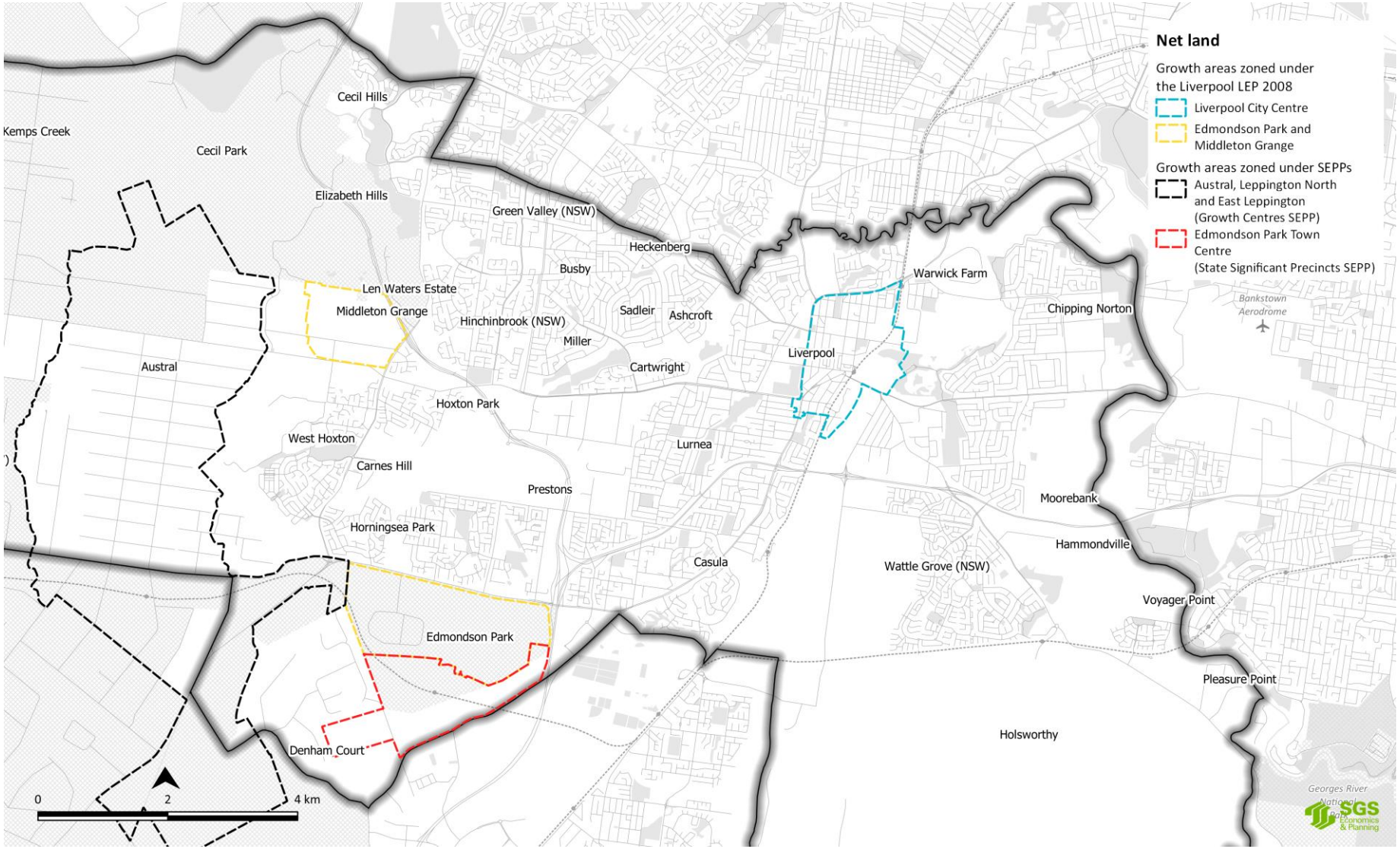
Major growth precincts

Current major development precincts in the Liverpool LGA comprise greenfield development precincts zoned under SEPPs and the Liverpool LEP:

- Middleton Grange
- Edmondson Park
- Austral and Leppington North
- East Leppington

The Liverpool City Centre is also a major centre of growth, and is zoned under the Liverpool LEP.

There are several smaller growth precincts which are near completion or which have smaller dwelling capacities.



Key findings

- Housing policy seeks to continue high rates of growth in the Liverpool LGA, including in greenfield development areas and in established areas.
- Housing policy encourages housing to be located near local centres, high-frequency public transport, jobs and services and open space.
- The Liverpool City Centre is expected to continue to host high-density housing development, with its strategic centre role encouraged to continue evolving through the Collaboration Area process and Place Strategy.
- Significant infrastructure investment is planned for Liverpool, although the transformative Sydney Metro South West Bankstown to Liverpool train link has a 20+ year timeframe.
- The Badgerys Creek Aerotropolis is the centrepiece of economic development planning and metropolitan land use planning for Western Sydney. Associated economic development in Liverpool could increase demand for high-density housing.
- The proposed rapid transit link from Liverpool to the Western Sydney Airport could create opportunities for higher-density transit oriented developments.

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HOUSING CONTEXT

Current housing profile and recent development

SGS Economics & Planning

Dwelling types

This report uses the Australian Bureau of Statistics categorisation of housing:

- Separate houses
- Semi-detached, row and terrace houses (attached dwellings)
- Flats or apartments
- Other dwellings

Separate house means a dwelling which is not attached to any other dwelling. In planning instruments these are called dwelling houses.

Attached dwellings are attached on one or more walls, such as semi-detached, terraced and villa-style housing. In planning instruments these are called dual occupancies, semi-detached dwellings, attached dwellings and multi-dwelling housing.

Flats or apartments can be two or more storeys, with dwellings sharing vertical as well as horizontal walls. In planning instruments these are called shop-top housing and residential flat buildings.

Other includes:

- Caravans and cabins
- Improvised dwellings
- Houseboats
- Flats attached to shops

Dwelling types

Dwelling type is often used to describe dwelling size and density, with the understanding that:

- Separate houses are largest and the lowest density
- Attached dwellings are smaller and higher density,
- Apartments are the smallest and highest density

Especially in greenfield areas, this assumption can break down. In these areas, attached dwellings are typically quite large. While separate houses are also large on average, decreasing lot sizes means that the smallest lots for detached dwellings are similar in size to lots for attached dwellings.

Greater differentiation of dwelling types and associated lot sizes would discourage detached dwellings on very small lots, which leads to unsustainable design outcomes.

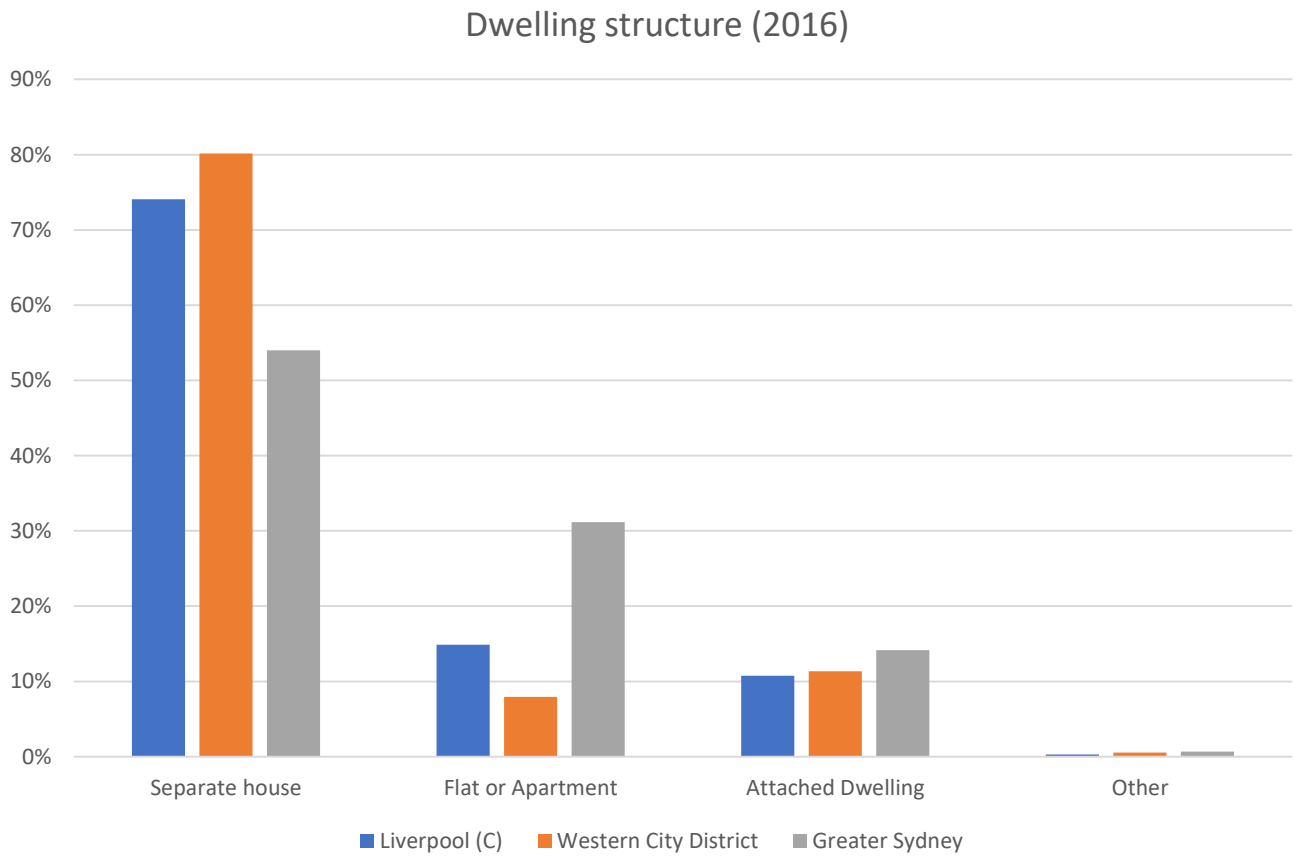
Dwelling types
Liverpool LGA

Separate houses are the most common dwelling type in the Liverpool LGA (74%), followed by flats and apartments (15%) and attached dwellings (11%)

The Liverpool LGA has a relatively high proportion of separate houses when compared against Greater Sydney (54%)

Apartments are significantly more prevalent than the Western City District average (8%), but much less common than in Greater Sydney as a whole (31%).

Attached dwellings in Liverpool are similarly prevalent to the Western City District, but less common than in Greater Sydney as a whole.



Distribution of dwelling types (2016)

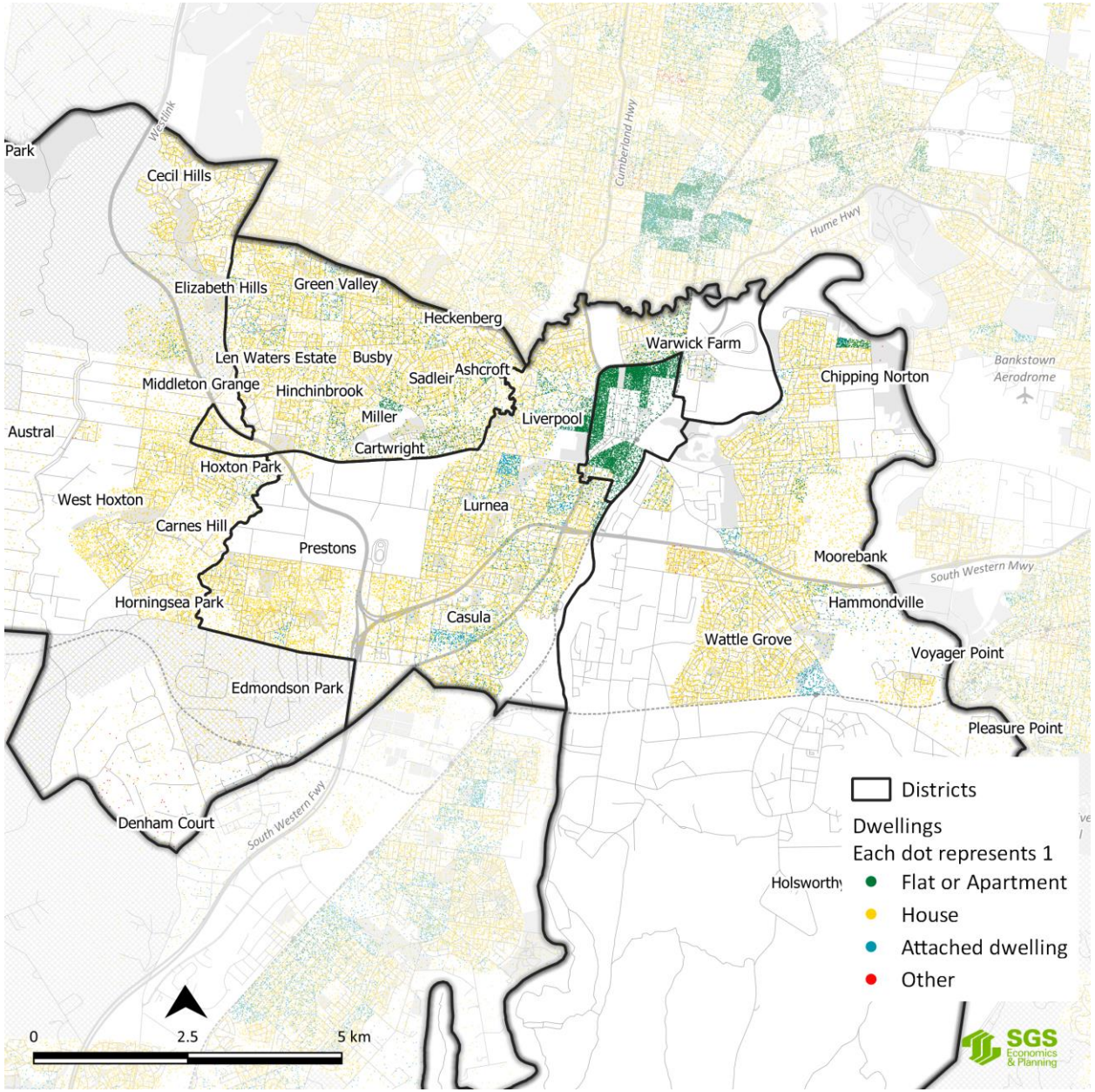
While Liverpool LGA as a whole has some dwelling diversity, most areas have homogenous dwelling types.

Flats and apartments are highly concentrated in the Liverpool City Centre, which also has the highest density.

Attached dwellings are clustered in Liverpool, Lurnea, Casula and Holsworthy with some others elsewhere.

Much of the LGA has a suburban character, containing only separate houses with relatively uniform sizes.

A lack of dwelling diversity at the small area level risks not providing accommodation for diverse household types or allowing people to stay in the same area as their household circumstances change.



Dwelling development by type in the Liverpool LGA

Dwelling development rates were fastest in 2001-2006 followed by 2011-2016, with a significantly lower rate of construction in 2006-2011 coinciding with the GFC.

Most dwellings constructed between 2011-2016 and in 2001-2006 and 2011-2016 were separate houses. Flat and apartment and attached dwelling construction rates did not decrease from 2001-2006 to 2006-2011, while separate house completions declined.

Attached dwelling completions flatlined between 2011-2016, although appear to have recovered somewhat.

Dwellings built in Liverpool between 2001-2016 in Liverpool LGA are more diverse than the overall dwelling mixture in 2016, so diversity is increasing over time (see the following page). However, the low levels of attached dwelling construction between 2011-2016 suggest the need for planning to facilitate attached dwelling development.

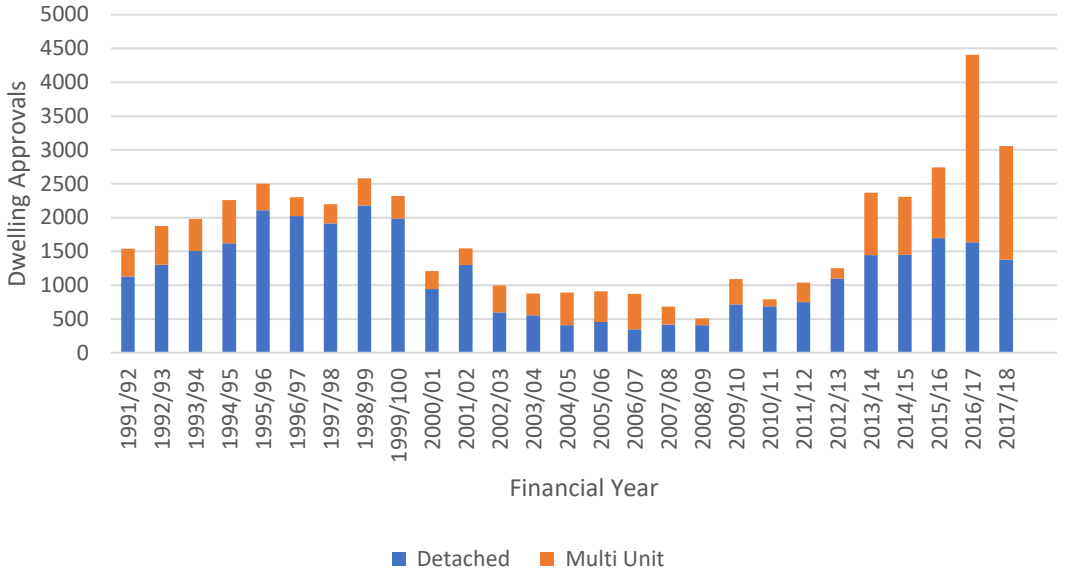
Period		Separate house	Flat or Apartment	Attached Dwelling	Other	Total
2001-2006	Change	4,695	767	1,494	84	7,040
	% of dwelling development	67%	11%	21%	1%	
2006-2011	Change	1,378	1,109	1,377	107	3,757
	% of dwelling development	36%	29%	36%	0%	
2011-2016	Change	5,081	1,495	56	87	6,719
	% of dwelling development	76%	22%	1%	1%	
2001-2016	*Change*	*11,154*	*3,371*	*2,928*	*64*	*17,516*
	% of dwelling development	*64%*	*19%*	*17%*	*0%*	*100%*
	Average yearly change	*744*	*225*	*195*	*4*	*1,168*

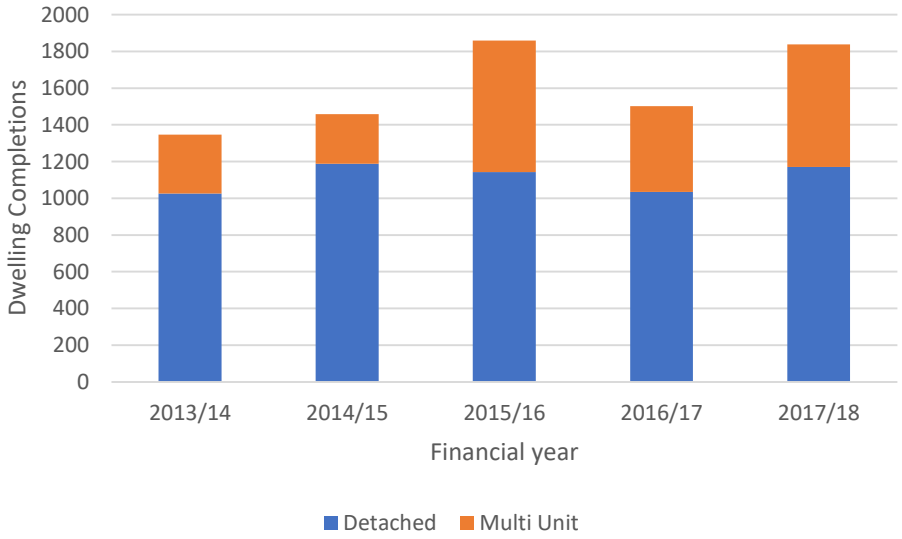
Dwelling approvals and completions

Dwelling approval and completion data is released by the NSW Government and provides a picture of development on a smaller time-scale than the 5-yearly census.

Dwelling approvals were consistently low in the Liverpool LGA between 2002/03-2011/12, before reaching a peak in 2016/17. Between 2008/09-2012/13, multi-unit developments made up a very small proportion of completions. This is reflected in the small number of attached dwellings built between 2011-2016.

Since 2013/14, approvals have increased and multi-unit dwellings have made up a reasonable proportion of both approvals and completions. Between July 2016-September 2018, 1,656 multi-unit dwellings have been completed. In this time, Council records show that 1,051 apartments have been completed and so approximately 600 attached dwellings have been completed. This represents a recovery of attached dwelling development to rates close to those seen in 2006-11.





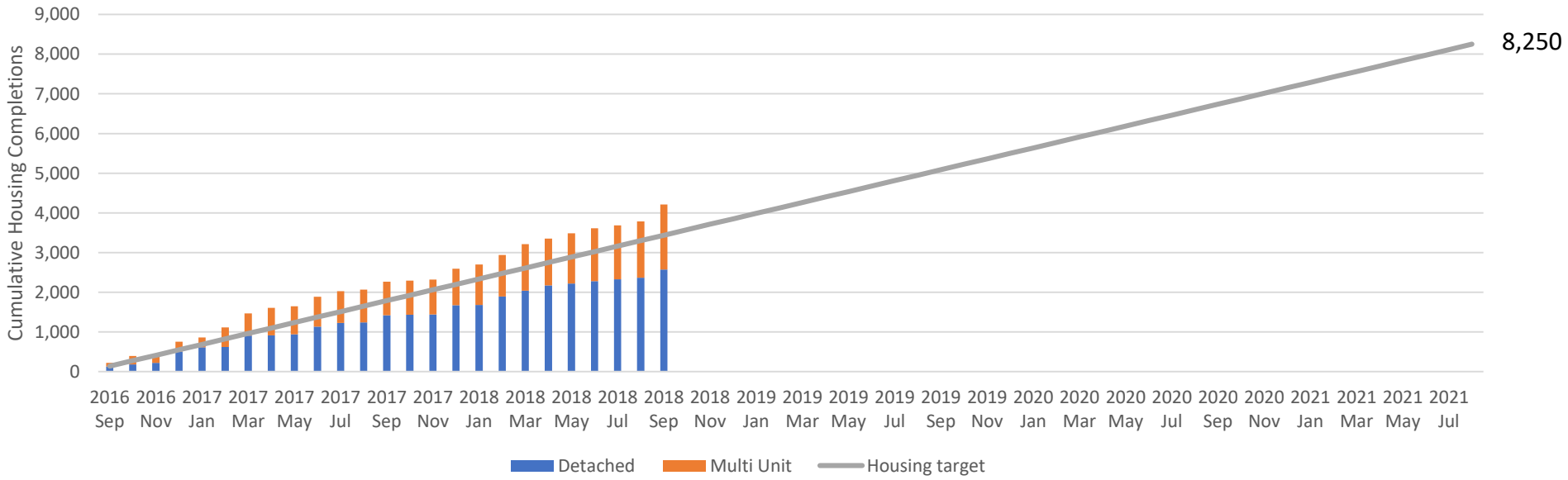
Progress against housing targets

Liverpool LGA is on track to exceed its 2016-2021 housing target set in the Western City District Plan.

Between August 2016-September 2018, there were 4,212 dwellings completed in the Liverpool LGA, of which 61% were separate houses and 39% were multi-unit. Only 3,438 would have been required to be on track to meet the target.

Recent dwelling approvals in the Liverpool LGA have been relatively high when compared against historical levels. This indicates there is a pipeline of development in progress and that completions are unlikely to drop below the levels required to meet the housing target.

Council development tracking also shows a large dwelling pipeline in greenfield areas and the Liverpool City Centre.

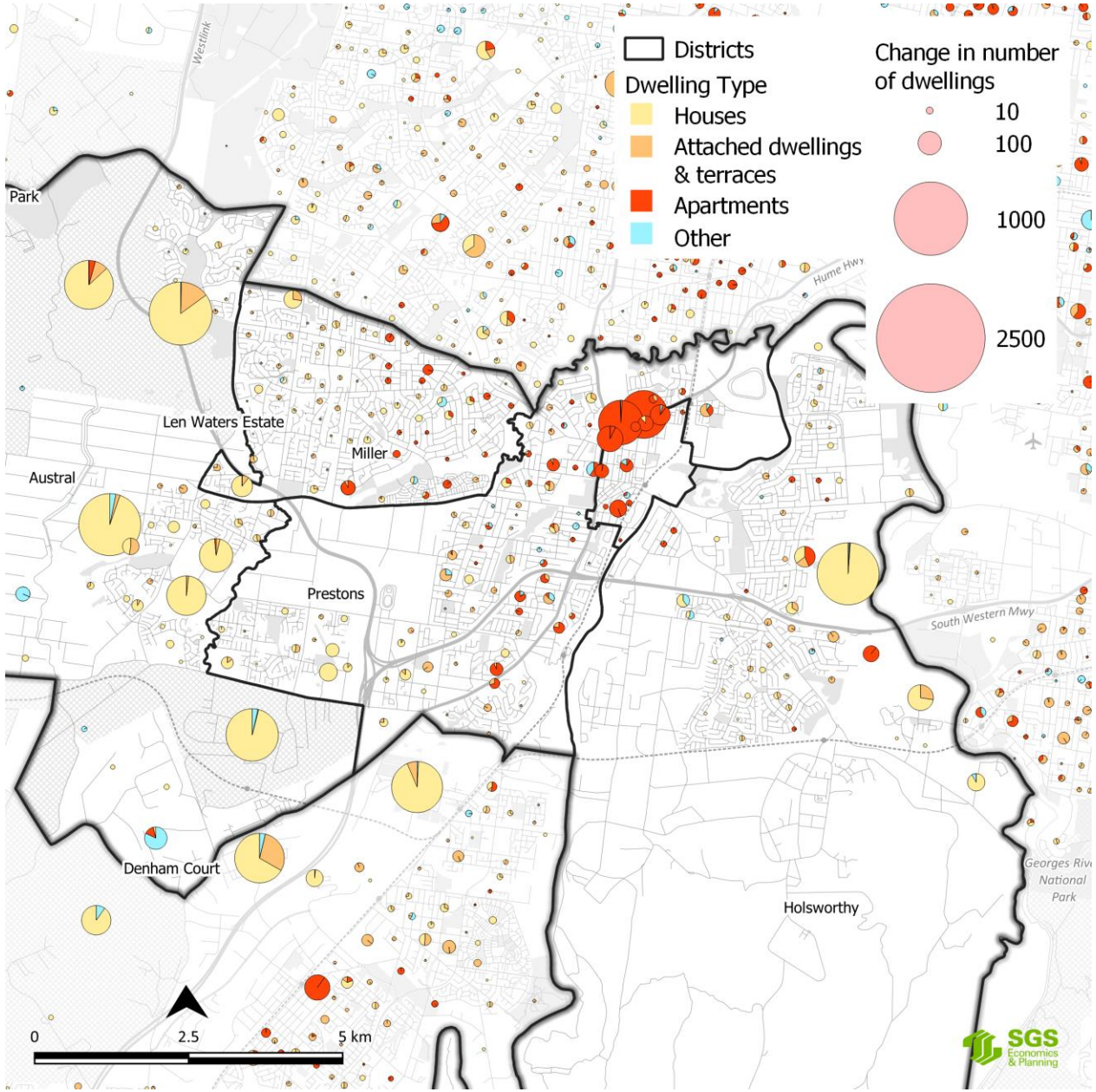


Change in dwellings (2011-2016)

The places in the Liverpool LGA in which the most dwellings were constructed between 2011-2016 are greenfield development areas, in which most new dwellings are separate houses. There were some attached dwellings built in 2011-2016 in particular greenfield precincts, but very few overall.

There were large increases in the number of apartments in the Liverpool City Centre, with some built elsewhere in Casula and the 2168 precinct. Some of this change may be due to issues with the ABS categorisations, as townhouse developments and 2 storey apartments are sometimes confused for each other.

New attached dwellings were distributed throughout several suburbs, but there was a relatively small number of these compared to growth in the City Centre and greenfield precincts.

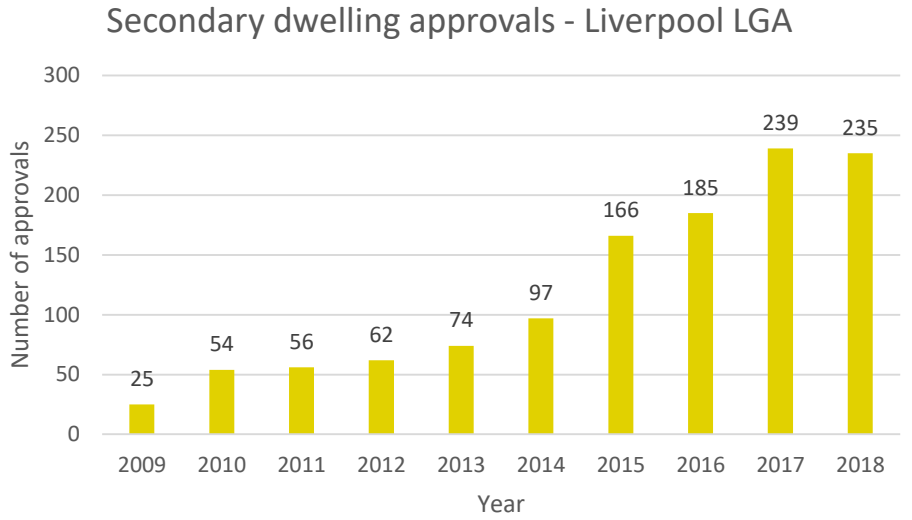


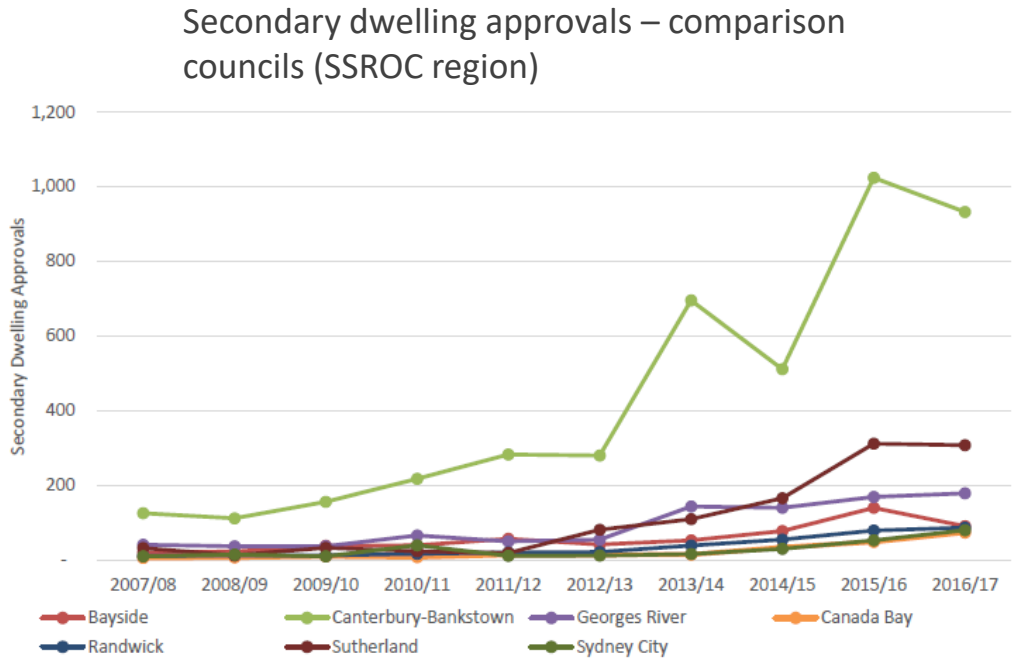
Secondary dwellings

No statistics are available regarding the number of secondary dwellings in the Liverpool LGA. Approval data from Council shows that secondary dwelling approvals in the Liverpool LGA increased markedly over the last ten years. This is likely to be related to several causes including:

- The creation of the State Environmental Planning Policy (Affordable Rental Housing) 2009, which allows secondary dwellings to be approved as complying development.
- The increasing number of multi-family households and children staying at their parent's homes for longer.
- The property market boom between in that time period, which contributed to rises in rental prices as well as increased investment in housing.

Large increases in secondary dwelling approvals have also occurred in other LGAs, particularly in Canterbury-Bankstown in which 31.4% of new dwellings built between 2006-16 were secondary dwellings. The development contexts are similar in the Eastern parts of Liverpool, and western part of the Canterbury-Bankstown LGA in which the most secondary dwelling approval has occurred. In each of these areas, the predominant dwelling type are smaller detached houses on larger blocks, with a diverse demographic likely to host multi-family households.





Source: City Future Research Centre 2018, *State Environmental Planning Policy (Affordable Rental Housing) 2009 and affordable housing in Central and Southern Sydney*

Functions of secondary dwellings

The City Futures Research Centre has conducted research into the affordability and functions of secondary dwellings in the SSROC area south and south-west of Sydney*. Similar outcomes may be observed in Liverpool, although the data to test this is not available.

The research found that:

- Secondary dwellings generally have slightly higher rents than other dwellings with the same number of bedrooms in the same LGA.
- Only 24% of secondary dwellings have a bond lodged as part of a private rental agreement. While some informal rental arrangements may occur, most secondary dwellings are likely to be not entering the private rental market.
- In most places secondary dwellings constitute only a small part of the private rental market.

These results indicate that most secondary dwellings are providing flexible housing options rather than long-term rental housing. Even if secondary dwellings enter the rental market, their rents are likely to be slightly higher than older comparable dwellings. Many secondary dwellings are likely accommodating people related or known to the occupants of the primary dwelling. In this case, secondary dwelling development may be occurring instead of extensions to the primary dwelling, but secondary dwellings are often not performing the role of an entirely separate dwelling.

This does not mean that secondary dwellings do not perform an important function. In an LGA like Liverpool with an ethnically diverse population and large household sizes, secondary dwellings facilitate extended families living together while keeping some separation between different parts of the household. Increasing the number of secondary dwellings in Liverpool's established suburbs will increase dwelling diversity and the availability of small dwellings for rent, even if a small proportion of the secondary dwellings enter the rental market. The function of a secondary dwelling may change with the life cycle of the primary dwelling's occupants, increasing the flexibility of Liverpool's housing for the changing needs of its community.

* - City Futures Research Centre 2018, *State Environmental Planning Policy (Affordable Rental Housing) 2009 and affordable housing in Central and Southern Sydney*

Dwelling size – Number of bedrooms

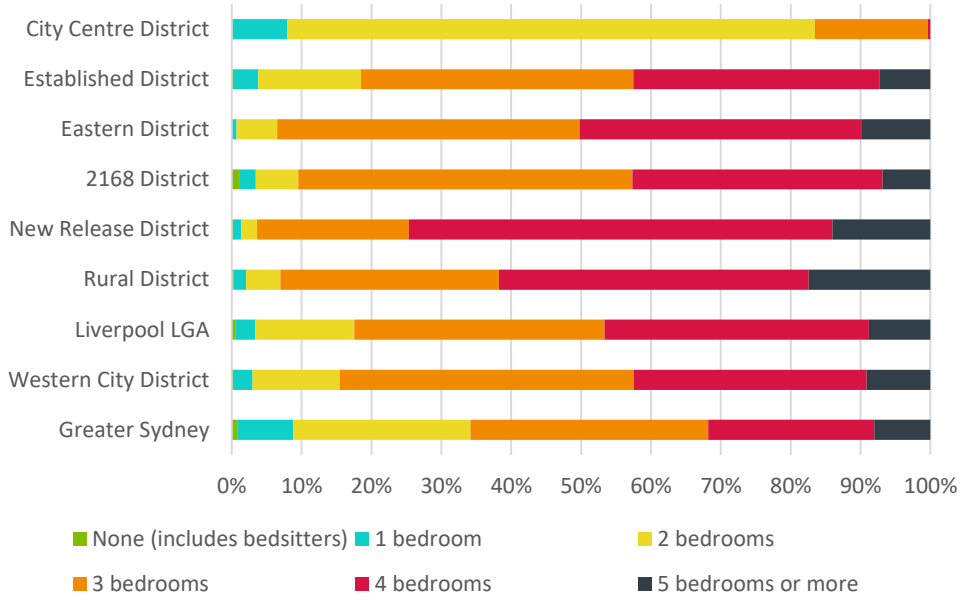
Dwelling size varies greatly across the Liverpool LGA as a result of when and how development occurred. The Liverpool LGA has a low proportion of 1-3 bedroom dwellings compared to Greater Sydney, with an especially low proportion of 1 bedroom dwellings.

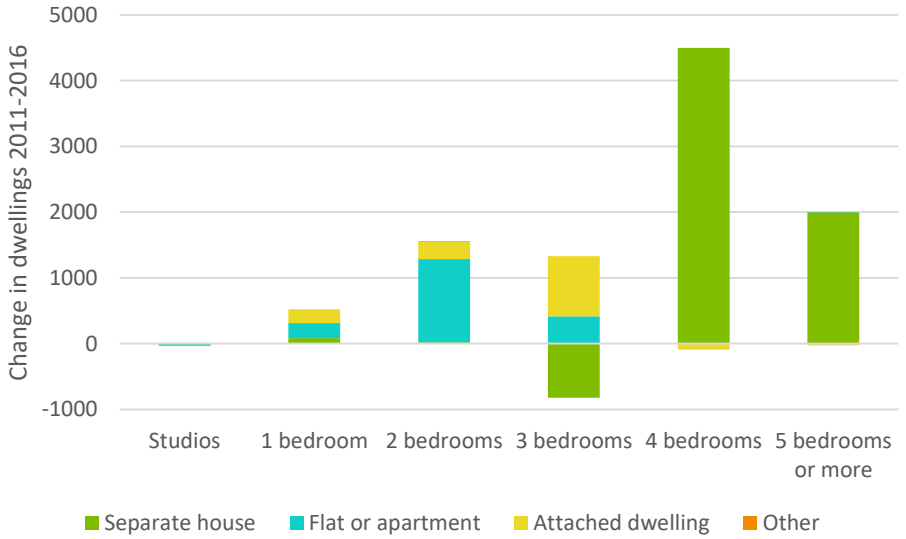
Almost all dwellings in the New Release District have 4 bedrooms and almost all dwellings in the City Centre District (these are almost exclusively apartments) have two bedrooms.

The low number of one and two bedroom dwellings in the 2168, Eastern, Established and New Release districts could prevent new households from moving to these areas and prevent people from downsizing if they want or need to.

The most common size of dwelling built between 2006-2016 had four bedrooms. Almost all separate houses built had four or five bedrooms, almost all apartments built had two bedrooms, while attached dwellings built mostly had three bedrooms.

Between 2011-2016, nearly no attached dwellings were built and so there was a gap in new dwelling provision of three bedroom dwellings. Some three-bedroom houses were removed between 2011-2016 to make way for medium and higher density redevelopment.





Dwelling size – average number of bedrooms

Liverpool LGA has a similar average dwelling size to the GSC Western City District, and a larger size than Greater Sydney. As with the distribution of dwelling sizes, the average number of bedrooms varies across the LGA.

The largest average dwelling size is in the New Release District in which almost all dwellings are separate houses with 4 or 5 bedrooms.

The City Centre region has a low average dwelling size, with almost all dwellings being two bedroom apartments.

Attached dwellings are relatively large on average in the New Release and 2168 districts.

The Established and Eastern districts have on average smaller separate houses than the New Release District, but they are still larger than those in the GSC Western City District and Greater Sydney.

Area	Separate house	Attached Dwelling	Flat or Apartment	Other	Overall
2168 District	3.5	3.0	1.7		3.4
City Centre District	2.9	2.0	2.1	2.0	2.1
Eastern District	3.7	2.8	2.1	3.4	3.5
Established District	3.6	2.5	1.8		3.3
New Release District	3.9	3.1	1.8	1.8	3.8
Rural District	3.7				3.7
Liverpool LGA	3.7	2.7	2.0	2.5	3.3
Western City District	3.5	2.7	2.0	2.3	3.3
Greater Sydney	3.6	2.8	1.9	2.2	3.0

Cells are coloured depending upon their Values. Cells are more red if the average number of bedrooms is higher, and more green if it is lower.

Key findings

- The Liverpool LGA as a whole has some dwelling diversity, with a mix of separate houses, attached dwellings and flats and apartments.
- Dwelling diversity in the Liverpool LGA does not extend to smaller parts of the LGA, with apartments highly concentrated around the Liverpool City Centre and most areas containing almost exclusively separate houses.
- Recent dwelling development has been dominated by two-bedroom apartments in the Liverpool City Centre and four or five bedroom houses in greenfield developments on the edge of the non-rural parts of the LGA.
- Dwellings in the Liverpool LGA are much larger than the Greater Sydney average, reflecting the high number of large houses in greenfield development areas.
- Dwelling diversity is increasing over time, but almost no attached dwellings were built between 2011-2016. Attached dwelling development rates appear to have recovered somewhat since 2016.
- Dwelling development rates decreased sharply in 2006-2011, and between 2001-2006 and 2011-2016 were below the levels required to meet Liverpool's 2016-2021 dwelling target and likely future targets.
- Secondary dwelling approvals have increased sharply recently. These dwellings increase local dwelling diversity and are most likely to house large extended families and people known to the occupants of the primary dwellings.
- Dwelling approvals and completions have been at record highs recently, and Liverpool is more than on-track to meet its 2016-2021 dwelling target.

LIVERPOOL HOUSING STUDY

HOUSING CONTEXT

Housing market

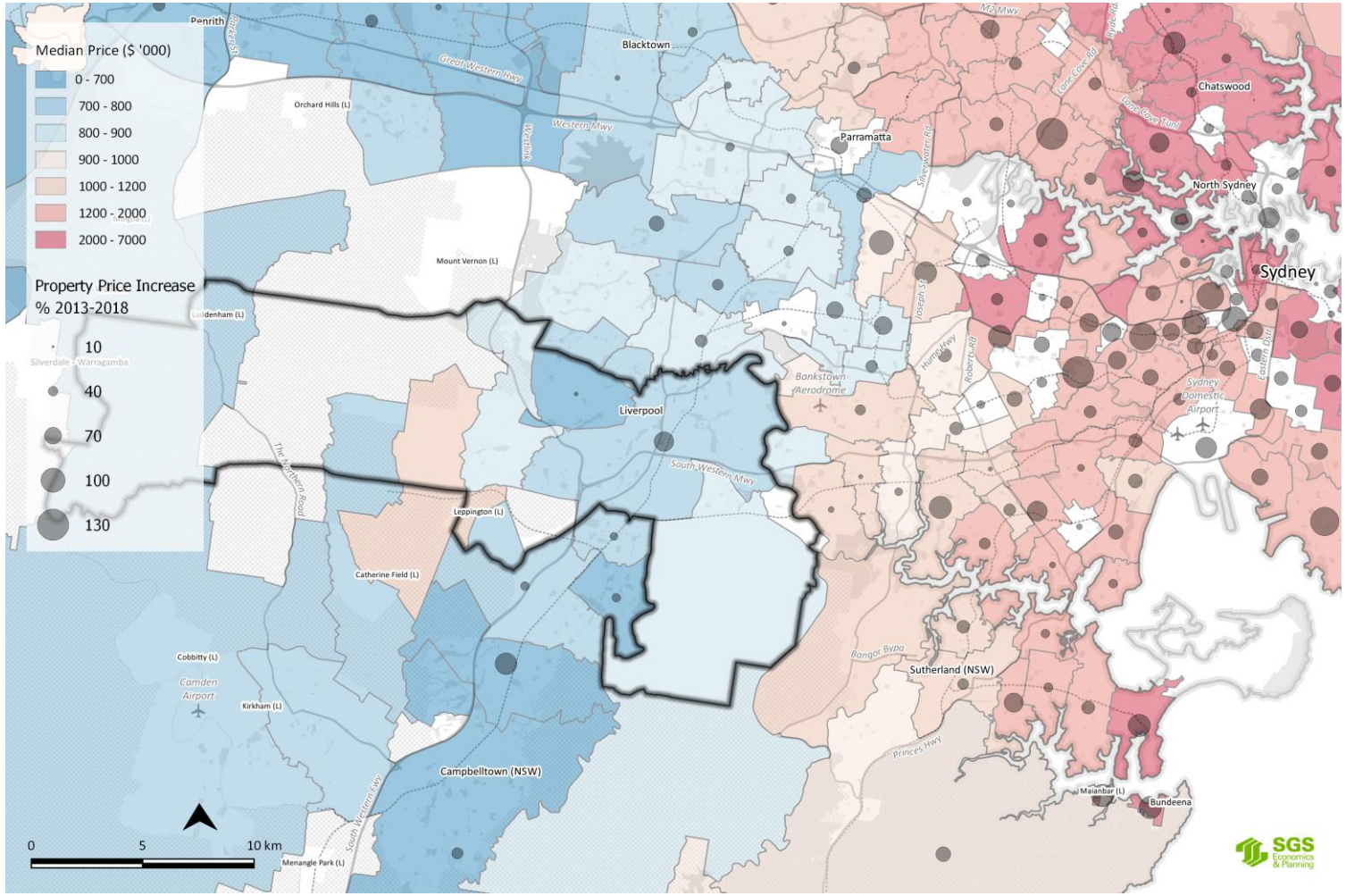
SGS Economics & Planning

House prices – Liverpool LGA and surrounds

House price data across Greater Sydney is available at the postcode level, which provides an illustration of how the housing market varies across the metropolitan area.

House prices in Liverpool are generally lower than those closer to the Sydney CBD, although they are slightly higher than in parts of the Penrith and Campbelltown LGAs. Prices increased less in and around Liverpool between 2013-2018 than in places closer to the Sydney CBD.

There is significant price variation within the relatively large postcodes of the Liverpool LGA. Prices for more specific kinds of dwellings will be examined in more detail below.

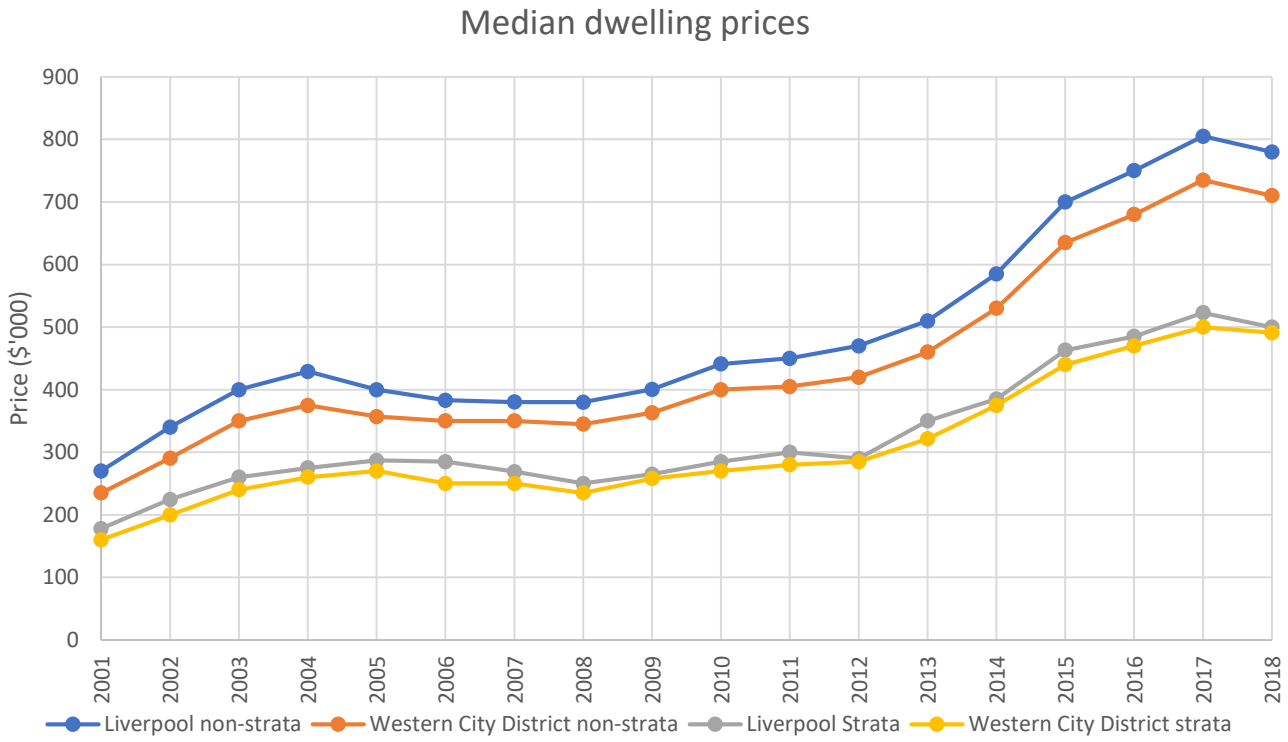


Median dwelling prices

Dwelling prices in the Liverpool LGA followed a similar trajectory to the Western City District from 2001-2018. Prices increased dramatically from 2013-2017 as the property market boomed. Dwelling prices decreased from 2017-18, and this decline has continued since then.

Liverpool's separate houses have slightly higher prices on average than those in the Western City District.

Strata dwellings are significantly more affordable in both Liverpool and the Western City District than separate houses. As with separate houses, the average strata dwelling in Liverpool has a slightly higher price than the average strata dwelling in the Western City District.



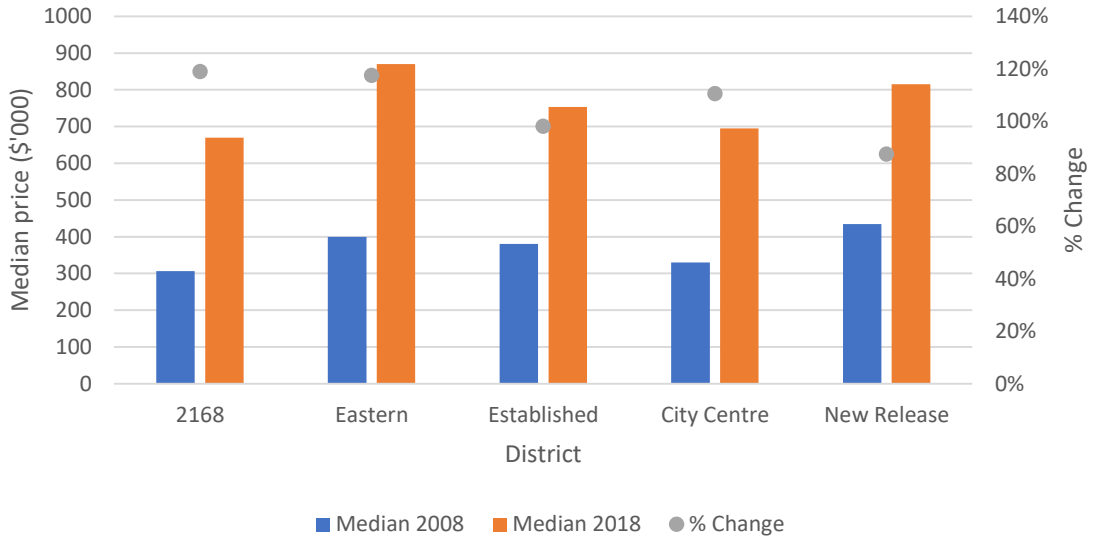
Median prices in each Region in Liverpool

The period of 2008-2018 covers the recent boom in house prices.

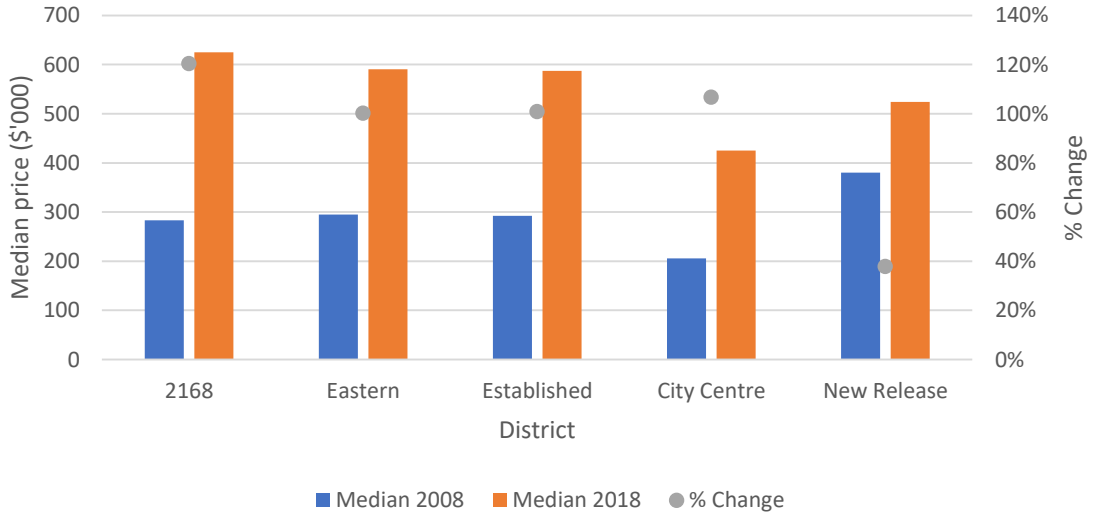
House prices increased between 80-120% between 2008-2018 in the districts of the Liverpool LGA. They increased the least in the New Release District. Strata dwelling prices increased generally between 100-120% in most of Liverpool, but increased much less in the New Release District.

Dwelling prices are highest in the Rural District followed by the New Release District and Eastern District. The 2168 District and the City Centre District have the lowest house prices.

Strata dwelling prices are lowest in the Liverpool City Centre as most strata dwellings there are apartments, while in other Districts they are townhouses.



Non-strata



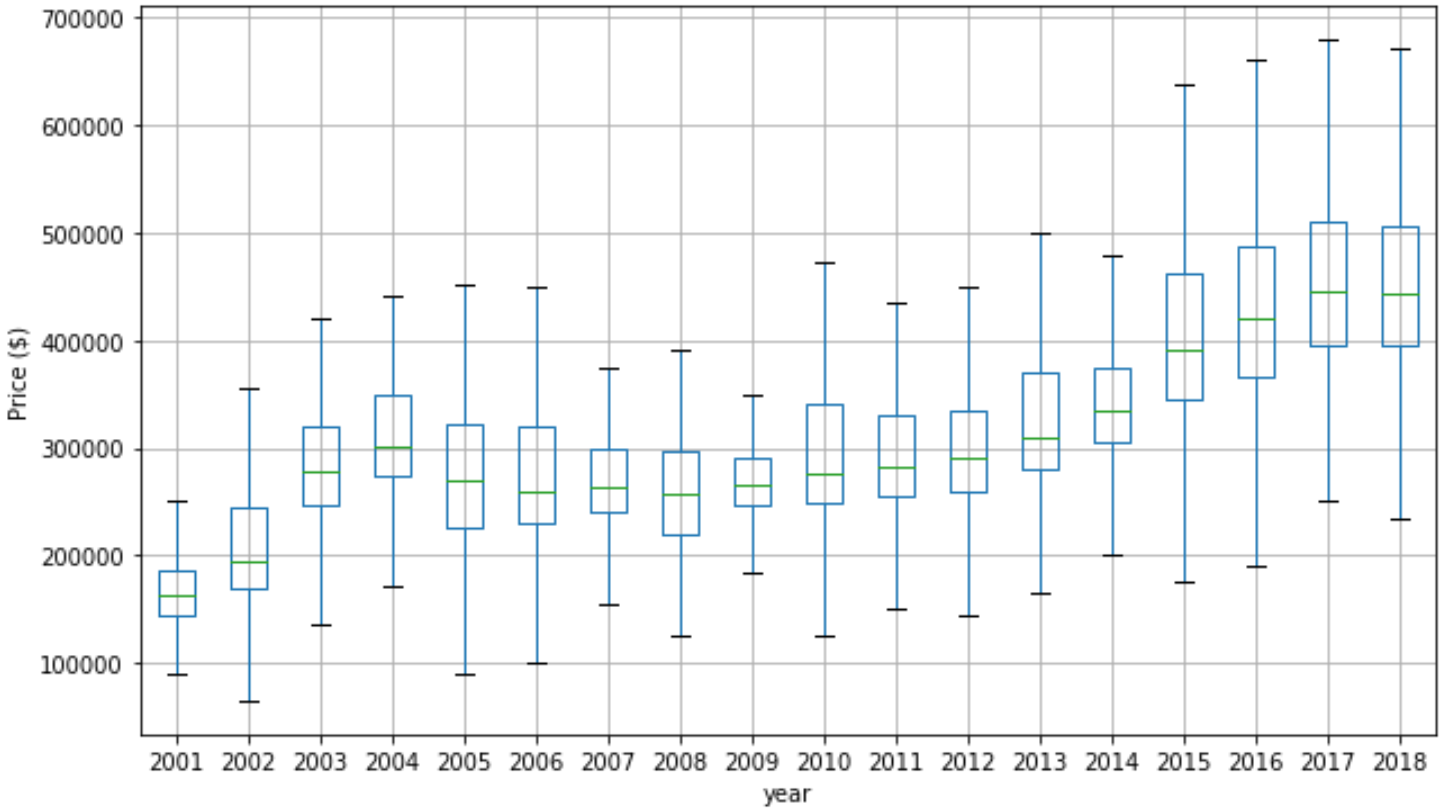
Strata

Land sales – vacant residential allotments

Dwelling prices for vacant residential allotments (less than 1,000sqm) in the Liverpool LGA increased from 2012-2017 but were relatively stable from 2003-2012. The increase in prices coincided with broader movements in the property market at that time. This underlies the connection between the greenfield and broader dwelling market.

The price trajectory for vacant lots is similar to that for dwellings across the Liverpool LGA and the Western City District.

Changes in price for greenfield land will reflect price movements in the broader housing market, and people are likely to view the greenfield status of housing as just one of the characteristics influencing their choice of what housing to buy.

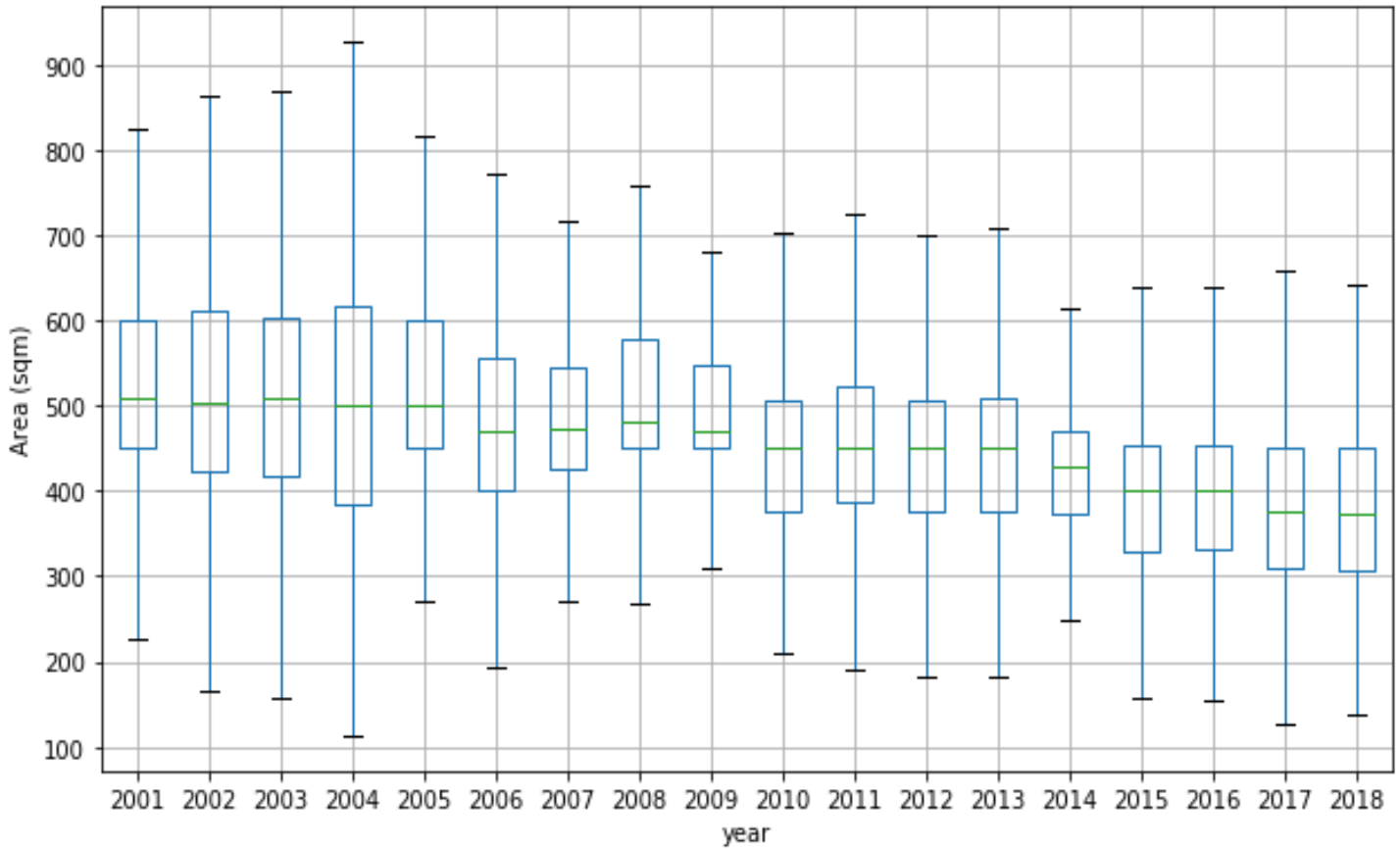


Land sales – vacant residential allotments

The area of vacant residential lots in the Liverpool LGA has been decreasing steadily since 2005.

The median area has gone from around 500sqm in 2005 to around 370sqm in 2018. Most vacant land parcels sold in 2018 were between 300-450 sqm.

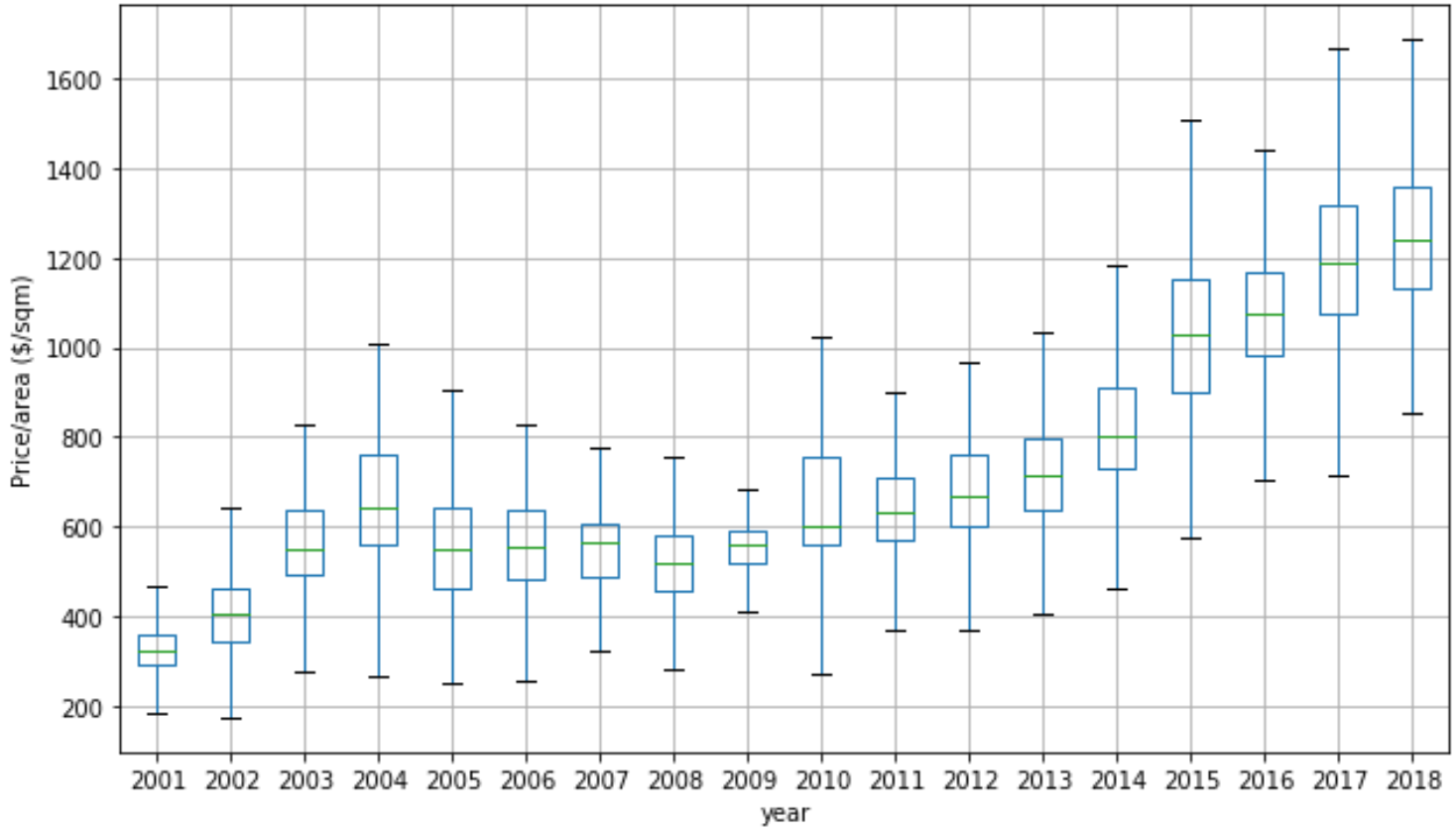
The largest lots on the market have gone from over 800sqm to between 600-700sqm. The size of the smallest parcels of land transacted has not changed as much and varies from year to year. Vacant land parcels as small as 150sqm were sold in the Liverpool LGA in 2018.



Land sales – vacant residential allotments

The price per square metre for vacant residential sites has increased steadily since 2008. This shows the increase of land prices at the same time as the area of land has been decreasing. In particular, the increase in price per square meter continued in 2017-18 while land prices decreased slightly.

The sale price for vacant land per square meter was relatively flat between 2005-2008 after reaching a peak in 2004.



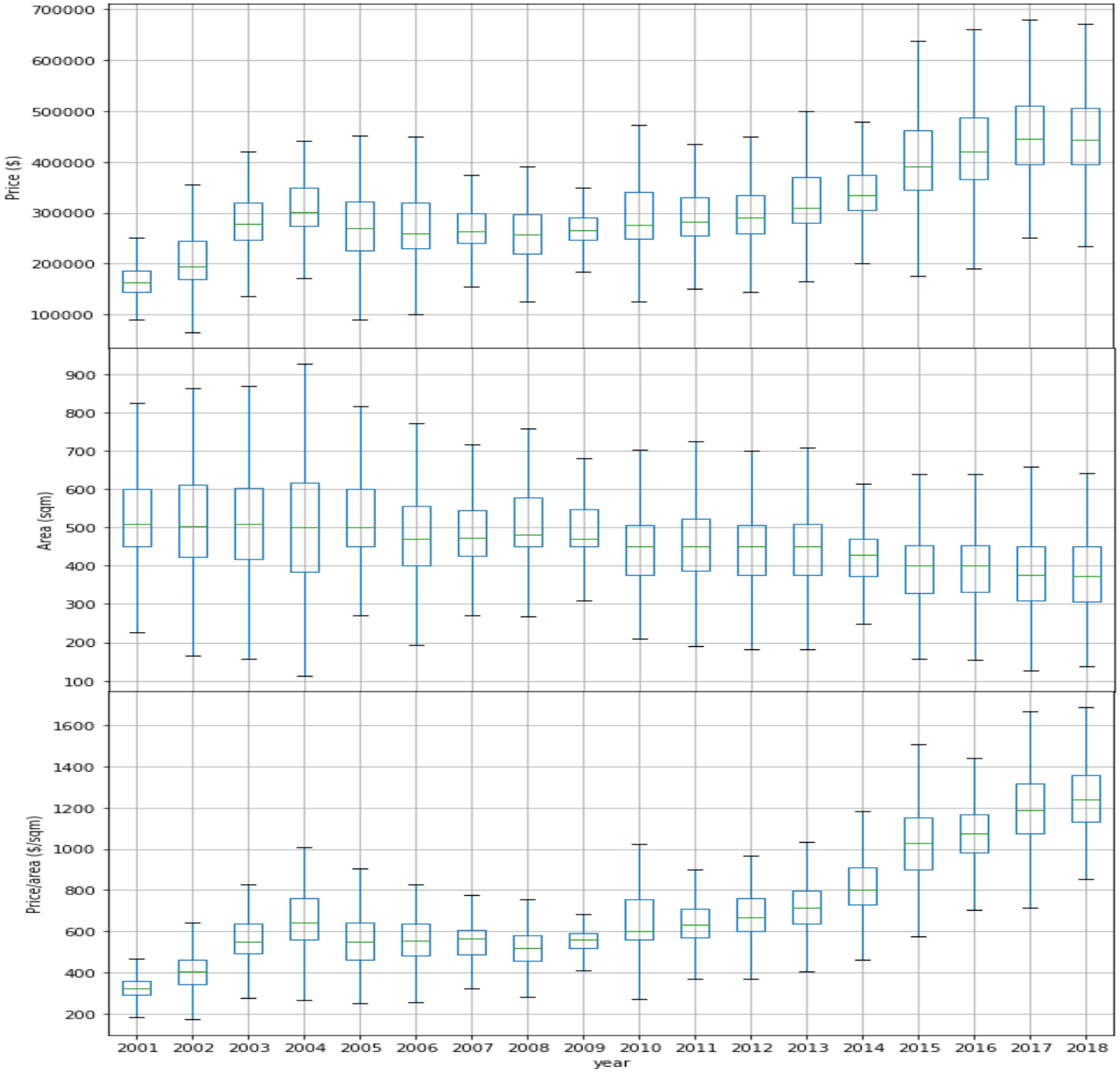
Land sales – vacant residential allotments

The housing markets in greenfield areas and the rest of Greater Sydney are connected, and so the decrease in the area of greenfield lots has not stopped the price of these lots from rising in line with dwelling prices in the rest of Greater Sydney.

The decreasing size of land has not been caused solely by the need to make land more affordable. Greenfield lot areas began decreasing before the price of land started to increase, and affordability has decreased while land areas have dropped significantly.

There is some sign that prices have stabilised between 2016-2018 but areas have continued to decrease.

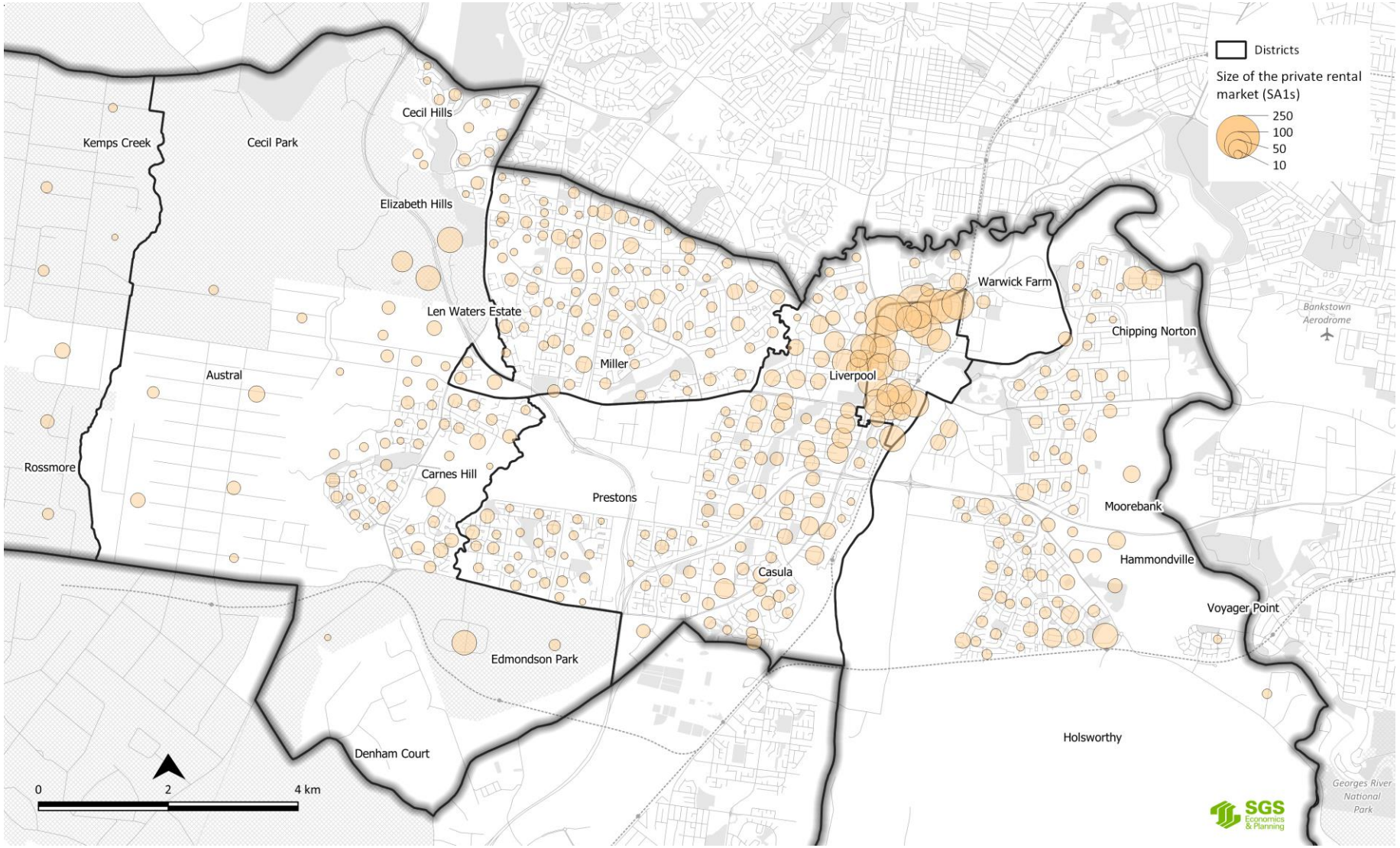
There were relatively few separate houses built between 2006-2011 compared to other five year time periods. The low sale price per square metre and flat overall land prices may have decreased dwelling viability during that time.



Size of the private rental market

The largest concentration of dwellings in the private rental market is in the Liverpool City Centre. There are small numbers of rental dwellings across the LGA.

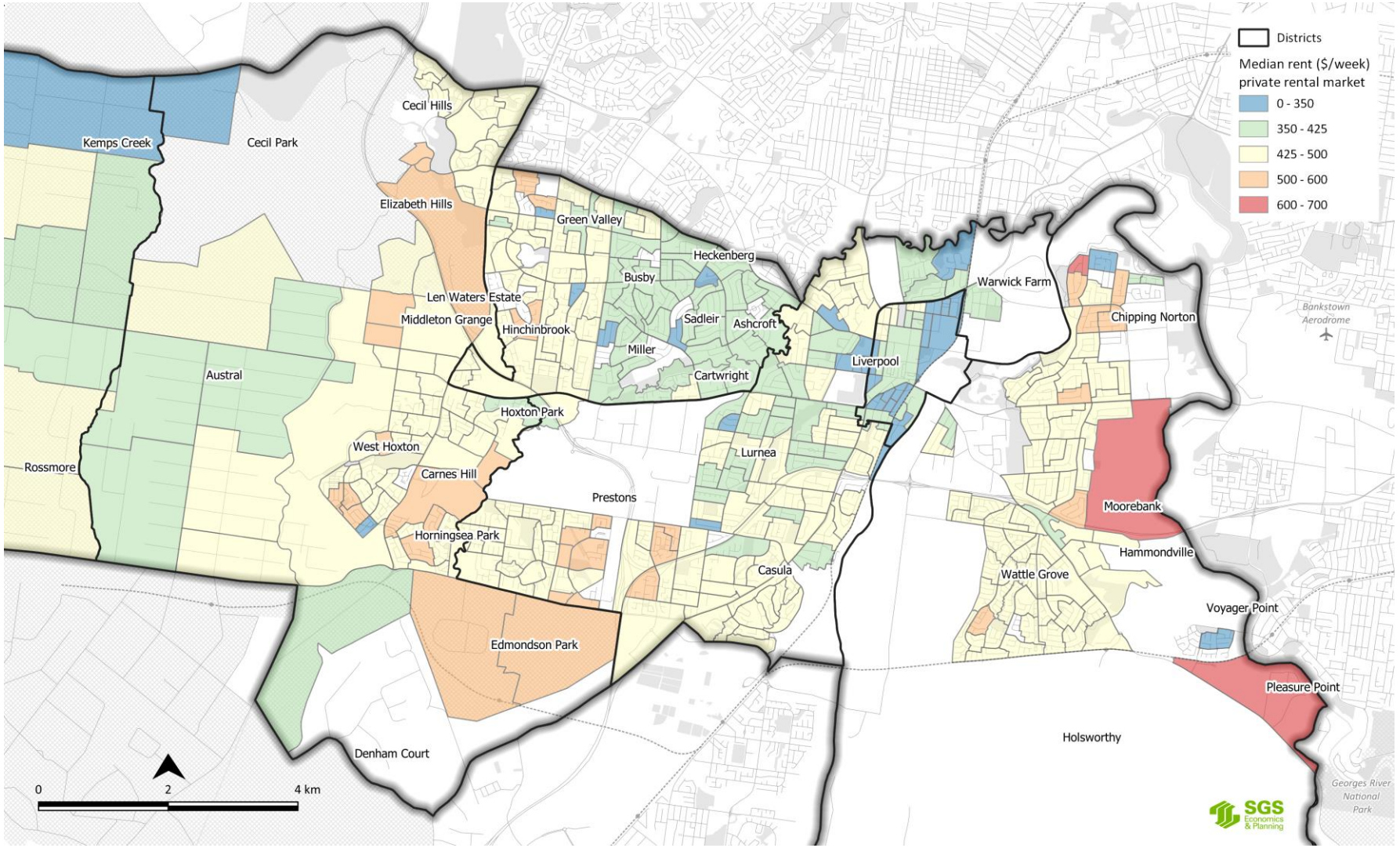
The City Centre contains 27% of private rental dwellings in the LGA, with the next largest number of private rental dwellings in the Established District (26%), which has a much larger land area than the City Centre, followed by the New Release District (15%).



Affordability of the private rental market

As well as containing the largest concentration of private rental dwellings in the Liverpool LGA, the City Centre District has some of the lowest private rents in the LGA. Median private rents are less than $350 per week for two bedroom apartments in those parts of the City Centre which are predominately occupied by walk-up apartments.

The large private rental market and relatively low rents in the City Centre combine to create the largest concentration of relatively affordable rental dwellings in the LGA. The availability of relatively low cost housing would be significantly compromised without the walk-up apartments around the Liverpool City Centre.



Rental Stress

Households are defined as in rental stress if their income is in the bottom 40% and they pay more then 30% of their income on their rent.

Assessing the proportion of all households who pay more than 40% of their income on rent provides a slightly different measure of how affordable rents are in an area. On this measure, every District has between 30-40% of renting households paying a large share of their income on housing.

Median rents are low in the 2168 District and the City Centre District, with high numbers of public housing dwellings in the 2168 District. There are also a large number of public housing dwellings in Warwick Farm within the Established District.

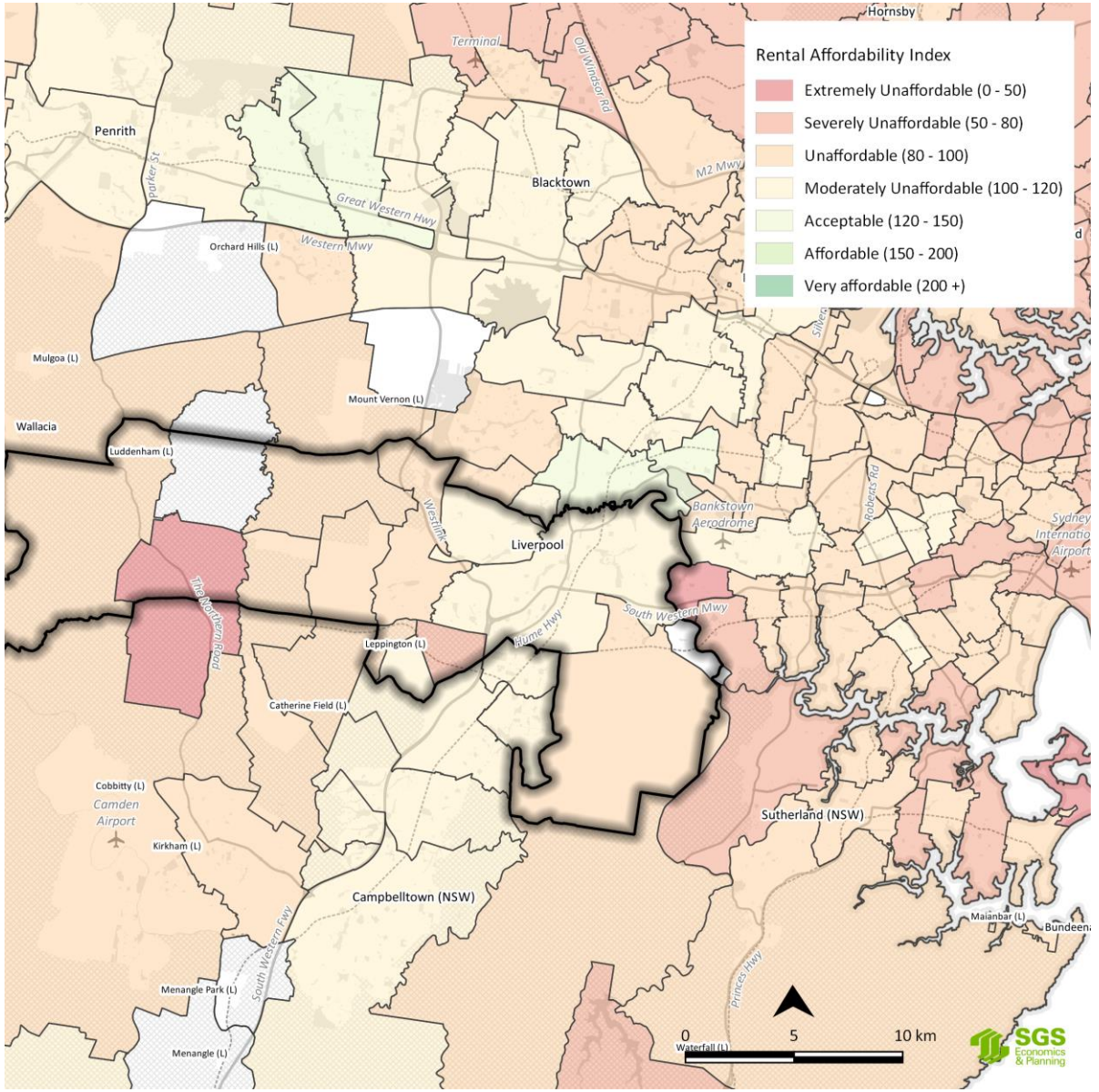
Region	% of renters who pay more than 40% of their income	Median rental category ($/week)
City Centre District	36%	$325-$349
Eastern District	30%	$450-$549
Established District	40%	$350-$374
2168 District	35%	$200-224
New Release District	34%	$450-$549
Rural District	40%	$350-$374

Rental Affordability Index

SGS's rental affordability index for households with the average household income for the Liverpool LGA ($80,000 annually) is shown on the right. This shows that average rental dwellings in all postcodes in LGA are relatively unaffordable for the average household, even if there are some more affordable dwellings.

Household types with lower incomes, such as older people and single parents, would have even lower rental affordability.

In this context, it is important that existing low-cost rental dwellings are maintained.



Key findings

- Dwelling prices vary widely across the Liverpool LGA and are generally higher than the Western City District average but lower than those closer to the Sydney CBD.
- Prices throughout the LGA have increased recently in line with the property boom in Greater Sydney, including prices for greenfield land and dwellings.
- The area of greenfield housing allotments has decreased steadily since 2005, but this has not maintained affordability for new dwellings.
- Most rental housing in the Liverpool LGA is unaffordable for people on average incomes for the LGA, and the situation is likely to be worse for people with lower incomes.
- Rental stress rates are between 30%-40% in each of Liverpool's districts.
- Walk-up apartments around the Liverpool CBD contain the largest concentration of relatively affordable rental dwellings in the LGA.

LIVERPOOL HOUSING STUDY

HOUSING CONTEXT

Demographics and drivers of housing demand

SGS Economics & Planning

Housing market: demand drivers

Recent years have seen strong population growth and demand for housing in Liverpool. Substantial amounts of apartment development in the Liverpool City Centre and significant greenfield housing development in other parts of the LGA have occurred.

Housing demand is driven by a variety of factors including continued population growth, particularly from migration and the movement of households from closer to Sydney to the Liverpool LGA. The kinds of dwellings which experience high levels of demand are influenced by household types, housing preferences, household sizes, housing type availability and affordability. This section explores these factors.

The population of the Liverpool LGA has increased from 169,868 in 2006 to 211,983 in 2016, amounting to growth of 42,115 people. This represents a growth rate of around 2.2% per year, which exceeds the growth rate in Greater Sydney (1.6% per year).

Geography	2006	2011	2016	Growth	Annual growth rate (%)
Greater Sydney	3,821,233	4,079,432	4,496,184	674,951 (17.7%)	1.6%
Liverpool LGA	164,602	180,142	204,326	39,724 (24.1%)	2.2%

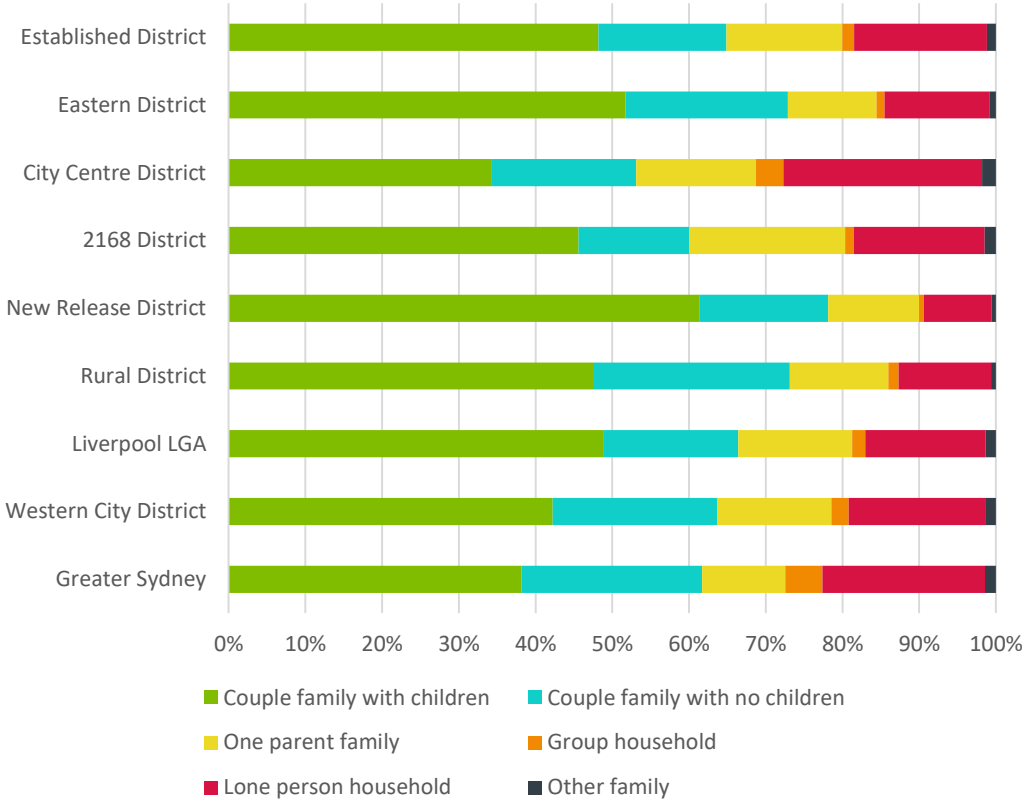
Household Types

Liverpool LGA has a relatively high proportion of couples with children and a low proportion of lone person households and group households.

The City Centre District has the most diversity in household types.

Despite its preponderance of two-bedroom apartments, the City Centre District has a diversity of household types, including 34% of households being couple families with children.

Most households in the New Release District are families with children, but there are still some other household types including lone persons and couples with no children. While the availability of large separate houses may be viewed as an attraction of this area for some people, the lack of dwelling diversity means that smaller household types have no other possible housing choices.



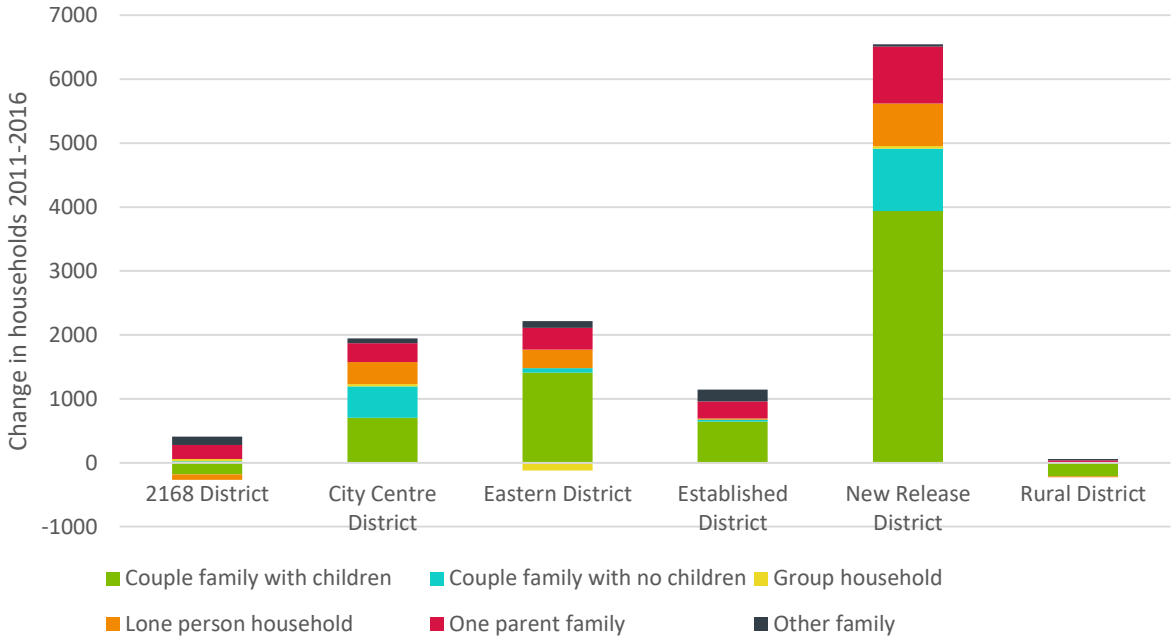
Change in households 2011-2016

The largest increase in household numbers between 2011-2016 was couple families with children, in line with the large increase in four or five bedroom houses over the same time period.

The largest increase in number of households was the New Release District. Most of the households moving to this area were couple families with children, although some small households also moved to this area. The increase in the number of households in the New Release District was around the same size as the increases in every other district combined.

There was a high level of diversity in households moving to the City Centre District, including couples with children.

The increase in household types in the Eastern District had a similar demographic breakdown to the New Release District as this increase is primarily composed of greenfield development in Moorebank and New Brighton.



Dwelling preferences for different kinds of households

The next two pages illustrate expressed dwelling preferences in the Liverpool LGA in 2011 and 2016. These are constrained preferences shown by what kinds of dwellings each kind of household lived in.

Couples with children mostly lived in separate dwellings, while lone persons, group households and single parents had the highest rates of living in attached dwellings and apartments. Preferences changed slightly between 2011-2016 in each of Liverpool's districts, but not markedly.

There was a diversity of dwelling types living in every kind of housing in Liverpool LGA. A significant proportion of flats and apartments and attached dwellings had couples with children living in them, so these small dwelling types should be designed with features making them suitable for families such as appropriate storage spaces, level access for prams and noise-proofing.

A significant portion of separate houses in many of Liverpool's districts had small household types living in them. This includes the New Release District, where over 60% of separate houses contained families with children. The remaining houses were occupied by lone persons, couples without children and single parent households, with very few group households. Some but not all couples without children may have children in the future. Regardless of this, many large separate houses were occupied by smaller household types which are likely to remain small in the future.

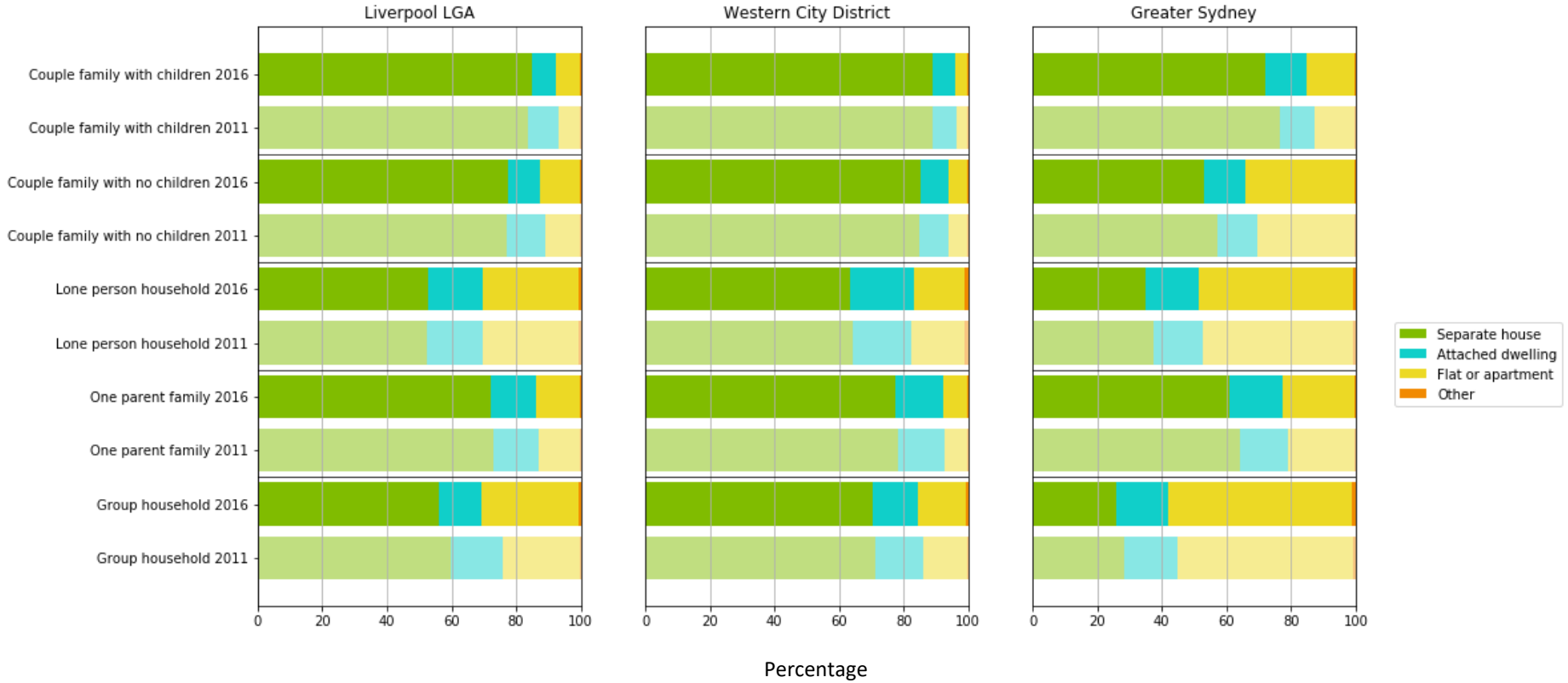
Consultation with real estate agents revealed a strong demand for smaller and more affordable kinds of dwellings. This was reported to be particularly true for medium density dwellings and among younger people having trouble affording separate houses. Strong demand was also reported for separate houses in greenfield areas such as Edmondson Park, with people moving to these areas attracted by open space, reasonable lot sizes and new houses.

What kinds of dwellings do households live in?

This chart shows the proportion of each household type (rows in the charts) living in each dwelling type (shown with colours). This is referred to as *expressed dwelling preferences.*

For example, around 85% of couples with children in the Liverpool LGA live in a separate house, while lone persons are much more likely to live in an attached dwelling or apartment.

Values from 2011 are shown in lighter colours. Between 2011-2016 there was little change in Liverpool, but in Greater Sydney there were shifts away from separate houses for all household types, reflecting a shift in the overall dwelling composition with an increasing proportion of apartments and attached dwellings.

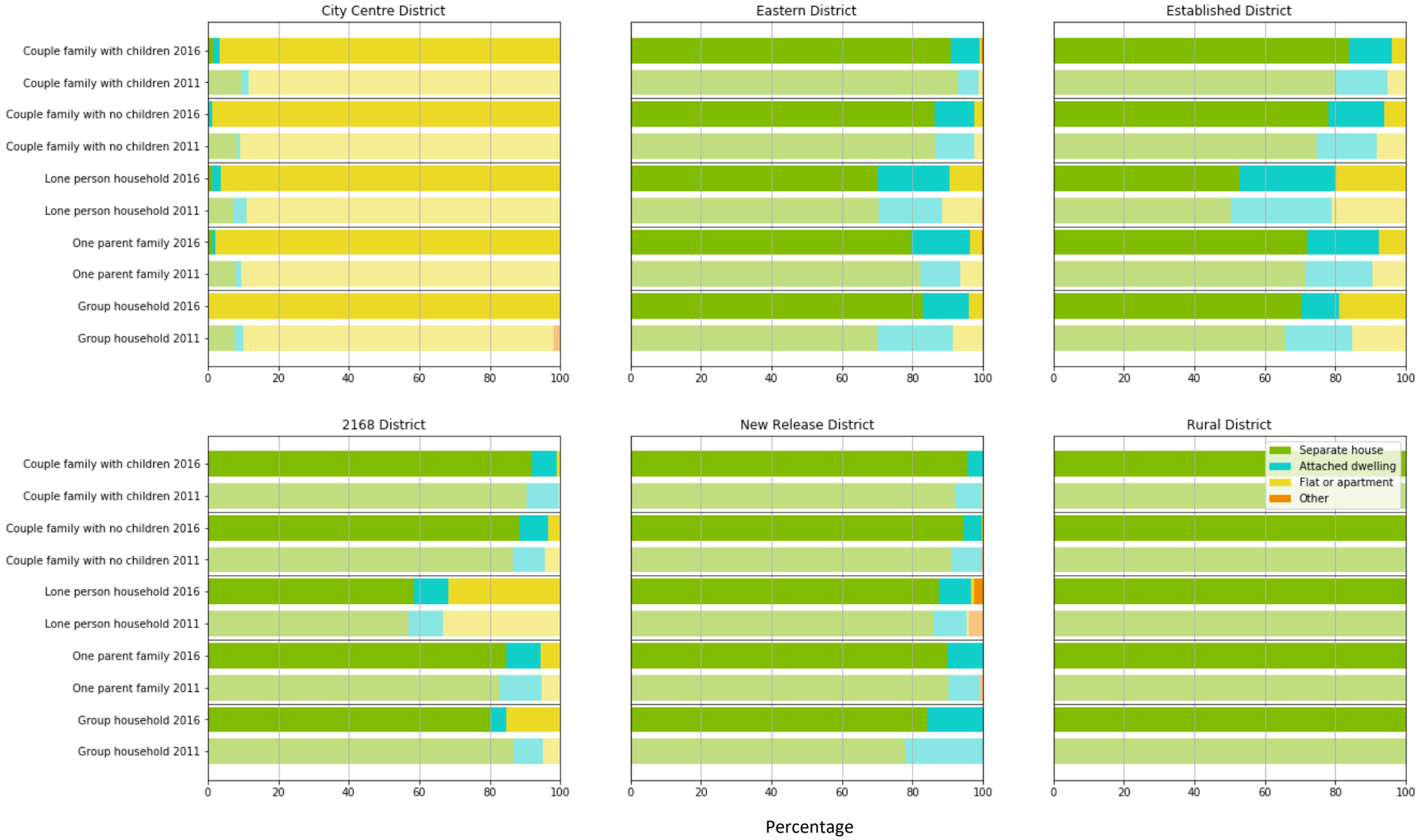


What kinds of dwellings do households live in?

These charts show expressed dwelling preferences for each district in Liverpool.

Expressed dwelling preferences in smaller areas strongly reflect the dwelling composition. In large parts of Liverpool there are few dwellings other than detached dwellings, constraining housing choices.

Between 2011-2016, separate houses became more common housing choices for many household types in several Districts. This reflects the development of more separate houses were built but not of attached dwellings and apartments.



What kinds of households live in each kind of dwelling?

This chart shows the proportion of dwellings of different types (shown on rows) occupied by different household types (shown with colours).

For example, around 27% of apartments in Liverpool LGA in 2016 were occupied by families with children. This percentage was slightly lower similar in 2011.

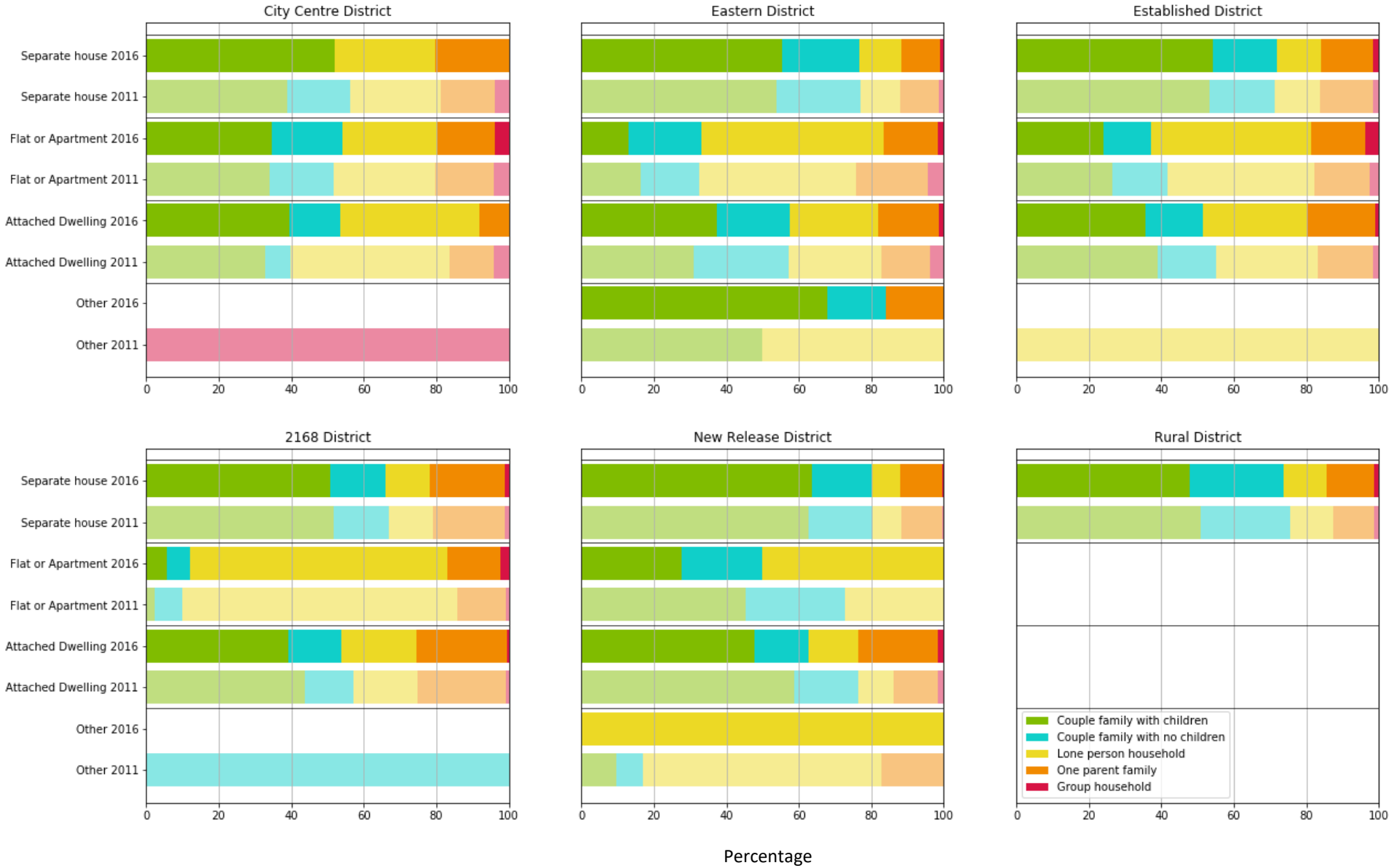
Values from 2011 are shown in lighter colours. Between 2011-2016, household diversity in flats and apartments increased in both the Liverpool LGA and Greater Sydney. Lone persons and one parent families became more common in attached dwellings in the Liverpool LGA and couples with children less common, in contrast with Greater Sydney.

What kinds of households live in each kind of dwelling?

This chart shows the proportion of dwellings of different types (shown on rows) occupied by different household types (shown with colours) in each of Liverpool's districts.

The City Centre District has the greatest range of household types despite its preponderance of two-bedroom apartments.

The New Release District is composed primarily of large separate houses, but around half of these are not occupied by couples with children, with similar percentages in 2011 and 2016.

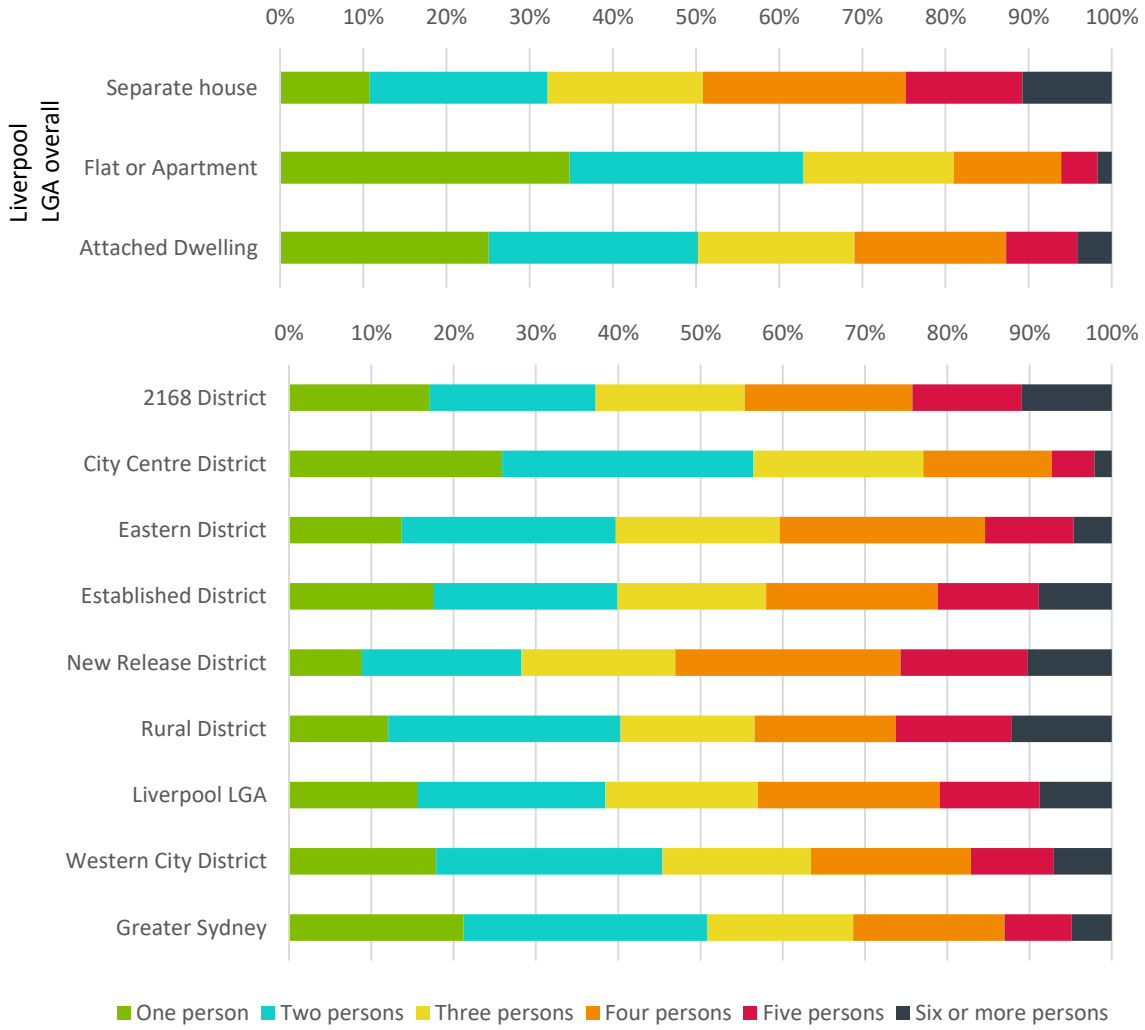


Dwelling size – Number of people per dwelling

Separate houses in Liverpool have a wide range of number of people living in them, from 1-6 or more people. This reflects the diversity of household types living in separate houses in the LGA, which is shown above.

Flats and apartments contain mostly one or two people, although some contain four or more despite likely having only two bedrooms.

The Eastern, Established and New Release districts have similar proportions of each number of people as the Liverpool LGA overall. There is little variation in this demographic variable between these areas.



Average number of people per dwelling

The number of people per dwelling in the Liverpool LGA is higher than in the Western City District or Greater Sydney. The new release region has particularly high average household sizes for both separate houses and attached dwellings.

Flats and apartments in the Liverpool City Centre have a much higher occupancy than in the Western City District or Greater Sydney, which is consistent with the diverse household types in this area.

The 2168 District has relatively high occupancies for Separate houses and attached dwellings. This may be related to the high proportion of social housing in this area.

Area	Separate house	Attached Dwelling	Flat or Apartment	Other	Overall
2168 District	3.53	2.82	1.42		3.31
City Centre District	3.23	2.31	2.51		2.51
Eastern District	3.20	2.51	1.72	3.27	3.08
Established District	3.44	2.55	2.09		3.19
New Release District	3.65	2.93	1.83	1.12	3.57
Rural District	3.38				3.38
Liverpool LGA	3.48	2.74	2.30	2.21	3.23
Western City District	3.17	2.49	2.17	2.26	3.01
Greater Sydney	3.19	2.65	2.14	2.34	2.80

Cells are coloured depending upon their values. Cells are more red if the average household size is higher, and more green if it is lower.

Change in average number of people per dwelling

Average household sizes in the Liverpool LGA increased in every kind of dwelling between 2006-2016. Increases were generally smaller in the Western City District, but larger in Greater Sydney.

The largest increases in average household sizes in the Liverpool LGA were for flats and apartments, followed closely by separate houses. This indicates that larger household types are moving into flats and apartments. People may be putting off forming new households due to a lack of dwelling affordability, leading to an increasing proportion of large households in separate houses.

The City Centre District had a large increase in the average household size in flats and apartments (although a decrease in household size in the small number of attached dwellings). The Eastern District had a very large increase in the average household size in attached dwellings, while the Established District had a large increase in household size in separate houses.

Change 2006-2016

Area	Separate house	Attached Dwelling	Flat or Apartment	Overall
2168 District	0.12	0.05	0.02	0.10
City Centre District		-0.18	0.19	0.18
Eastern District	0.07	0.28	0.04	0.05
Established District	0.20	0.01	-0.02	0.17
New Release District	0.06	0.11		0.04
Rural District	-0.02			-0.03
Liverpool LGA	0.14	0.09	0.15	0.11
Western City District	0.06	-0.01	0.13	0.04
Greater Sydney	0.13	0.22	0.21	0.11

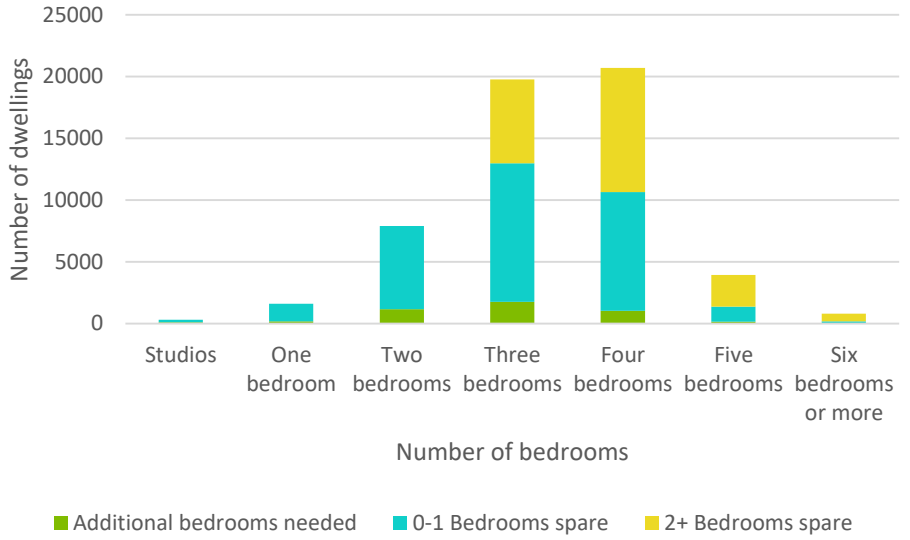
Cells are coloured depending upon their values. Cells are more change in average household size is more negative, and green if it is more positive.

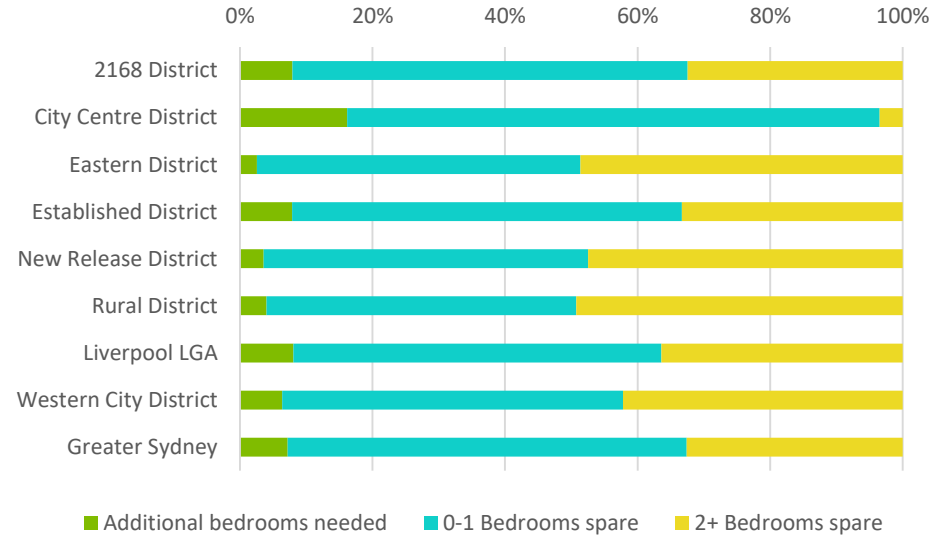
Dwelling suitability

Dwelling suitability is a measure of how suitable the size of dwellings is for their occupants in a given area. It is calculated by the ABS based on usual residents and the number of bedrooms in each dwelling. It is an indication of relative housing affordability as well as of the availability of appropriately sized housing.

In the Liverpool LGA around half of four bedroom houses and an even higher proportion of 5+ bedroom houses have 2 or more bedrooms spare. This indicates that there may be a market for smaller dwellings in established parts of Liverpool for smaller household types who currently have no ability to choose a smaller and more affordable dwelling suitable for their needs.

There is a relatively high proportion of crowded dwellings in the City Centre District and 2168 District, in which additional bedrooms are needed to house all occupants.





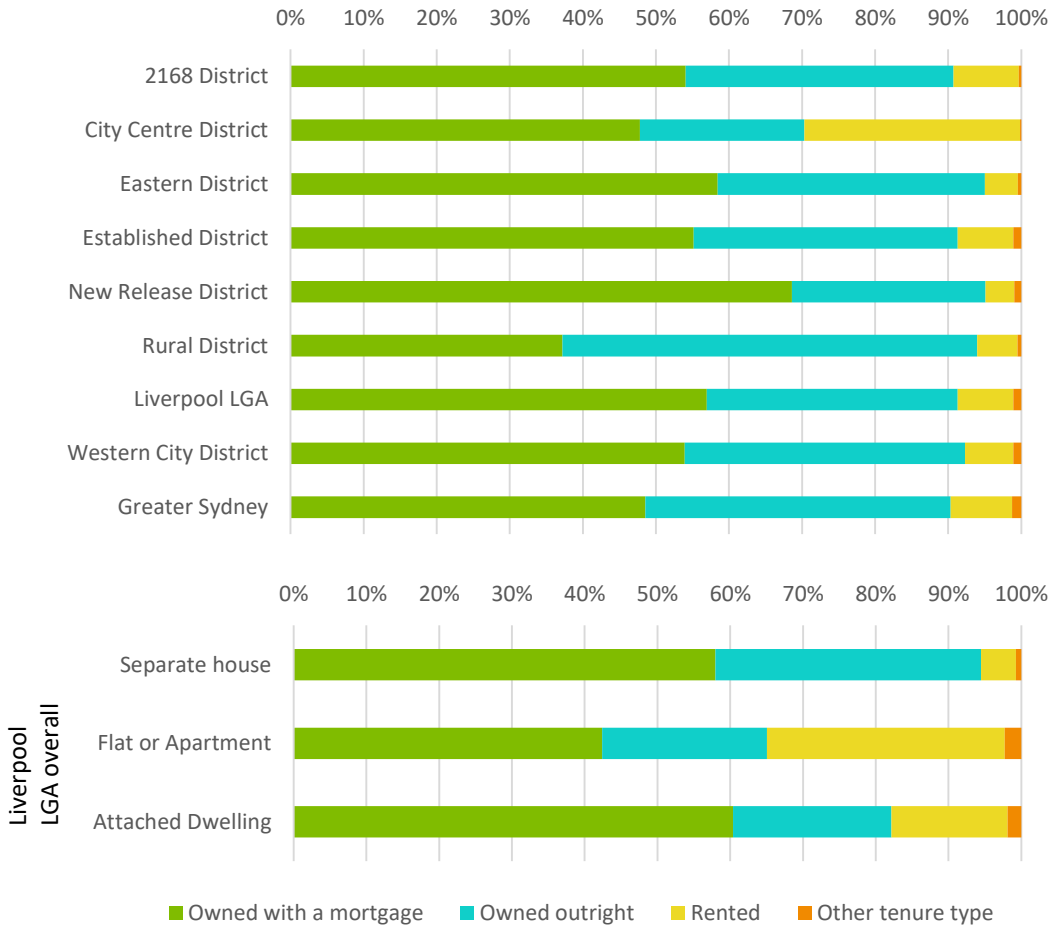
Dwelling tenure

Most dwellings in Liverpool are owned with a mortgage. This proportion is higher than the equivalent proportion in the Western City District or Greater Sydney.

Greenfield developments have a particularly high proportion of people who own dwellings either outright or with a mortgage, shown by the very low proportions of dwellings which are rented in the New Release District. The rental market also makes up a small proportion of all dwellings in the Eastern, Established and Rural districts.

A much higher proportion of flats and apartments than separate houses or attached dwellings in the Liverpool LGA are rented. However, while flats and apartments are sometimes viewed as predominately temporary accommodation options for younger people, more than 60% of flats and apartments in the Liverpool LGA are owned by their occupants, either outright or with a mortgage.

By far the highest proportions of dwellings rented is in City Centre District. This reflects the dominance of apartments in this area, as well as its diverse and more transient population.

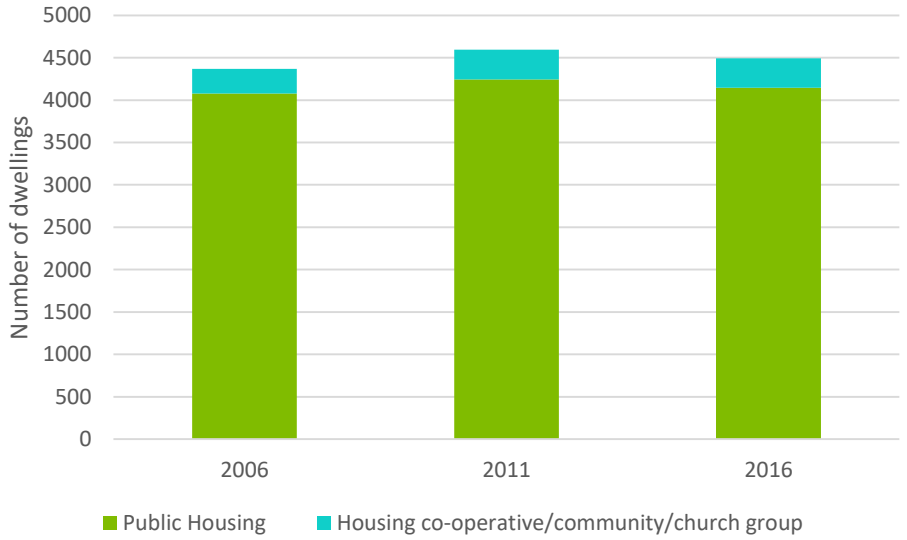


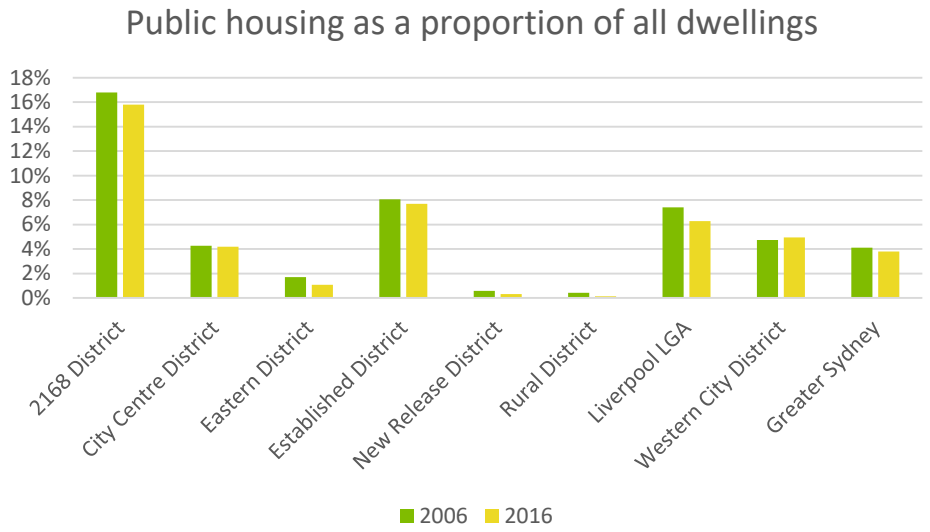
Landlord type – social housing

Based on responses to the ABS census, the absolute amount of public housing and community housing in Liverpool was relatively constant between 2006-2016 at approximately 4,500 dwellings. Public housing constitutes a greater proportion of dwellings in the Liverpool LGA than in the Western City District or Greater Sydney.

The 2168 District has the highest proportion of public housing. There is also a reasonable proportion in the Established District, with clusters of public housing in Lurnea, Warwick Farm and Liverpool but little elsewhere.

The number of dwellings in Liverpool increased from 2006-2016, so the proportion of all dwellings which are public housing decreased. During the same time period, housing prices and rents increased and housing affordability as a whole decreased.





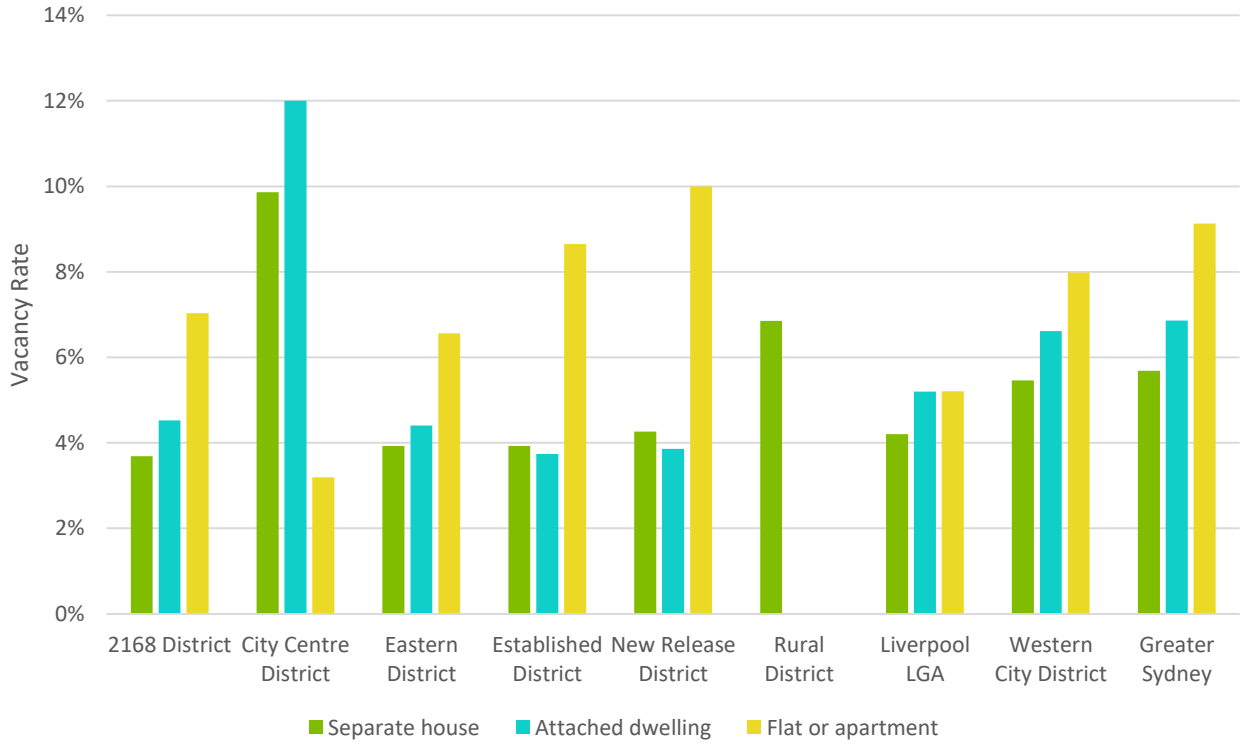
Vacancy Rates

Vacancy rates vary greatly across the LGA, with the lowest rates for separate houses, followed by attached dwellings and then detached dwellings.

Vacancy rates are generally lower in places with high numbers of young families who are not very mobile, such as greenfield development areas. Rental dwellings spend more time vacant than dwellings with an owner-occupier, and so a small rental market in an area also decreases vacancy rates. As discussed above, many parts of the Liverpool LGA have relatively small rental markets.

In the Liverpool LGA, vacancy rates are lowest for separate houses in the Eastern District, Established District and 2168 District, followed by the New Release District. Vacancy rates are generally lower than those in the Western City District or Greater Sydney, corresponding to the high proportions of couple families with children and owner-occupiers in the Liverpool LGA.

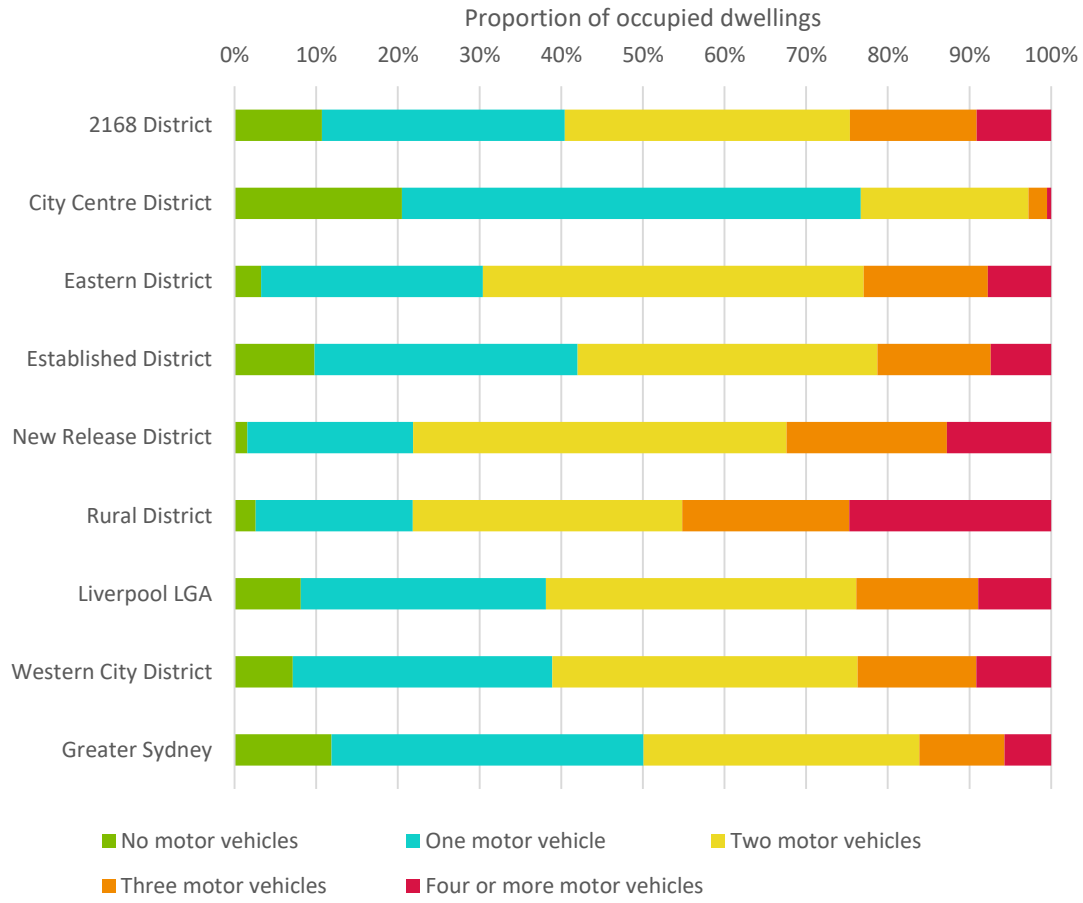
Vacancy rates in the 2168 District are probably reduced by the high proportion of people living in social housing who do not have high enough incomes to travel frequently.



Number of cars

Most dwellings in the Liverpool LGA have two or more cars. A very small proportion of dwellings have no cars, even in the City Centre District. This has implications for the provision of parking spaces in new developments, as households without a dedicated car parking space will likely still own a car and park on the street unless a shift in travel behaviour occurs.

In the New Release District and Rural District a significant portion of dwellings have three or more cars. In these areas the availability of on-site parking is likely to be a strong determinant of demand for a style of housing, with many households opting for double garages or new houses where they can park a car in the driveway as well as in the garage. There is likely to be less demand for dwellings without multiple car spaces or where car parking is not convenient.



Average number of cars

The average number of cars for each dwelling type in the Liverpool LGA is similar in averages in the Western City District and Greater Sydney.

Average car ownership is high in the New Release District, most parts of which have relatively poor public transport.

Average car ownership is relatively low in the City Centre District, although the average number of cars for flats and apartments is still greater than one.

Area	Separate house	Attached Dwelling	Flat or Apartment	Other
2168 District	2.0	1.6	0.6	
City Centre District	1.0	0.8	1.1	1.0
Eastern District	2.1	1.5	1.2	2.1
Established District	2.0	1.3	0.9	
New Release District	2.3	1.8	1.4	1.0
Rural District	2.5			
Liverpool LGA	2.1	1.5	1.0	1.6
Western City District	2.0	1.3	1.0	1.4
Greater Sydney	2.0	1.4	1.0	1.2

Key findings

- The Liverpool LGA has a high proportion of couples with children and a low proportion of lone-person households and group households.
- The City Centre District has the greatest diversity of household types, despite its preponderance of two bedroom apartments.
- The largest increase in household numbers between 2011-2016 was in couple families with children in the New Release District and Eastern District. A more diverse mix of households, including couple families with children, moved into the City Centre district.
- Between 2011-2016 housing choices for most household types remained relatively constant in the Liverpool LGA, in contrast to Greater Sydney where expressed preferences shifted towards attached dwellings and apartments for every household type.
- There is a diversity of dwelling types living in every kind of housing in Liverpool LGA. A significant proportion of flats and apartments and attached dwellings have couples with children living in them.
- A significant portion of separate houses in many of Liverpool's regions have small household types living in them, indicating a potential demand for more diverse housing types outside of the Liverpool City Centre.
- Consultation with real estate agents revealed a strong demand for smaller and more affordable kinds of dwellings.
- The Liverpool LGA has high and generally increasing household sizes and dwelling sizes, particularly in the New Release District.
- A significant proportion of dwellings with three or more bedrooms in the Liverpool LGA have 2 or more bedrooms in excess of what would be needed to house the occupants.
- There are a large and stable number of social housing dwellings in the LGA, but as development occurs the proportion of all dwellings which are social housing is decreasing.
- Households in Liverpool have a high number of cars on average and few do not have a car, meaning that appropriate ways to provide parking should be considered in planning for new housing.

LIVERPOOL HOUSING STUDY

CAPACITY ANALYSIS

SGS Economics & Planning

Housing capacity method

Housing capacity is an estimate of the quantum of housing that could be accommodated in an area. It is based on existing planning controls and recent housing supply trends. It is a theoretical assessment of the maximum number of dwellings that could be developed, and is intended to be indicative rather than absolute.

The chart opposite illustrates the 4-step process for determining the volume of dwelling capacity in the LGA. The following pages illustrate this process as applied to the Liverpool LGA.

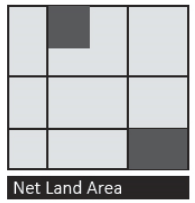
This is a high-level analysis which gives a maximum theoretical capacity. There are likely to be site-specific attributes which may affect the development potential of some sites, but which cannot be included in an LGA-wide capacity analysis.

Only a small portion of available lots are likely to be developed in any one year and some lots are likely to be withheld from development. For these reasons, a greater housing capacity than expected demand is required to ensure that future development is not constrained.

STEP 1: NET LAND AREA IDENTIFICATION

Removal of land that cannot be developed for residential purposes.

E.g. roads, footpaths



STEP 2: AVAILABLE LAND ASSESSMENT

Exclusion of lots that would not be able, or would be unlikely, to yield additional housing beyond what already exists.

E.g. Small lot size, recently developed sites, heritage status

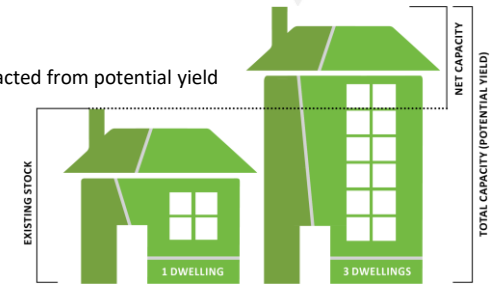
STEP 3: POTENTIAL YIELD ASSESSMENT

Density and yield assumptions (using statutory height limits, setbacks, garden area requirements etc.) are applied to lots defined as available.

The total 'yield' for individual sites is then compared to the current number of dwellings on each lot to determine net capacity.

STEP 4: NET CAPACITY

Existing dwellings are subtracted from potential yield to calculate net capacity



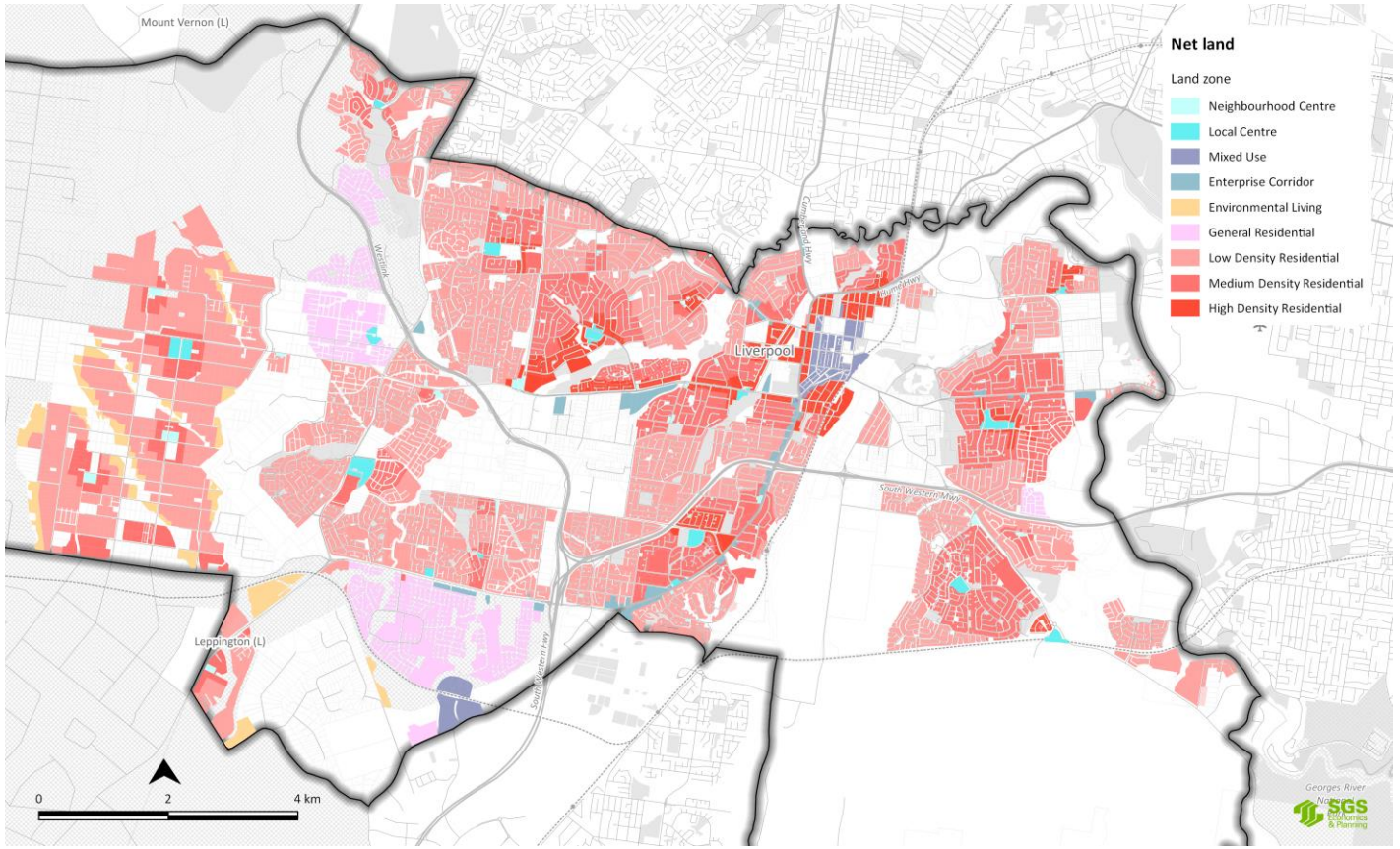
Identification of land available for development

Step 1: Net land area identification

Net land refers to total land where residential development is permitted, minus the land that cannot be developed for residential purposes e.g. roads and footpaths.

The capacity calculation is conducted on a lot by lot basis with only lots where residential development is permissible considered, and so parts of the public domain are automatically excluded.

The result of this first step is shown opposite, with land parcels coloured according to their zoning.



Identification of land available for development

Step 2: Available land assessment

Available land represents any land that has the potential to accommodate additional housing. It is derived from the net land, from which lots unlikely to be developed are excluded. The following pages list the various exclusions used.

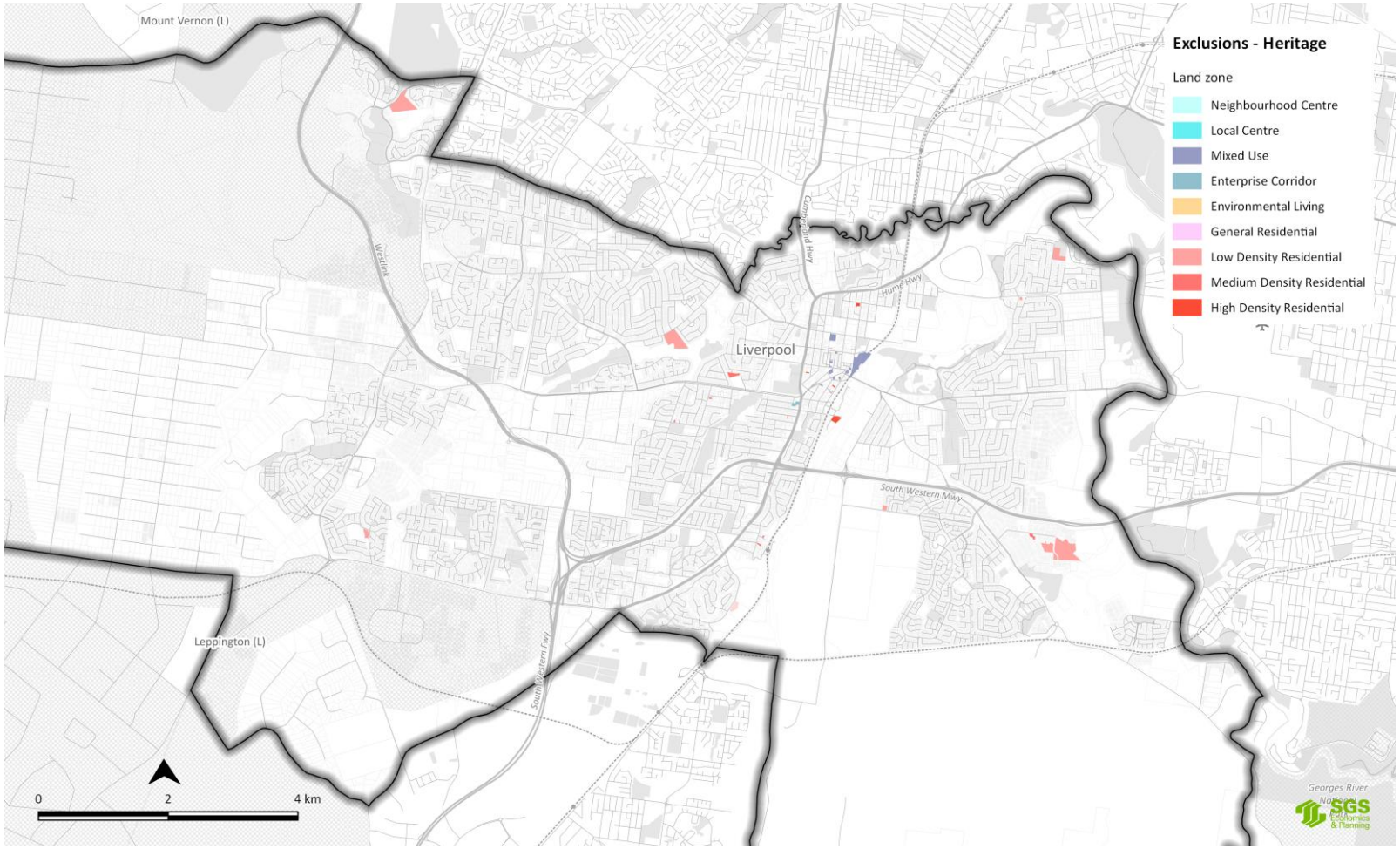
Designation of a lot as available land does not mean that development is necessarily feasible or that property owners are ready or willing to develop these sites.

Typically, only a small portion of available lots are likely to be developed in any one year.

Identification of land available for development

Step 2: Available land assessment
Exclusion: Heritage items

Heritage items under the Liverpool LEP are excluded from further development.

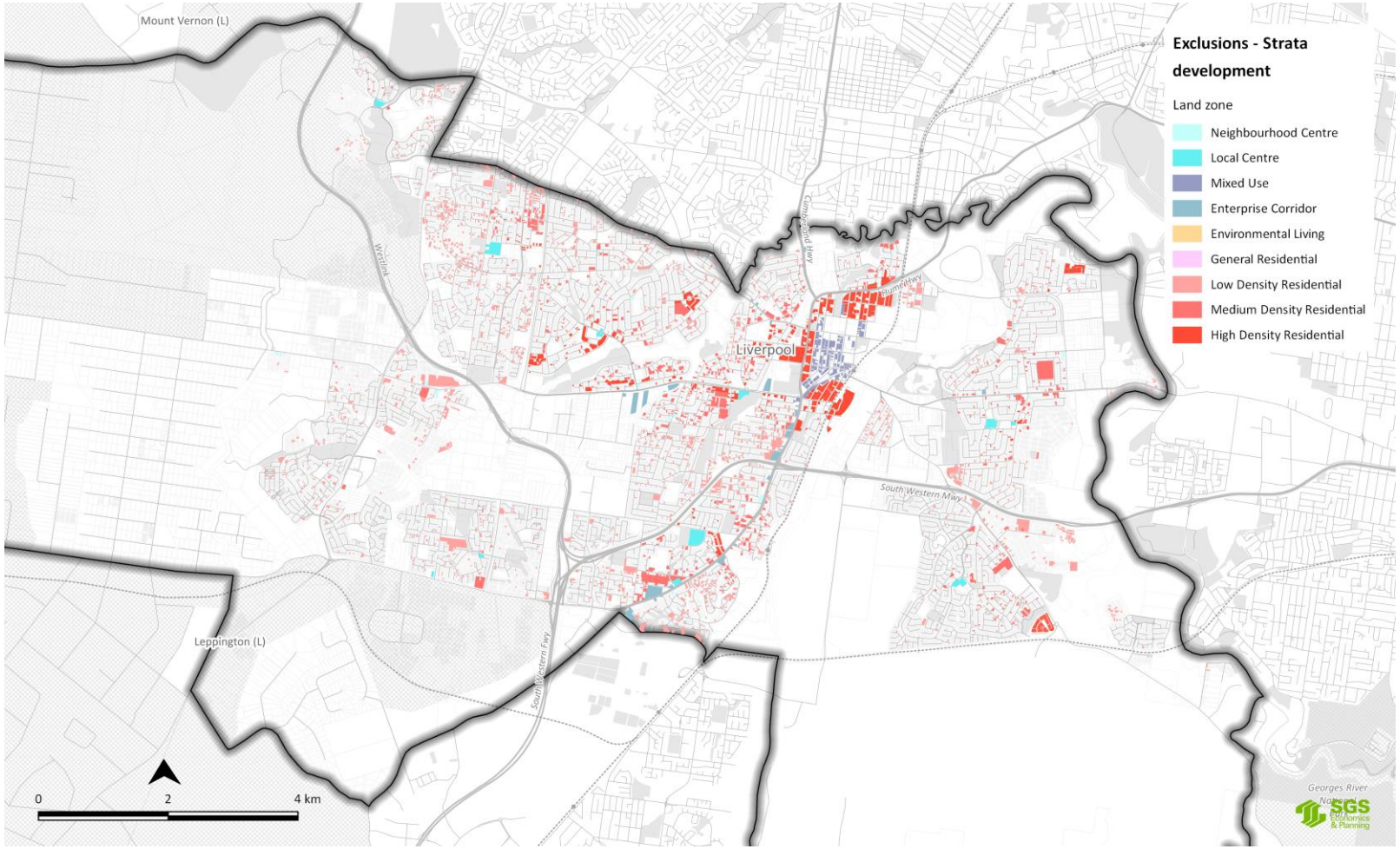


Identification of land available for development

Step 2: Available land assessment
Exclusion: Existing apartment and strata development

Existing apartment development, strata-subdivided properties and likely commercial strata developments are excluded.

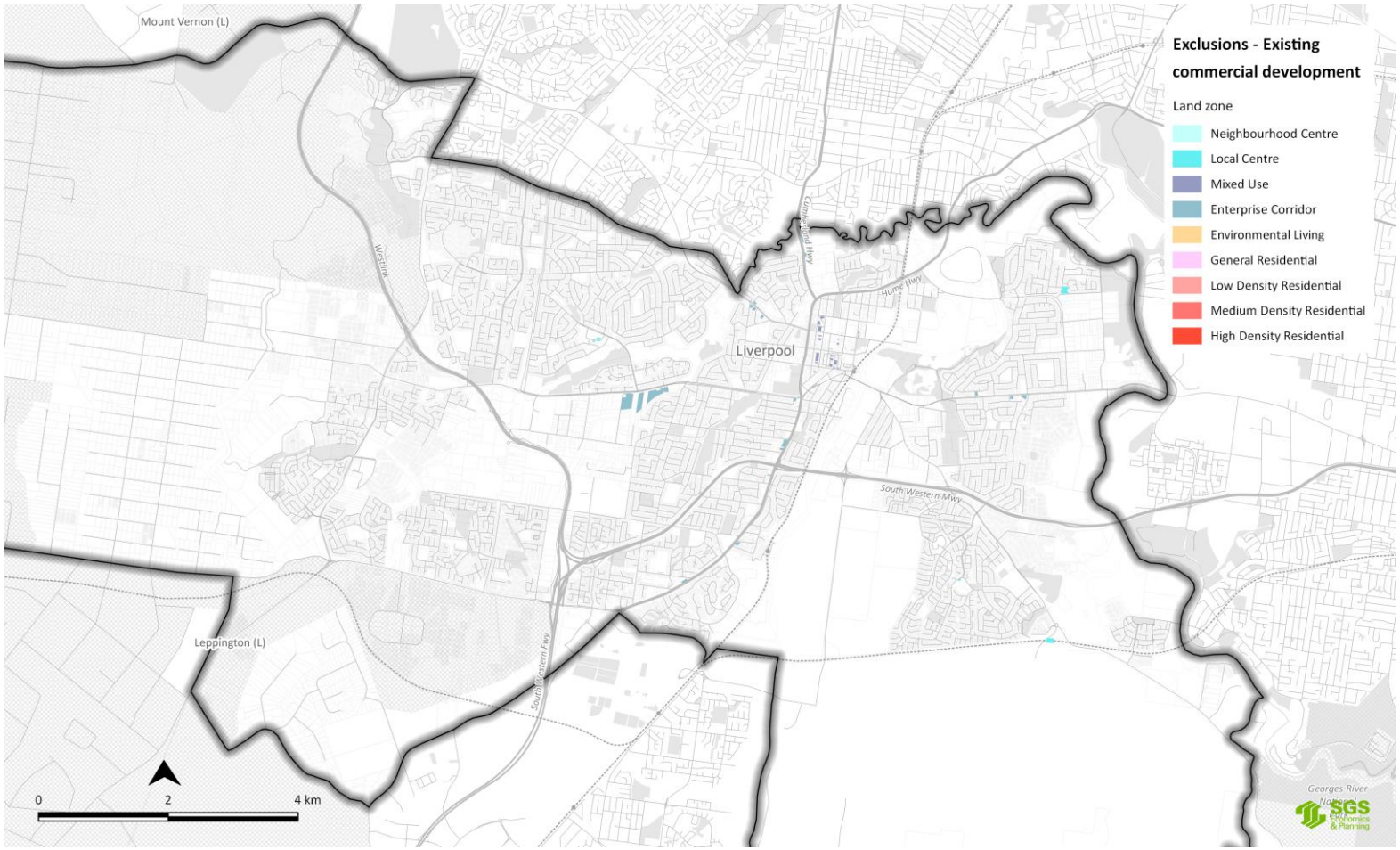
Note that commercial developments are re-introduced later if a floor space uplift of 5:1 or greater is available (this only occurs in the City Centre under Amendment 52). This reflects that a significant uplift is likely to be required to convince all strata owners to sell their land for redevelopment.



Identification of land available for development

Step 2: Available land assessment
Exclusion: Large commercial developments

Commercial developments where 50% or more of the permissible floorspace has been developed are excluded.



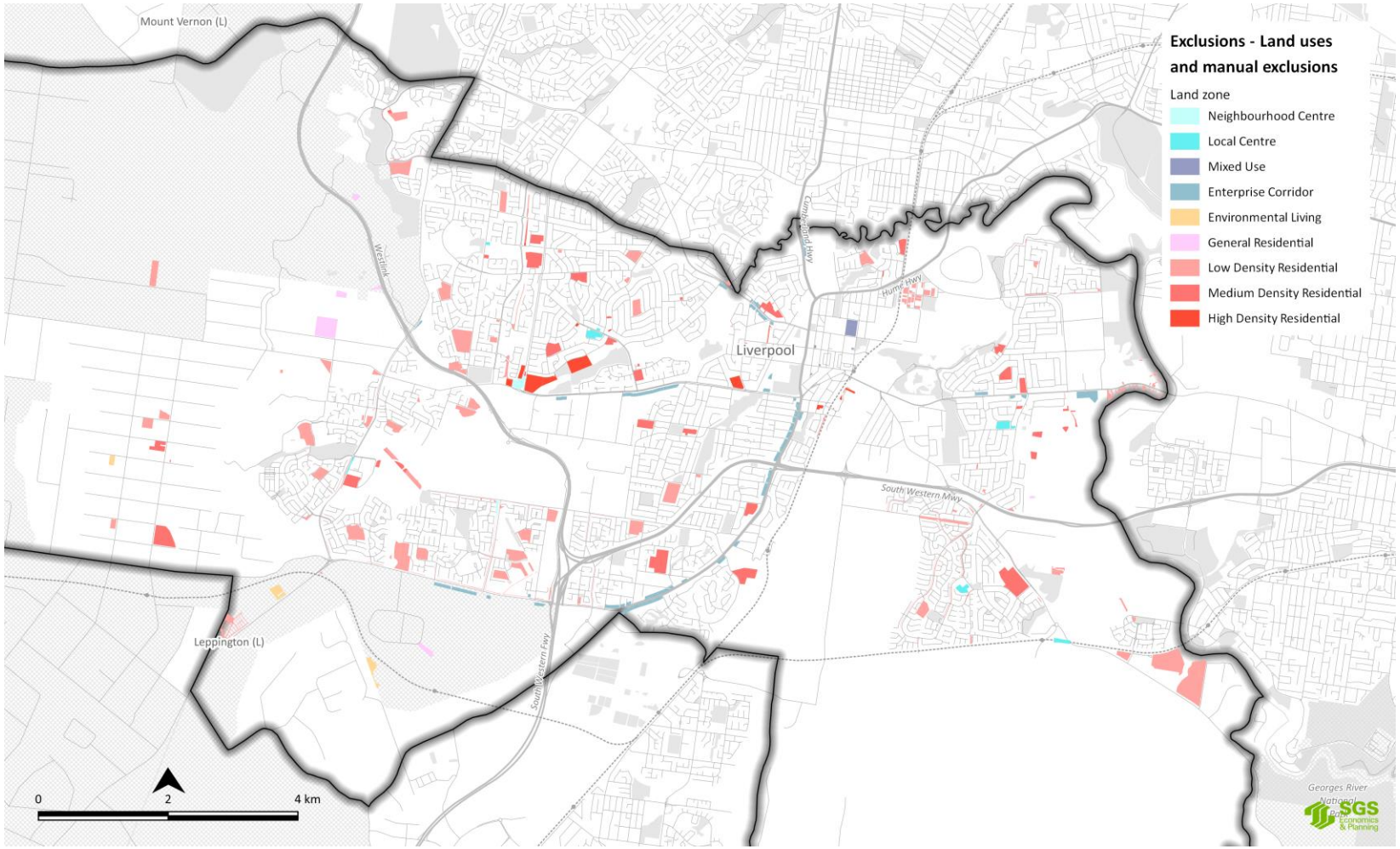
Identification of land available for development

Step 2: Available land assessment
Exclusion: Other land uses and manual exclusions

Sites with land uses which are not likely to be redeveloped are excluded. These include:

- Schools
- Aged care facilities
- Places of worship
- Parks and public domain elements
- Infrastructure and utilities

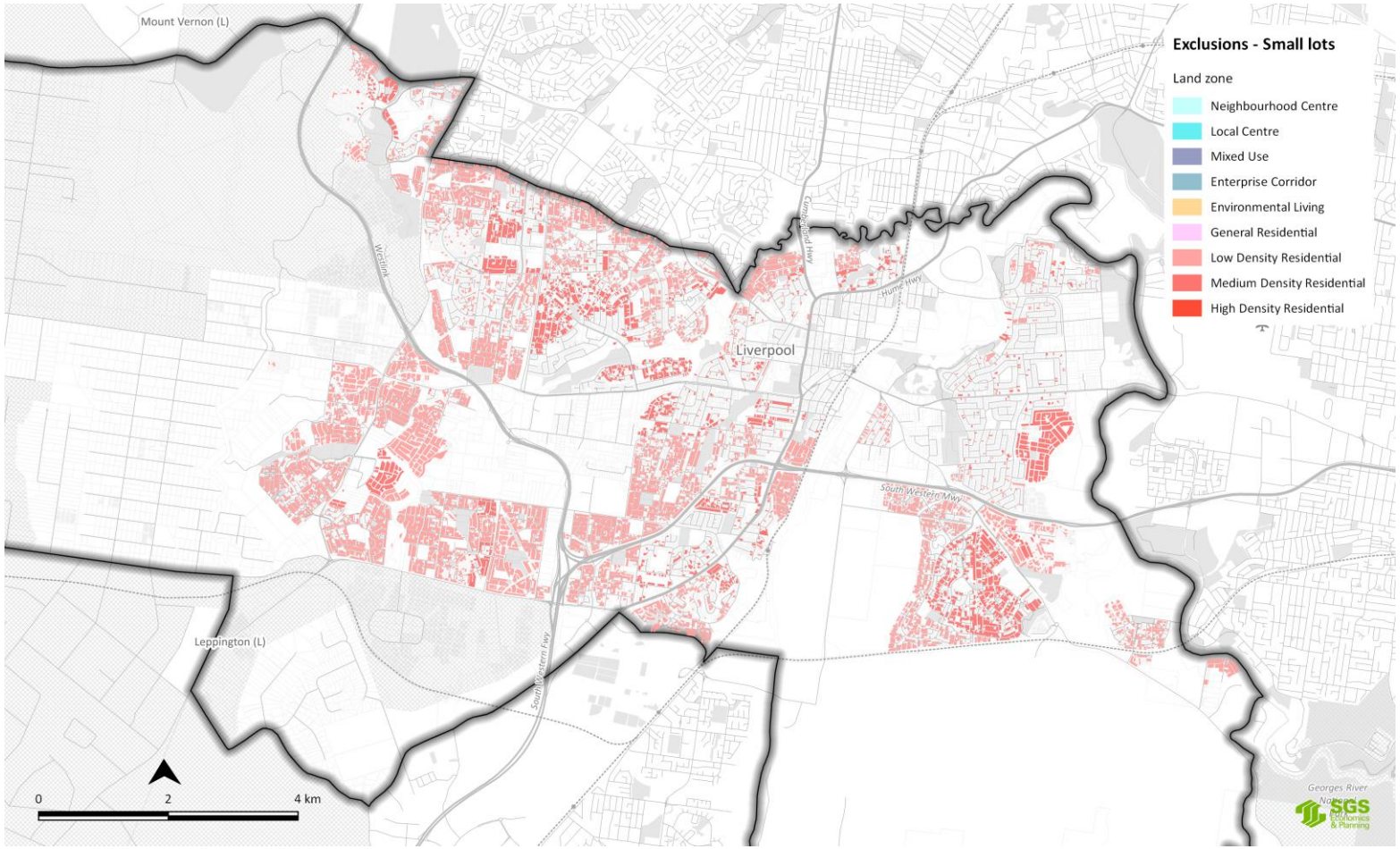
Some other large sites have also been excluded based upon local constraints and context.



Identification of land available for development

Step 2: Available land assessment
Exclusion: Small lots

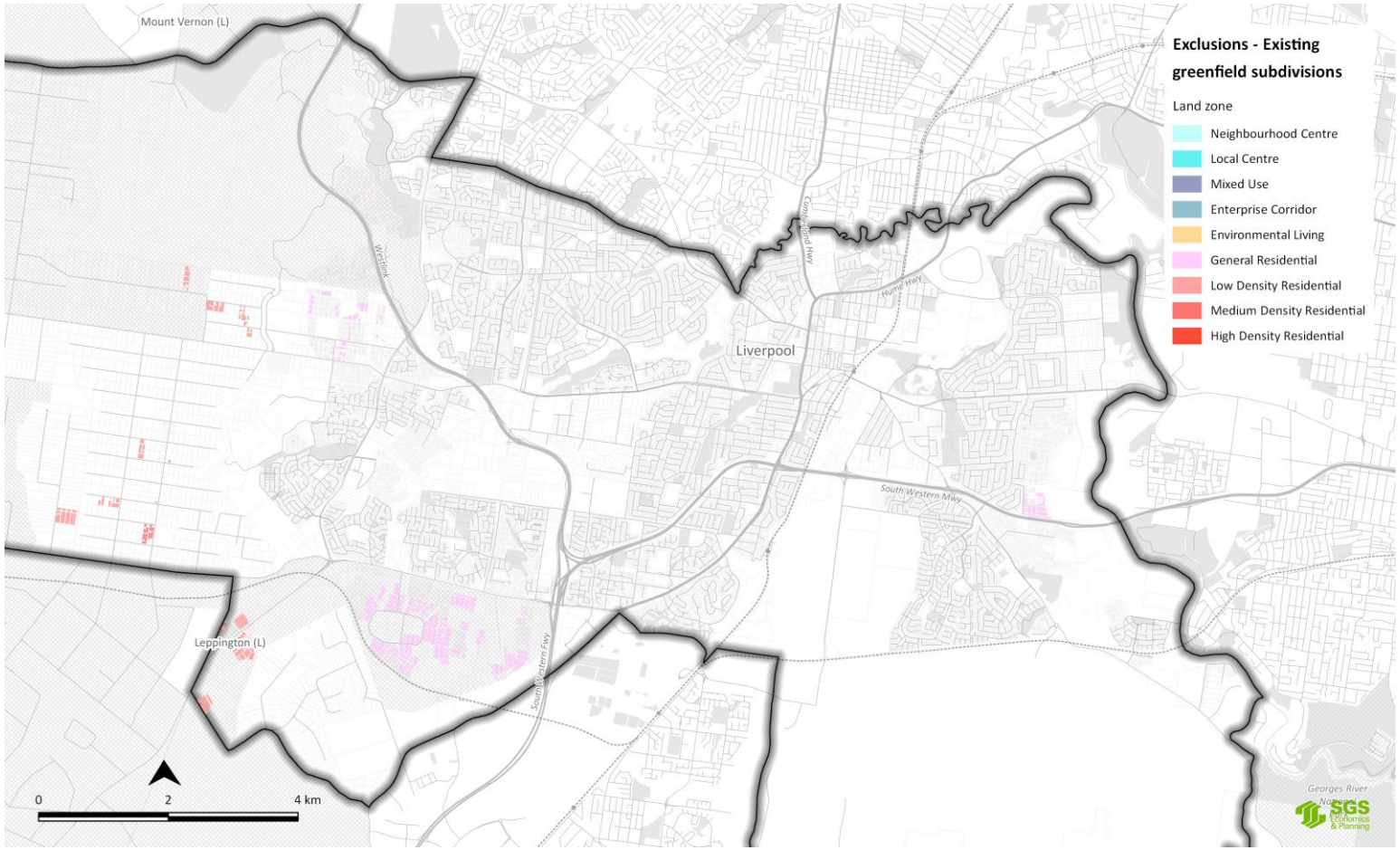
Sites which are too small to permit redevelopment under existing planning controls and design standards are excluded. Minimum areas and frontages are shown under Step 3 below.



Identification of land available for development

Step 2: Available land assessment
Exclusion: Existing greenfield subdivisions

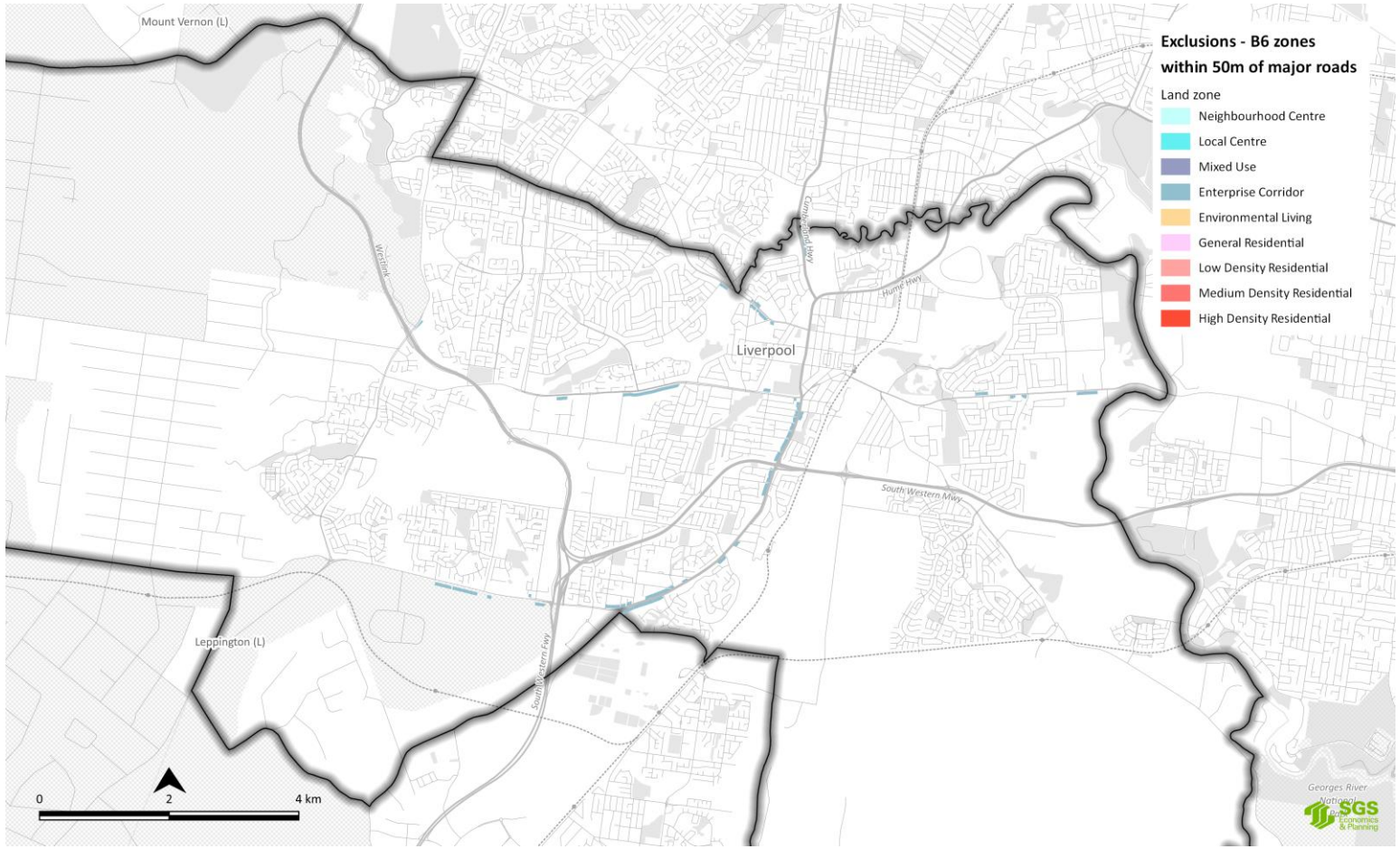
Subdivided residential lots in greenfield areas are excluded from further development.



Identification of land available for development

Step 2: Available land assessment
Exclusion: B6 zones

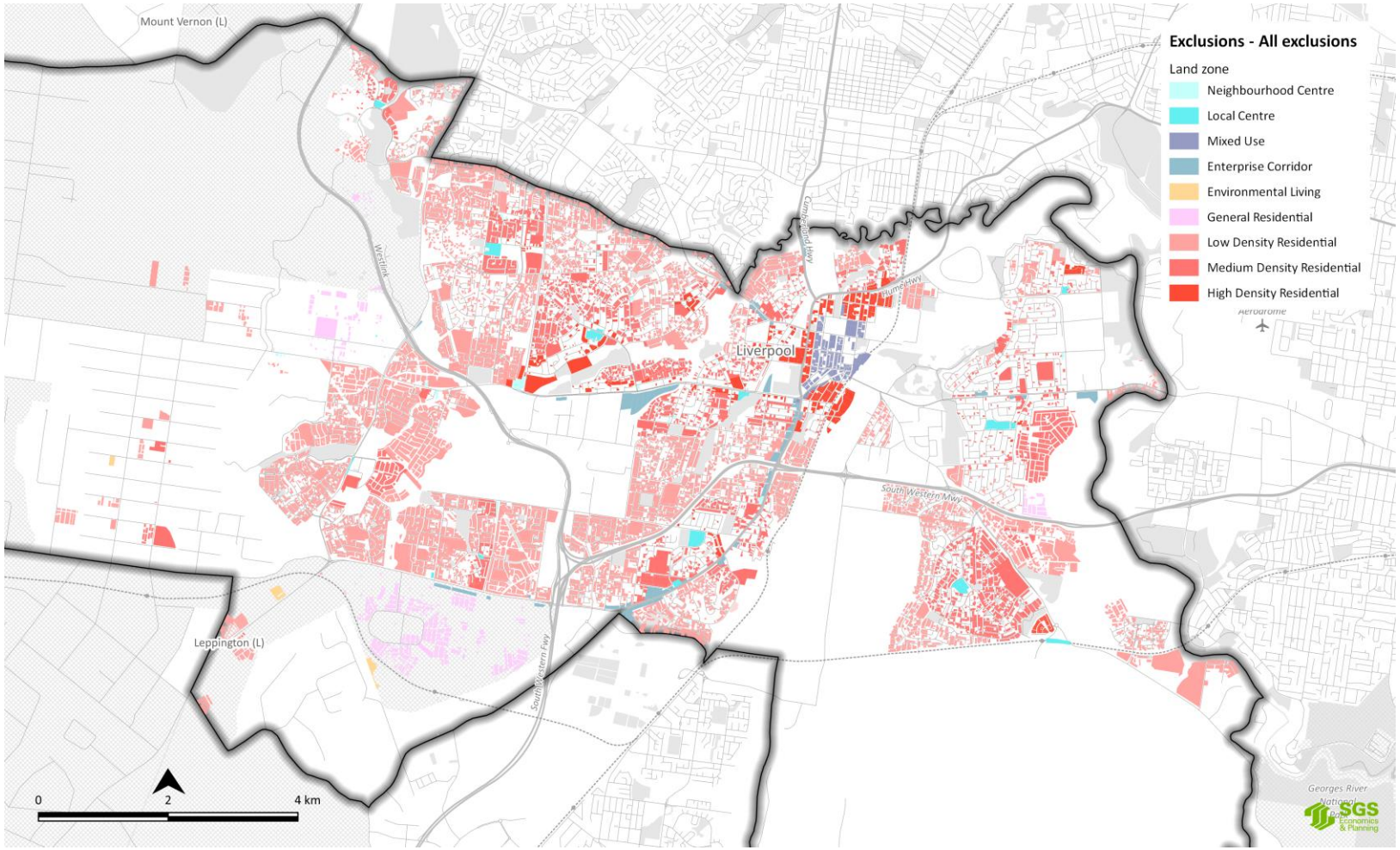
Areas of land zoned B6 within 50m of classified roads are excluded as residential development is prohibited on this land under Clause 7.22 of the Liverpool LEP 2008.



Identification of land available for development

Step 2: Available land assessment
All exclusions

The figure on the right shows all land which is excluded from further development under this analysis based on the exclusions listed above.

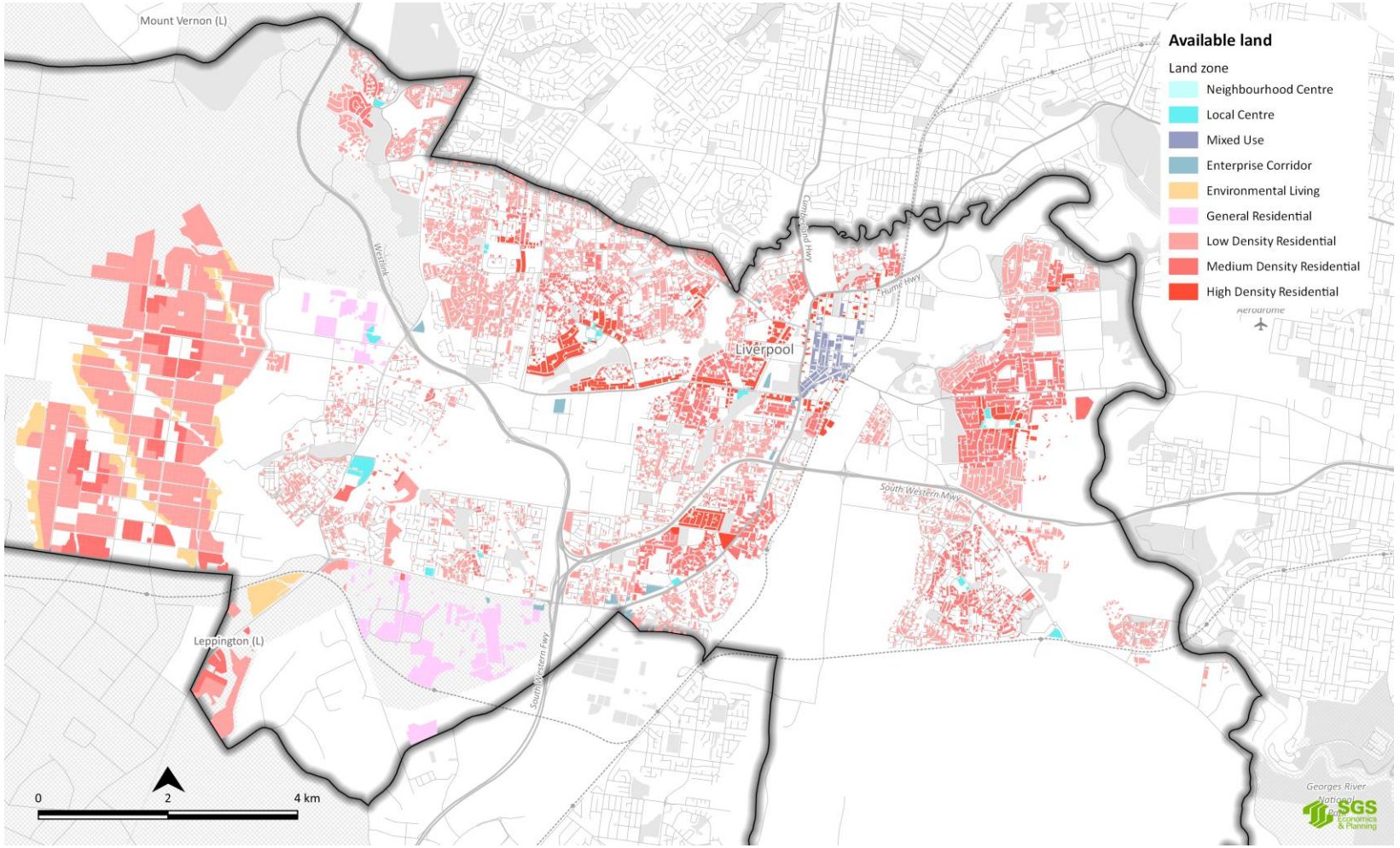


Identification of land available for development

Step 2: Available land assessment

The figure on the right shows the available land, which is the remaining land on which residential development is permissible after all exclusions have been applied.

There is a large amount of available land in the established parts of the Liverpool LGA and in greenfield areas.



Calculation of dwelling yield

Step 3: Potential yield assessment

Potential yields were calculated for the available land using a series of yield assumptions depending upon each lot's zone, size, frontage, location, development standards and constraints.

Where possible the assumptions used were developed from Liverpool planning controls or local development data. The following page shows the assumptions made and how potential yield was calculated.

Potential yield was calculated under three scenarios reflecting different development outcomes:

- Base case
- Higher densities in greenfield developments
- No residential flat building development outside the Liverpool City Centre

Calculation of dwelling yield

Step 3: Potential yield assessment - Assumptions

	Site requirements	Rationale	Yield	Rationale	Notes
			Established Areas		
Subdivision	Area >= 1200sqm, frontage >= 15m	Subdivision for detached dwellings is only likely if a lot could be subdivided into at least three smaller lots.	Lot size x 70% /minimum subdivision lot size	Minimum lot area per dwelling set by the Liverpool LEP cl 4.1. Assume that 30% of land will be developed as roads or public domain.	
Attached dwellings	A site of less than 600sqm cannot be subdivided with a minimum subdivision lot size of 300sqm or greater, or a frontage of less than 10m.	Minimum of: • (lot size)/(minimum subdivision lot size) • (lot frontage/5)	Minimum lot area per dwelling set by the Liverpool LEP cl 4.1. Road frontages of less than 5m per dwelling would not comply with the LDCP 2008 Part 3.4 requirement for garage doors to comprise <= 50% of the lot frontage if there is one single garage per dwelling and all dwellings face a road.		
Multi-dwelling housing	Area >= 650 sqm, frontage >= 18m	Minimum lot requirements set by LDCP 2008 Part 3.6 – 2	Lot size/minimum lot area per dwellings	Minimum lot area per dwelling set by the Liverpool LEP cl 4.1 (4A)	
Residential flat buildings	No minimum requirements	Assume lots can be amalgamated as RFBs are a substantial development uplift	Based upon: • Allowable floorspace under the FSR control, • One dwelling per 82sqm of floor area	82sqm is the average floorspace per dwelling in the suburb of Liverpool from the available BASIX data.	In the scenario restricting apartment development, residential flat buildings are prohibited outside of the Liverpool City Centre. The yield for apartment developments in the Edmondson Park Town Centre has been taken from the existing concept plan.
Shop-top housing	No minimum requirements	Assume lots can be amalgamated as shop-top housing is a substantial development uplift.	Based upon: • Allowable floorspace under the FSR control, with a notional commercia FSR of 0.5:1 and other floorspace residential, • One dwelling per 82sqm of residential floor area	82sqm is the average floorspace per dwelling in the suburb of Liverpool from the available BASIX data. A commercial FSR of 0.5:1 would allow for ground floor retail and some other commercial uses.	Where Amendment 52 applies, assume that opportunity site status can be reached through site amalgamations in all cases, and that strata sites can be redeveloped as the uplift is very large. Development yield has been restricted in B6 zones depending upon how much floorspace can be accommodated more than 50m from a major road.
			Greenfield areas		
Subdivision – with dwelling density controls			Area / dwelling density control		In the increased greenfield density scenario, dwelling density controls are increased by 5 dwelling/ha.
Subdivision – without dwelling density controls	Area >= 1000sqm	If area < 1000sqm the site is unlikely to be further subdivided.	Area x 70% / minimum subdivision lot size	Assume that 30% of land will be developed as roads or public domain.	

Capacity results

Step 4: Net capacity – Base case scenario

The theoretical capacity analysis suggests that if all available residential precincts, shop-top housing in centres, infill developments and greenfield subdivisions were to be fully developed, Liverpool could accommodate 84,366 dwellings.

There is a substantial amount of housing capacity in each of Liverpool's districts and for each housing type.

The highest capacities are for apartments and shop-top housing in the Liverpool City Centre under Amendment 52, and for greenfield housing.

The capacity in the B4 zone in the City Centre District is substantially higher than the likely capacity modelled during the development of Amendment 52. This capacity is a theoretical maximum rather than a likely realisation, and it has been assumed that all relevant sites can be amalgamated to receive FSR bonuses. The actual take-up is likely to be much less. Nonetheless, regardless of these assumptions there is a substantial amount of capacity for apartments in the City Centre District.

There is also a large amount of capacity for residential flat buildings outside of the Liverpool City Centre, and for attached dwellings and multi-dwelling housing in the 2168, Established and Eastern districts.

District	Zone	Attached dwelling	Greenfield subdivision	Greenfield subdivision (low density)	Multi-dwelling housing	Non-greenfield subdivision	Residential flat building	Shop top housing	Subtotal
2168 District	B1							204	204
	B2							370	370
	R2	3,207				10			3,217
	R3	888			399				1,287
	R4						5,902		5,902
	Subtotal	4,095			399	10	5,902	574	10,979
City Centre District	B1							71	71
	B4							21,413	21,413
	B6							59	59
	R4						3,251		3,251
	Subtotal						3,251	21,542	24,793
Eastern District	B1							256	256
	B2							713	713
	R2	2,804				16			2,820
	R3	1,307			2,207	223			3,738
	R4						1,746		1,746
	Subtotal	4,111			2,207	239	1,746	969	9,273
Established District	B1							372	372
	B2							376	376
	B6							550	550
	R2	2,525				230			2,754
	R3	1,444			1,352	17			2,812
	R4						4,735		4,735
	Subtotal	3,968			1,352	247	4,735	1,298	11,599
New Release District	B1							147	147
	B2		86					1,667	1,754
	B4							5,084	5,084
	B6							71	71
	E4			548					548
	R1		2,561	0					2,561
	R2	1,786	10,972	160		443			13,361
	R3	157	3,620		418				4,194
	Subtotal	1,943	17,238	708	418	443		6,970	27,721
Total		**14,117**	**17,238**	**708**	**4,376**	**939**	**15,634**	**31,353**	**84,366**

Capacity results

Step 4: Net capacity – Higher greenfield development scenario

The higher greenfield development scenario increases the expected density of greenfield development by 5 dwellings/ha, which is similar to proposed densities in recent development applications to Council.

There is a similar overall pattern of capacity under this scenario.

This scenario forms a better baseline assumption than the base-case scenario above, as it is likely that currently observed development densities will continue. As such, this scenario has been used instead of the base case in analysis later in this report.

District	Zone	Attached dwelling	Greenfield subdivision	Greenfield subdivision (low density)	Multi-dwelling housing	Non-greenfield subdivision	Residential flat building	Shop top housing	Subtotal
2168 District	B1							204	204
	B2							370	370
	R2	3,207				10			3,217
	R3	888			399				1,287
	R4						5,902		5,902
	Subtotal	4,095			399	10	5,902	574	10,979
City Centre District	B1							71	71
	B4							21,413	21,413
	B6							59	59
	R4						3,251		3,251
	Subtotal						3,251	21,542	24,793
Eastern District	B1							256	256
	B2							713	713
	R2	2,804				16			2,820
	R3	1,307			2,207	223			3,738
	R4						1,746		1,746
	Subtotal	4,111			2,207	239	1,746	969	9,273
Established District	B1							372	372
	B2							376	376
	B6							550	550
	R2	2,525				230			2,754
	R3	1,444			1,352	17			2,812
	R4						4,735		4,735
	Subtotal	3,968			1,352	247	4,735	1,298	11,599
New Release District	B1							147	147
	B2		102					1,667	1,769
	B4							5,084	5,084
	B6							71	71
	E4			548					548
	R1		3,393	0					3,393
	R2	1,786	14,666	160		443			17,055
	R3	157	4,365		418				4,940
	Subtotal	1,943	22,525	708	418	443		6,970	33,008
Total		**14,117**	**22,525**	**708**	**4,376**	**939**	**15,634**	**31,353**	**89,652**

Capacity results

Step 4: Net capacity – Higher greenfield development scenario

This scenario increases total dwelling capacity by 5,287 dwellings. This is a large enough number to substantially increase the burden on local infrastructure in greenfield areas.

Density increases on top of anticipated yields in excess of 5 dwellings/ha would increase this number still further. If these densities were to be achieved, impacts on local infrastructure would need to be considered.

District	Rule	Attached dwelling	Greenfield subdivision	Greenfield subdivision (low density)	Multi-dwelling housing	Non-greenfield subdivision	Residential flat building	Shop top housing	Subtotal
New Release District	B2		+15						+15
	R1		+832						+832
	R2		+3,694						+3,694
	R3		+745						+746
	Subtotal		+5,287						+5,287
Total			**5,287**						**+5,287**

Capacity results

Step 4: Net capacity – Restricting apartment development scenario

In this scenario, residential flat buildings are prohibited outside of the Liverpool City Centre.

In this case, land zoned R4 outside of the Liverpool City Centre would be developed for multi-dwelling housing and attached dwellings as if the R3 zone applied. This illustrates a relatively extreme policy scenario in which apartment development is restricted to the Liverpool City Centre. It also provides a sensitivity test regarding what the capacity in the LGA would be if apartment development outside the City Centre was unfeasible, which appears to be broadly the case.

This scenario decreases total housing capacity by 12,260 dwellings.

The number of multi-dwelling housing units developable under Scenario 3 increases by 1,097 while the number of apartments developable decreases by 13,363.

This reduction would not be as large if substantial amalgamation was assumed for sites to allow multi-dwelling housing to be developed.

The reduction is of a similar size in the 2068 and Established districts, with a small reduction in the Eastern District around Moorebank.

District	Rule	Attached dwelling	Greenfield subdivision	Greenfield subdivision (low density)	Multi-dwelling housing	Non-greenfield subdivision	Residential flat building	Shop top housing	Subtotal
2168 District	B2		0	0	0	0	0	0	0
	B6		0	0	0	0	0	0	0
	R2		0	0	0	0	0	0	0
	R3		0	0	0	0	0	0	0
	R4		0	0	0	163	0	-5,902	0	-5,740
	Subtotal		0	0	0	163	0	-5,902	0	-5,740
Eastern District	B2		0	0	0	0	0	0	0	0
	B6		0	0	0	0	0	0	0	0
	R2		0	0	0	0	0	0	0	0
	R3		0	0	0	0	0	0	0	0
	R4		2	0	0	318	0	-1,663	0	-1,343
	Subtotal		2	0	0	318	0	-1,663	0	-1,344
Established District	B2		0	0	0	0	0	0	0	0
	B4		0	0	0	0	0	0	0	0
	B6		0	0	0	0	0	0	0	0
	R2		0	0	0	0	0	0	0	0
	R3		0	0	0	0	0	0	0	0
	R4		3	0	0	616	0	-5,796	0	-5,176
	Subtotal		4	0	0	616	0	-5,796	0	-5,176
Total			**6**	**0**	**0**	**1,097**	**0**	**-13,363**	**0**	**-12,260**

Development feasibility

The above analysis suggests that there is considerable existing capacity under the current planning controls in the LGA. However, not all of the lots identified will be able to be developed for a range of reasons, including the development cost and feasibility.

Building on the capacity analysis, SGS has undertaken high level feasibility analysis to help to understand the feasibility of different types of dwellings in locations throughout the Liverpool LGA.

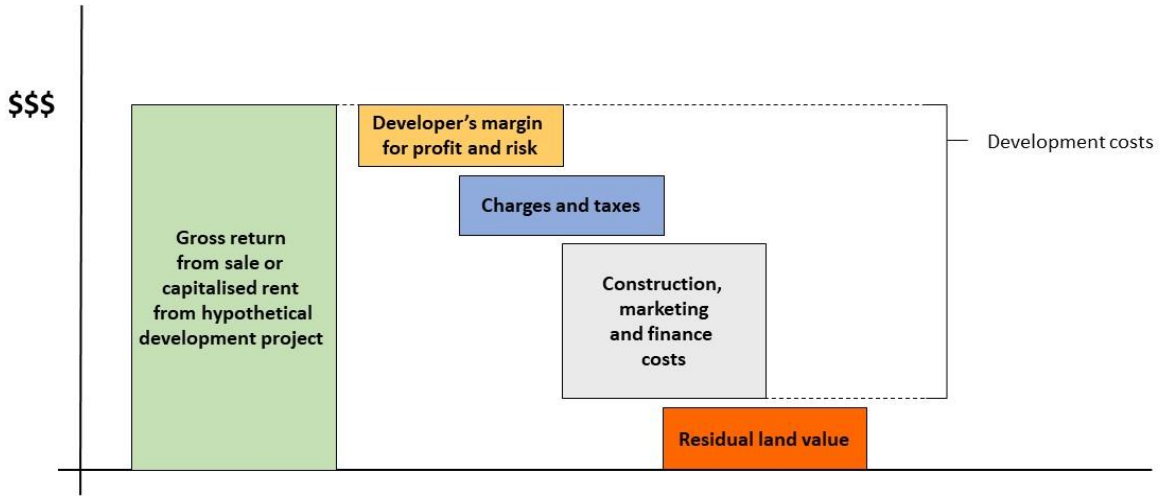
This is a high-level analysis which uses bulk data-sets. For this reason it provides a strategic overview of where development may or may not be feasible across the Liverpool LGA, but cannot determine if an individual development will be feasible. Feasibility is based on current market conditions. If market conditions change in the future, feasibility may change.

Development feasibility – high level method

Development feasibility for each developable lot was determined with a residual land value (RLV) model.

RLV is development return minus the development cost, measuring the maximum amount a rational developer will pay for a site for redevelopment. RLV must be greater than the site value under its existing use for a development to be feasible, with a margin between the RLV and existing value allowing developers to pay a premium for development sites and providing a price buffer if land values increase in the future.

Feasibility findings are expressed as a ratio of RLV/current land value. An RLV ratio of around 1.25 or greater means the development is notionally feasible. In this case, selling a lot for redevelopment would make the landowner a 25 per cent windfall. In some cases they may be willing to sell for a lower margin.



Development feasibility – high level method

The development costs in this model include:

- Building costs
- A construction contingency
- Professional fees
- Finance costs
- A margin for profit and risk
- Development contributions and taxes
- Finance and marketing costs.

As this has been done at a high level, there are some limitations to this analysis:

- It is based on standard high-level development cost and revenue assumptions.
- Costs and revenue may vary in different contexts, and site specific factors may also change development costs and revenues.
- It is a point in time analysis. It measures current feasibility based on current market conditions and this will change in the future.

Development feasibility – assumptions

Feasibility was tested for only the residential portion of development. Development cost assumptions include:

- Construction and demolition costs given by the Rawlinson's Construction Handbook 2015
- Professional fees of 9.2 per cent, based upon various sources using industry standards
- Marketing and land sale costs of 4 per cent of construction cost
- A profit margin of 20 per cent and construction contingency of 10 per cent.

Land acquisition costs assumed for each site assessed has been based on:

- Prices paid for the site in the last 15 years
- Prices paid for nearby sites in the last 15 years
- Median property prices in the suburb
- The underlying land value as reported by the Valuer General of NSW.

Development feasibility – assumptions

The likely sale prices for developments has been determined by the following:

- For apartments, the median price paid for new apartments in the suburb in 2018, or the median price for all apartments in the suburb if there were no new apartments sold in 2018, or the median price for new apartments in the LGA adjusted to reflect local house prices if there were no recent apartment sales in the suburb.
- For townhouses and multi-dwelling housing, median prices paid for all new townhouses in 2018 in the suburb, or the median price for all townhouses if there were no new townhouses sold in 2018, or the median price for new apartments in the LGA adjusted to reflect local house prices if there were no recent apartment sales in the suburb.
- For dual occupancies and semi-detached dwellings, the median price paid for dual occupancies in the suburb in 2018.
- For separate dwellings developed after subdivision, median prices for dwellings on similar sized lots in each suburb in 2018.

Development feasibility

At a high level:

- Apartment development is mostly unfeasible outside of the Liverpool City Centre.
- Apartment development is feasible in the Liverpool City Centre. Given the amount of development occurring, it is possible that the conservative cost estimates used in this high-level feasibility have underestimated the proportion of development which is feasible.
- Housing development in the B6 zone is generally unfeasible. While it is shown to be feasible in the City Centre District, this represents only a small amount of overall capacity
- Apartment development and most attached dwelling development in the 2168 District, including the Miller Town Centre, is likely to be unfeasible.
- Multi-dwelling housing feasibility is high, with some feasible development capacity in most districts. Feasibility is lowest in the 2168 District.
- Dual occupancies (approved as attached dwellings) are generally unfeasible, although they are more feasible in the Established District than elsewhere.
- Subdivision of large lots is not shown, but is feasible across the LGA.

Feasible capacity in the LGA currently is 49,804 dwellings. There is a reasonable amount of feasible capacity of detached, medium density and higher density dwellings.

Percentage of yield feasible or marginally feasible

	2168 District	City Centre District	Eastern District	Established District	New Release District
Attached (dual occupancies)	16%		7%	40%	6%
Multi dwelling housing	73%		97%	85%	95%
Residential Flat Buildings	0%	69%	26%	7%	
Shop top housing (B6)		92%		0%	
Shop-top housing (other zones)	11%	64%	32%	3%	4%

Feasible housing capacity

Development Type	Feasible	Marginally Feasible	Total
Attached (dual occupancies)	2,315	1,109	3,423
Multi dwelling housing	3,741	1,199	4,940
Residential Flat Buildings	2,532	607	3,138
Shop top housing (B6)	55	0	55
Shop-top housing (other zones)	13,417	687	14,103
Subdivision	24,032	113	24,145
Total	**46,091**	**3,714**	**49,804**

Development feasibility

Potential policy responses

Development feasibility for medium and higher-density dwelling types is likely to increase over time in established areas as more infrastructure is provided, house prices rise and amenity increases. However, it is not possible to definitively say when or if a particular kind of development in a particular area will become feasible.

More detail about policy mechanisms to improve feasibility will be given later in the report. Broadly, development feasibility may be increased in the following ways:

- By increasing the demand for medium and higher density dwellings, which would increase the likely sale price. This would require the amenity and vibrancy of the local area to be increased through development of retail and public domain works, or would require infrastructure investment and transport accessibility to be improved. In particular, improved public transport access to major centres would be likely to increase demand for higher density dwellings.
- By increasing the allowable development yields, most likely through reviewing design controls and increasing floor-space ratios where appropriate.
- By reducing the amount of basement car-parking that is required to be built. Basement car parking is very expensive and generally reduces development feasibility. Outside of the Liverpool City Centre (and possibly inside the City Centre), developments without car parking are unlikely to be saleable. However, allowing some parking to be delivered in ways other than in a basement could increase development feasibility.

Key findings

- The above analysis suggests that there is existing capacity under the current planning controls for 84,366 additional dwellings in the LGA.
- This capacity is comprised of 17,947 dwellings in greenfield subdivisions, 46,987 apartments and 19,432 attached in other infill developments.
- If residential densities currently being observed in greenfield developments (5 dwellings/ha higher than the minimum density) continue, capacity would be increased by 5,287 to 89,652.
- If all of the land zoned R4 outside of the Liverpool City Centre was rezoned to R3, the capacity would decrease by 12,260 dwellings. This would leave considerable dwelling capacity remaining.
- Most residential flat building development outside of the Liverpool City Centre is currently likely to be unfeasible but multi-dwelling housing development in the Eastern and Established districts is mostly likely to be feasible.
- Much development in the 2168 district is mostly likely to be unfeasible due to currently low dwelling prices.
- There is feasible capacity for 49,804 dwellings across the LGA, including dwellings of a variety of types.

LIVERPOOL HOUSING STUDY

DEMAND ANALYSIS

SGS Economics & Planning

Housing demand approach

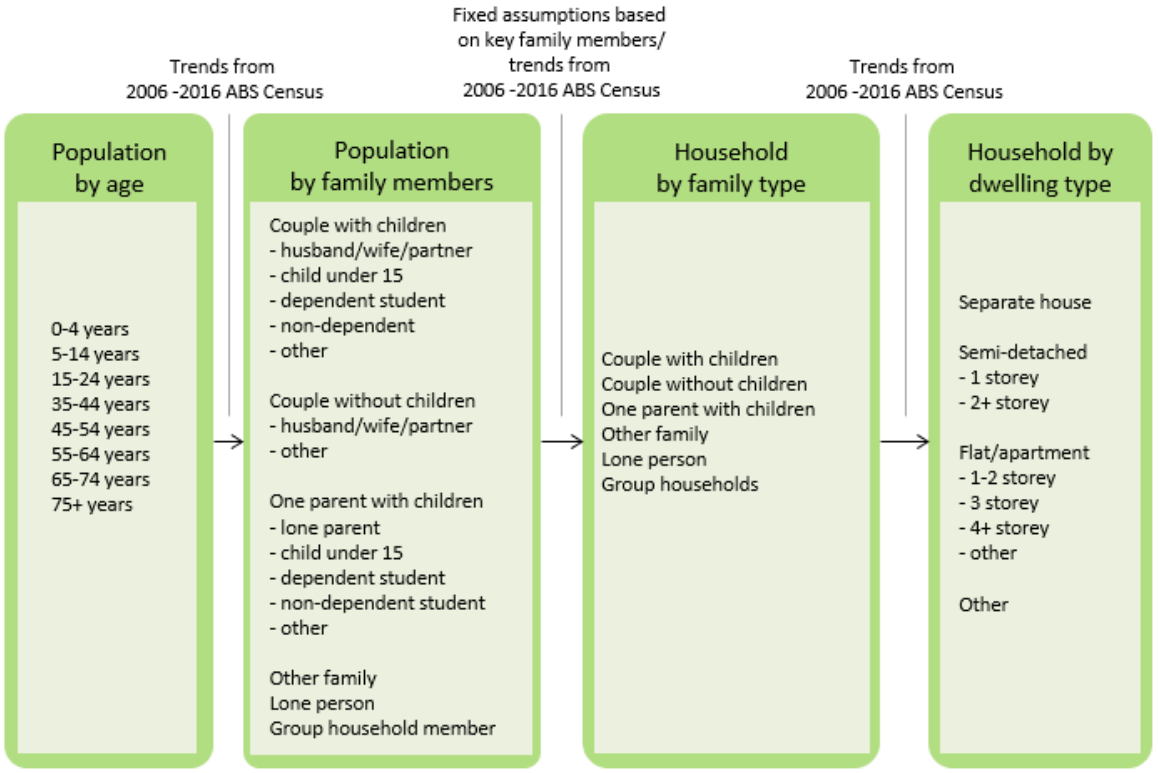
- To determine the likely future demand for housing in the Liverpool LGA, SGS has considered the following:
  - **Housing demand** – a baseline forecast of demand for housing based on projected and demographic population trends.
  - **Adjusted demand** – an alternative demand scenario based on a mix of household and dwelling types similar to other LGAs with higher density.
  - **Housing demand assistance model** – a forecast of the need for social and affordable housing in the LGA.

SGS housing demand model

SGS's dwelling demand model estimates underlying dwelling demand based on population projections for the region and analysis of trends in demographics and housing preferences from recent censuses. Trade-offs made by households between dwelling location, size and type are captured in historical trends and demographic propensities.

Population projections are converted to projections of number of households of each type, and then to the number of dwellings of each type required to house population growth. This conversion uses trends in household types, household sizes and in which dwellings different household types lived in over the last 20 years. This is a similar approach to that used by the Department of Planning and Environment in their implied dwelling requirement projections, but SGS uses more local demographic trends.

As this analysis is trend based it does not consider what would happen if policy or preferences changed in the future beyond what recent trends would indicate. The adjusted demand scenario below provides an illustration of what this could look like.



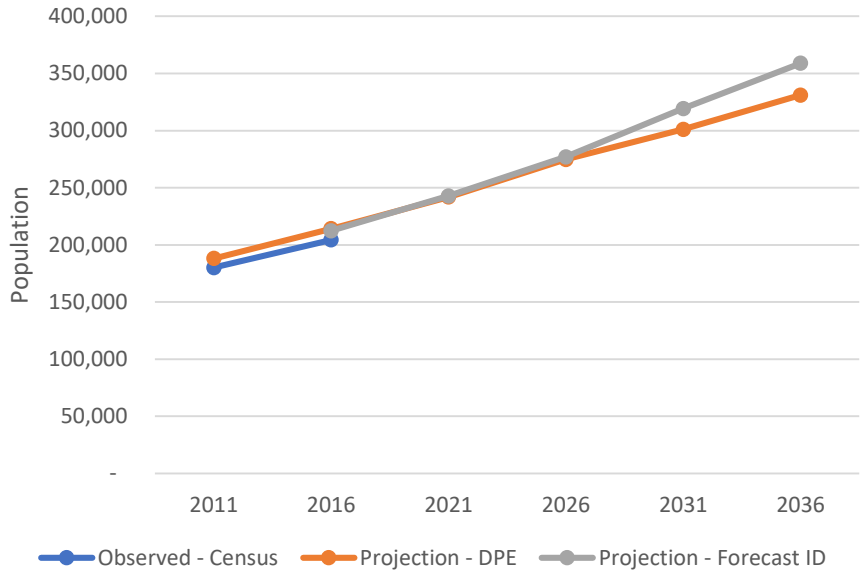
Population projections

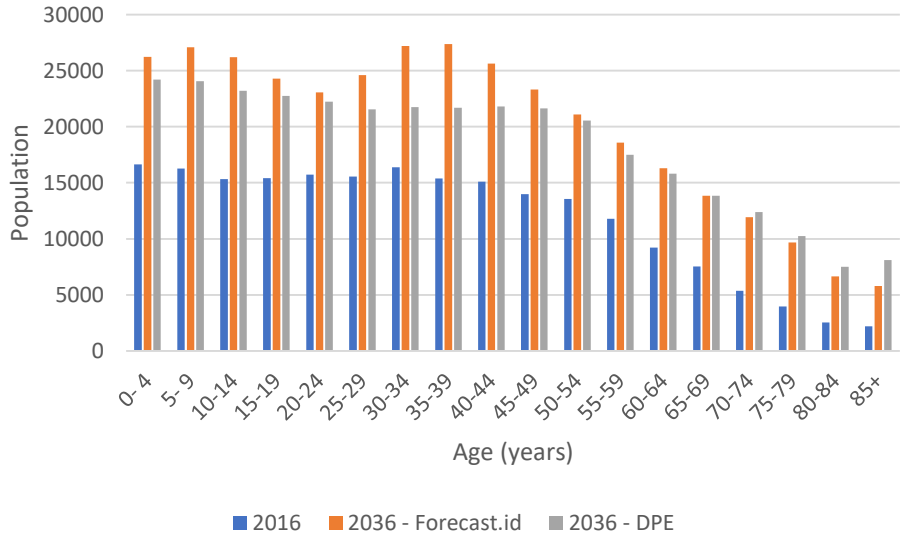
Growth is forecast by the Department of Planning and Environment (DPE) and by Forecast.id for every age band during 2016-2036. The DPE projection is based off analysis of the 2011 census and earlier censuses, but the Forecast.id projection is more recent.

These projections are relatively similar between 2016-2026, but Forecast.id projects a slightly higher population after that.

The Forecast.id population projection forms the basis for the housing demand modelling in this section. Household type and dwelling type results will be determined from this projection.

The DPE and Forecast.id forecasts of numbers of households and numbers of dwellings will also used to provide a range of likely housing demand in the Liverpool LGA.



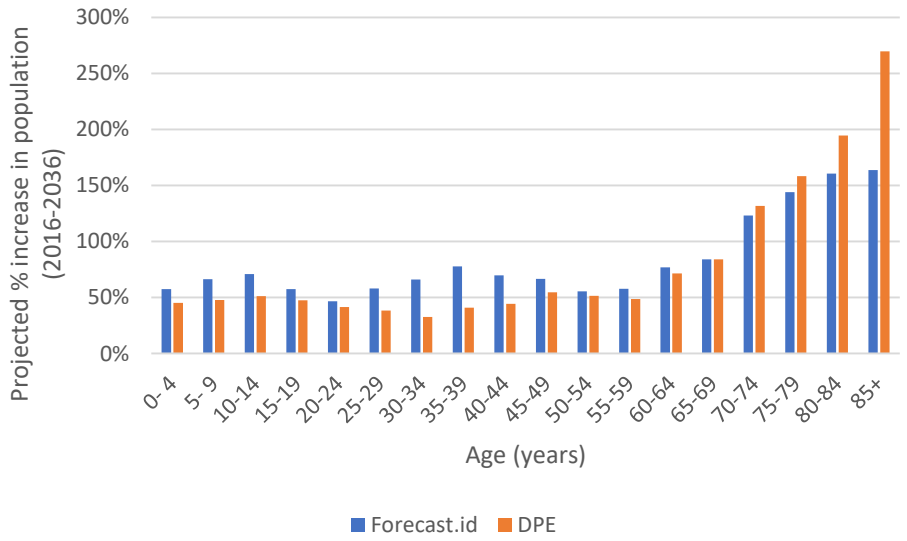


Aging population

While the DPE and Forecast.id projections are similar in absolute population numbers, they differ in the projected age distribution of the population.

Forecast.id project a much larger number of children and young people. This is a result of their forecast methodology, which considers local likely development outcomes. A high number of children would reflect a greenfield development dynamic with large number of families, while the predicted large increase in people aged 25-40 reflects expectations around high levels of apartment development in the Liverpool City Centre.

In either case the greatest proportional increase in population is in older age brackets, with the number of people aged 65 or older projected to increase by 122% and 141% by Forecast.id and DPE respectively. This will create a need for smaller and diverse housing types to accommodate downsizing and changing household circumstances.



Comparison of different housing forecasts

In order to convert population projections to dwelling projections, projections of the number and type of households first have to be produced. The methods of SGS, DPE and Forecast.id produce different results for household size, and so imply different requirements for numbers of dwellings.

The methods differ in the following way:

- SGS's method is based on the continuation of recent demographic trends in the Liverpool LGA.
- DPE's forecast is based off the 2011 census, and is based on the application of recent demographic trends from a larger area. This does not reflect the Liverpool context but does make comparison easier with forecasts from other LGAs, facilitating metropolitan-wide planning.
- Forecast.id makes demographic projections based on the expected number of births and deaths as well as expected migration into and out of the LGA. Migration is influenced by housing type availability, so the Forecast.id projection of decreasing household size reflects the assumed construction of a large number of apartments in the LGA.

Population	2011	2016	2021	2026	2031	2036
Census	180,142	204,326				
ERP	188,088	211,983				
DPE	188,100	214,100	241,900	274,800	301,100	331,000
Forecast ID		212,232	242,817	276,970	319,304	358,871

Household Size	2011	2016	2021	2026	2031	2036
Census	3.19	3.25				
DPE	3.1	3.04	3	2.97	2.95	2.92
Forecast ID		3.26	3.18	3.12	3.1	3.07
SGS		3.28	3.29	3.32	3.36	3.38

Households	2011	2016	2021	2026	2031	2036
Census	56,470	62,926				
DPE	60,100	69,550	79,550	91,150	100,700	111,500
Forecast ID		64,407	75,523	87,792	101,921	115,791
SGS	64,677	73,788	83,318	95,129	106,162	

Dwellings	2011	2016	2021	2026	2031	2036
Census	58,834	65,888				
DPE	62,600	72,500	82,900	95,000	104,900	116,150
Forecast ID		66,363	78,129	91,294	106,303	120,812
SGS	64,677	73,788	83,318	95,129	106,162	
SGS – Including vacancies		67,738	77,279	87,261	99,632	111,190

Comparison of forecasts – household size

Recent censuses show that the average size of every kind of household except other families and group households increased in the Liverpool LGA between 1996-2016. This trend is not likely to reverse immediately, meaning that Forecast.id and the DPE projection are likely to overstate the demand for dwellings.

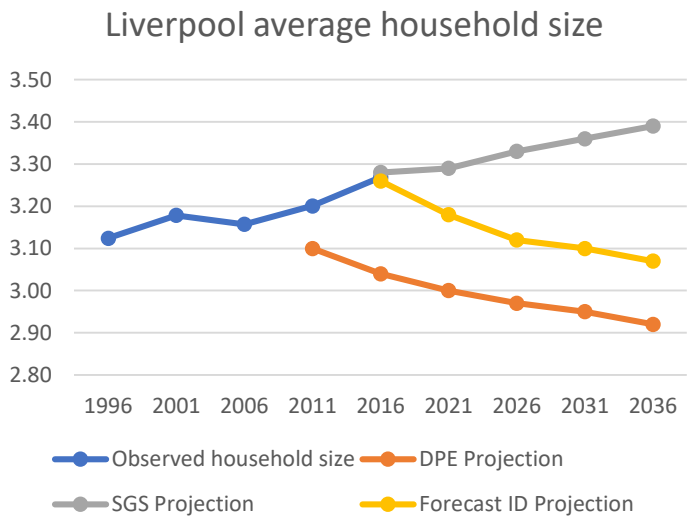
The DPE forecast is particularly inaccurate with regards to trends in household size for two reasons:

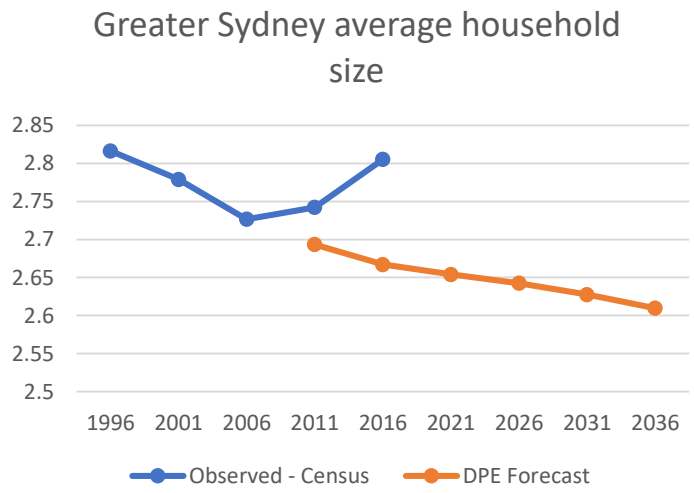
- It is based on demographic trends a larger area than the Liverpool LGA and so does not reflect local demographics, and
- It is based off the 2011 census and does not take account of the recent rebound in population sizes in Greater Sydney, which decreased until 2006 but increased between 2006-2016.

The recent increase in household sizes is likely to have a variety of causes, including people putting off forming a new household due to lack of affordability. The household size could decrease in the future if affordability improves or demographic trends change. For this reason, the SGS housing demand model may underestimate dwelling demand. The SGS model also does not consider that there may be a limit to how far household sizes will grow, and so projecting the recent trend forward into time may be inaccurate over a long time period.

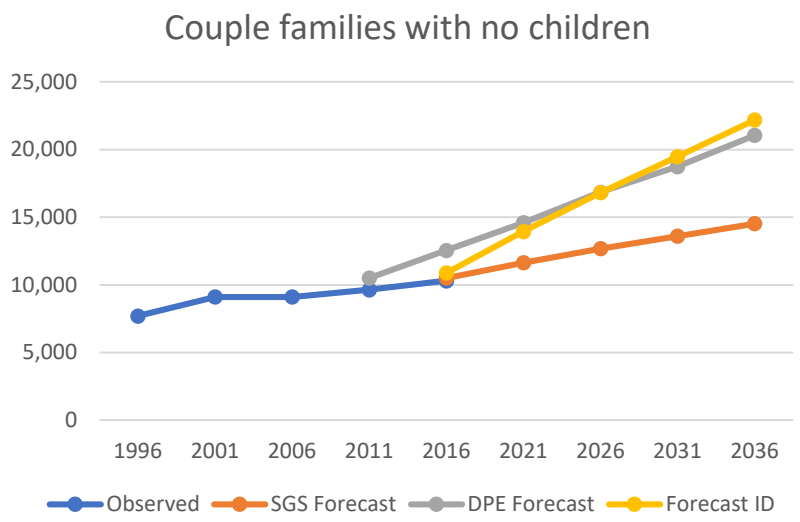
Average household sizes in the Liverpool LGA

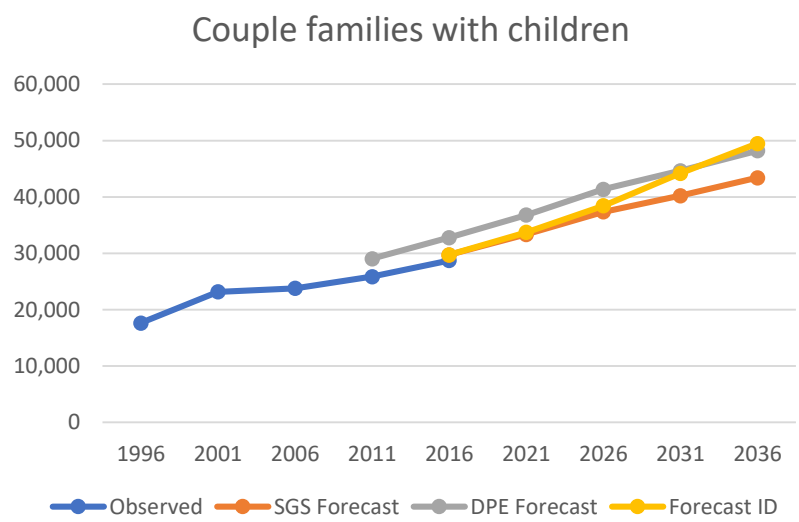
Household Type	1996	2001	2006	2011	2016	Change
Couples with no children	4.06	4.10	4.11	4.15	4.18	0.13
Couples with no children	2.17	2.19	2.23	2.32	2.37	0.20
One parent families	2.95	2.98	2.93	3.02	3.06	0.11
Other family	2.18	2.20	2.18	2.23	1.99	-0.20
Lone person	1.00	1.00	1.01	1.00	1.00	0.00
Group Household	2.21	2.18	1.99	2.09	2.18	-0.03
Total	3.12	3.18	3.16	3.20	3.27	0.14

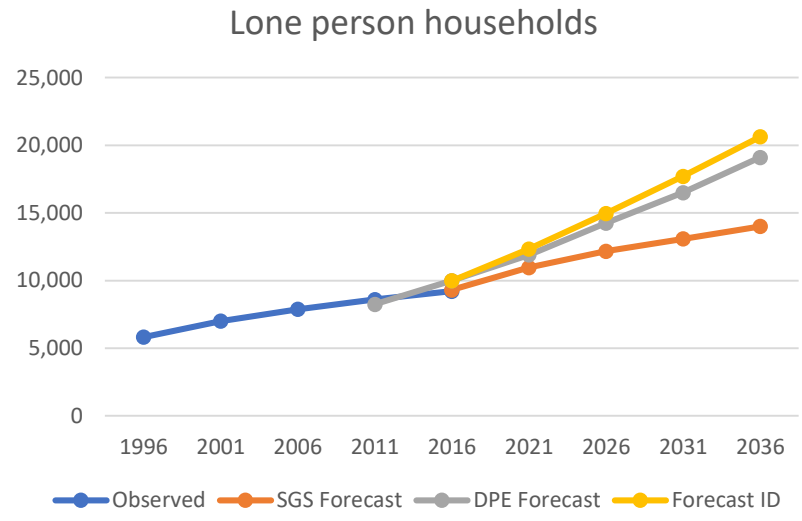


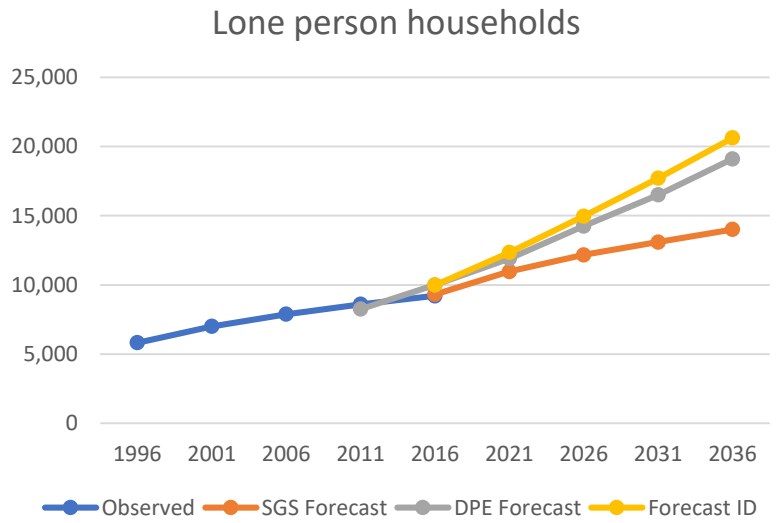


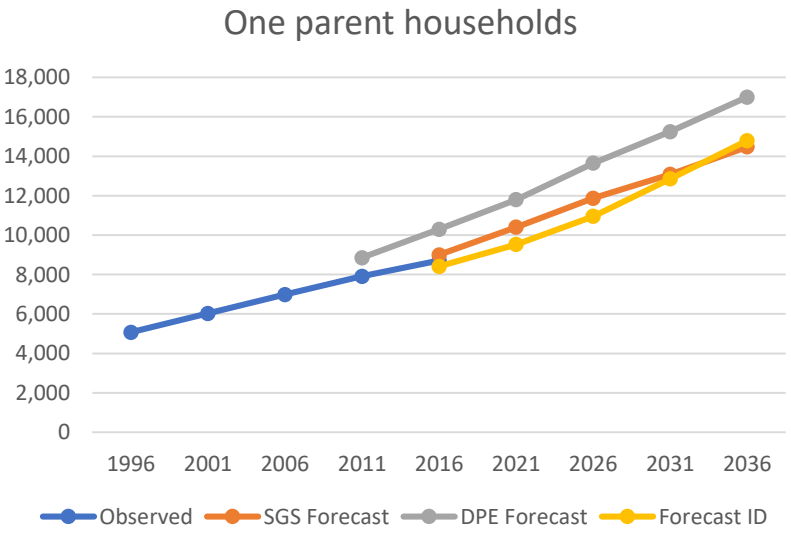
Comparison of forecasts – number of households by type

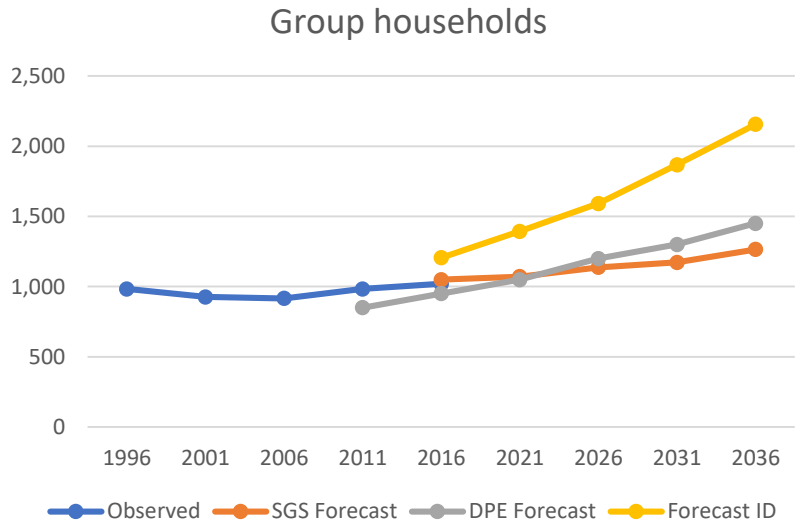












Total housing demand

Comparing the dwelling projections of DPE and Forecast.id with the dwelling requirements determined using the DPE and Forecast.id population projections and the SGS housing demand model gives several scenarios for total dwelling demand. This gives a range of values for medium and long-term housing targets:

- 2016-2026: 19,400-22,500
- 2026-2036: 16,800-23,900
- Total (2016-2036): 36,200-46,400

The following pages explore further the results of the SGS housing demand model using Forecast.id population projections.

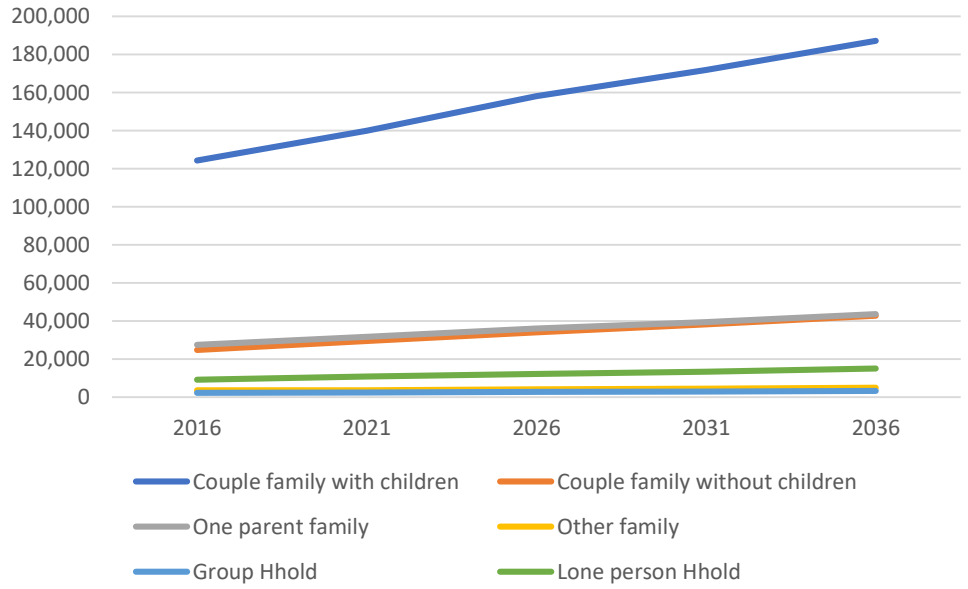
	2016	2021	2026	2031	2036	Demand 2016-2026	Demand 2026-2036
DPE & SGS Housing demand model	67,738	77,313	87,121	94,940	103,907	19,383	16,786
DPE implied dwelling requirements	72,500	82,900	95,000	104,900	116,150	22,500	21,150
Forecast.id & SGS housing demand model	67,738	77,279	87,261	99,632	111,190	19,523	23,929
Forecast.id dwelling projection	66,363	78,129	91,294	106,303	120,812	24,931	29,518

Housing demand model results

Population by household type

Future population by household type using Forecast.id population projections and the SGS housing demand model is shown on the right. The largest increase in population by household type is expected to be in couple families with children.

The number of people in couples without children, one parent families and other households will also increase substantially. Smaller increases are expected in the number of people in group households and other families.



	2016	2021	2026	2031	2036	Change 2016-36	Average annual growth rate
Couple with children	124,380	141,231	160,545	184,954	207,191	82,811	2.58%
Couple without children	24,842	29,076	33,580	38,842	43,753	18,912	2.87%
One parent family	27,557	31,979	36,505	42,050	47,434	19,878	2.75%
Other family	3,653	3,761	4,273	4,867	5,449	1,796	2.02%
Group household	2,286	2,471	2,815	3,228	3,616	1,330	2.32%
Lone person household	9,291	10,707	11,832	13,330	14,956	5,665	2.41%
Other household	19,975	23,592	27,420	32,033	36,473	16,497	3.06%
Total Population	***211,983***	***242,817***	***276,969***	***319,305***	***358,872***	**146,889**	**2.67%**

Housing demand model results

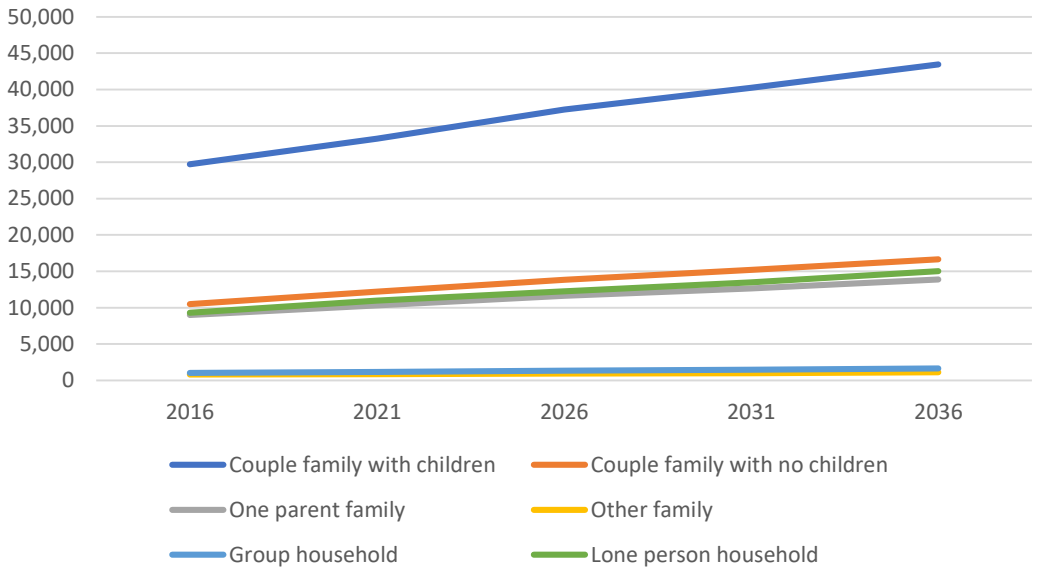
Number of households by household type

The projected number of households by type in the future in the Liverpool LGA is shown on the right.

There is a more even distribution of expected number of households in the future than expected future population by household type (shown on the previous slide). This is due to the large household size of couples with children, which means that while they make up only 44% of the increase in number of households expected between 2016-2036, they make up 56% of the increase in population.

In 2036, the most common household type is expected to remain couples with children, the number of which will grow at a similar rate to other household types.

The fastest growing household types will be other households, group households and one parent families. Despite the ageing population, growth in the number of lone person households is not expected to outpace growth in other categories. This reflects recent trends in which older people often do not live by themselves. This may indicate a need for dwellings appropriate for multi-family households to accommodate the aging population, as more older people live with their extended families.



LGA NAME	2016	2021	2026	2031	2036	Change 2016-36	Annual growth rate
Couple family with children	29,721	33,522	37,826	43,259	48,108	18,388	2.44%
Couple family with no children	10,499	12,045	13,613	15,417	17,010	6,510	2.44%
One parent family	9,000	10,419	11,791	13,466	15,061	6,061	2.61%
Other family	824	854	963	1,088	1,208	384	1.93%
Group household	1,049	1,184	1,358	1,569	1,770	720	2.65%
Lone person household	9,309	10,705	11,832	13,330	14,956	5,647	2.40%
Other Hhold	4,275	5,059	5,936	7,001	8,049	3,775	3.21%
Total Households	**64,677**	**73,788**	**83,318**	**95,129**	**106,162**	**41,485**	**2.51%**

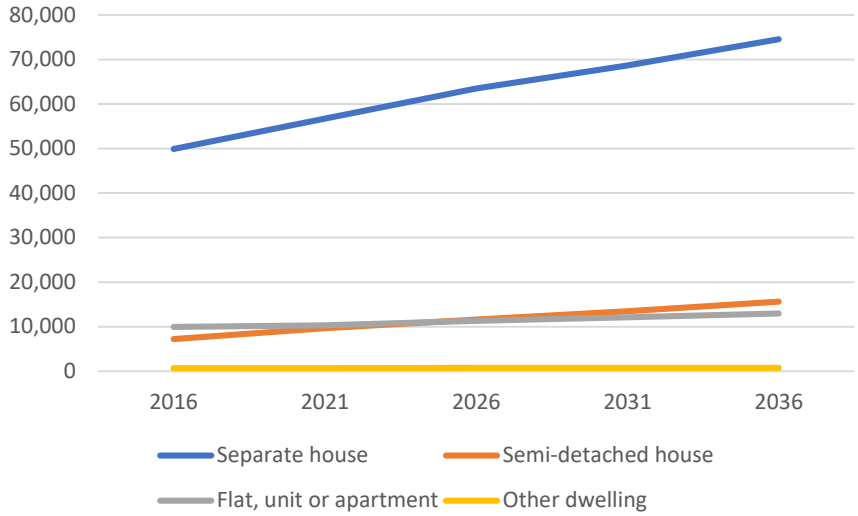
Housing demand model results

Number of dwellings by type

The number of dwellings by type needed to house the population in the future is shown on the right.

Under this unadjusted housing demand model, the greatest increase in demand between 2016-2036 will be for separate houses. There will also be a significant demand for some semi-detached dwellings and flats and apartments. While the greatest demand in 2036 when measured by number of dwellings would be for separate houses, this model shows the highest growth rate being for attached dwellings.

This model output reflects past trends and so provides a base-case housing demand which does not capture recent changes in the housing market and the development context of Liverpool. The adjusted housing demand model below seeks to address this and provide both a more accurate and a more aspirational housing scenario.



LGA NAME	2016	2021	2026	2031	2036	Change 2016-36	Annual growth rate
Separate house	49,923	56,790	63,745	72,333	80,146	30,222	2.4%
Attached dwelling	7,227	9,597	11,564	14,027	16,592	9,364	4.2%
Flat, unit or apartment	9,953	10,222	11,250	12,529	13,680	3,727	1.6%
Other dwelling	635	670	702	743	773	138	1.0%
Total Private Dwellings	**67,738**	**77,279**	**87,261**	**99,632**	**111,190**	**43,452**	**2.51%**

Adjusted housing demand model

SGS has projected housing demand for the Liverpool LGA using an alternative scenario with different assumptions regarding the share of households residing in each kind of dwellings. This is intended to illustrate the amount of demand that could be generated with the same number and kinds of households if housing preferences shift.

Future dwelling choice assumptions assumptions have been adjusted so that the share of households and dwelling types in the different categories in 2036 lie between SGS housing demand model outputs and the current expressed preferences of the GSC Central City District. Expected housing preferences have been tailored to the demographic context of the Liverpool LGA.

The Central City District includes the Parramatta LGA, in which a large amount of development has occurred recently, and which has better transport accessibility to the Sydney CBD than Liverpool. The Central City District contains a higher housing density than the Liverpool LGA and provides an illustration of what the housing in the Liverpool LGA could look like in the future as densities continue to increase. As Liverpool becomes more centrally placed within the Western Parkland City, its context could more closely resemble that of some LGAs in the Central City District (for example the Parramatta LGA). Additional infrastructure investment in the Liverpool LGA and job accessibility from the LGA would be required to generate this demand for higher density housing.

Adjusted housing demand model

The table on the right shows:

- Current expressed housing preferences in the Liverpool LGA
- Projected housing preferences in 2036 based on the unadjusted SGS housing demand model
- Current expressed housing preferences in the GSC Central City District
- Adjusted housing preference assumptions for the Liverpool LGA in 2036

Under the adjusted housing scenario shown in the last column on the right, all household types would shift to some degree towards higher density dwelling types. However, the majority of all household types except lone person households would continue to be housed in separate houses.

This adjustment would increase the number of attached dwellings which would be required and substantially increase the number of apartments required.

Household Type	Dwelling Type	Liverpool 2016	Liverpool 2036 - SGS Model Output	Central City District	Liverpool Adjusted scenario - 2036
Couple with children	Separate house	85%	81%	72%	**75%**
	Attached	8%	6%	15%	**15%**
	Apartment	8%	12%	13%	**10%**
	Other	0%	0%	0%	**0%**
Couple without children	Separate house	77%	73%	65%	**65%**
	Attached	10%	12%	14%	**15%**
	Apartment	13%	14%	21%	**20%**
	Other	0%	1%	0%	**0%**
Lone person	Separate house	53%	55%	50%	**42%**
	Attached	17%	20%	18%	**26%**
	Apartment	30%	24%	31%	**32%**
	Other	1%	2%	1%	**0%**
One parent Family	Separate House	72%	74%	68%	**67%**
	Attached Dwelling	14%	9%	17%	**17%**
	Apartments	14%	16%	15%	**16%**
	Other	0%	0%	0%	**0%**
Group	Separate House	56%	56%	46%	**50%**
	Attached Dwelling	13%	28%	15%	**26%**
	Apartments	30%	16%	39%	**24%**
	Other	0%	0%	1%	**0%**
Other	Separate House	50%	50%	50%	**50%**
	Attached Dwelling	13%	35%	15%	**35%**
	Apartments	36%	14%	33%	**14%**
	Other	1%	2%	1%	**1%**
Other family	Separate House	74%	76%	60%	**65%**
	Attached Dwelling	10%	12%	13%	**18%**
	Apartments	17%	11%	26%	**17%**
	Other	0%	0%	0%	**0%**

Adjusted housing demand model

The adjusted demand scenario sees a much stronger growth in demand for additional apartments, of around 8,800 between 2016-2036. By comparison, the unadjusted model showed a demand for 3,272 additional apartments in the same period.

Under the adjusted scenario, demand for semi-detached dwellings would be around 12,970 additional dwellings between 2016-2036, and for separated houses around 22,320 additional dwellings. This is a significant shift from the base case scenario.

Dwelling type	2016	2021	2026	2031	2036	Change 2016-36
Base case demand						
Separate house	49,923	56,790	63,745	72,333	80,146	30,222
Semi-detached dwelling	7,227	9,597	11,564	14,027	16,592	9,364
Apartment	9,953	10,222	11,250	12,529	13,680	3,727
Adjusted demand						
Separate house	49,923	55,198	60,469	66,922	72,243	22,319
Semi-detached dwelling	7,227	9,704	12,570	16,206	20,197	12,969
Apartment	9,953	11,836	13,821	16,284	18,771	8,818

Adjusted housing demand model

The adjusted demand scenario sees a much stronger growth in demand for additional apartments, of around 8,800 dwellings between 2016-2036. This would require an average of 2,204 apartments to be completed in each five year period. This is a greater rate of apartment development than seen in the Liverpool LGA between 2006-2011 or 2011-2016, but is very similar to the rate of development seen between September 2016-December 2018.

Under the adjusted demand scenario, an average of 5,580 separate houses would need to be completed in each five year period between 2016-2036. This is similar to the development rates seen between 2011-2016 and September 2016 – December 2018, although greater than the rate between 2006-2011.

As discussed earlier in this report, very few attached dwellings were built between 2011-2016 although the development rate has recovered somewhat since 2016. This development rate would need to increase in order for the 12,969 attached dwellings required between 2016-2036 under the adjusted housing demand model to be delivered.

The property market performed very well during the period September 2016 – December 2018 and in the short term development is likely to slow from peaks seen during that time. However, the adjusted demand scenario assumes that the continued increase of importance of Liverpool as a strategic centre and the development of apartments in locations like Edmondson Park will cause the rate of apartment development to mirror recent peak development rates.

Adjusted demand scenario

	Total Change 2016-2036	Change per five year period
Separate houses	22,319	5,580
Attached dwellings	12,969	3,242
Apartments	8,818	2,204

Recent development rates

	2006-2011	2011-2016	September 2016 - December 2018
Apartments Completed	1,109	1,495	1,101 (equivalent to 2,202 per 5 years)
Separate houses completed	1,378	5,085	2,726 (equivalent to 5,452 per 5 years)

Development pipelines

	Pre-DA	Under assessment	Approved	Under construction	Total
Apartment pipeline (Dec-18)	2,378	1,161	1,528	1,933	7,000
Greenfield pipeline (Dec-18)	5,533	3,521	2,426	1,647	12,927

Key findings

- Different population projections and demographic assumptions indicate a housing demand in the Liverpool LGA of between 19,400-22,500 additional dwellings between 2016-2026 and between 16,800-23,900 additional dwellings between 2026-2036.
- SGS analysis of Forecast.id population forecasts and recent demographic trends suggest demand for an additional 43,452 dwellings from 2016-2036.
- These estimates suggest the *average* demand for additional dwellings could be in the range of 2,100 – 2,200 per annum. This is higher than recent development rates, although the LGA is on track to meet its 0-5 year dwelling targets.
- Under the unadjusted housing demand scenario, most housing demand between 2016-2036 would be for separate houses (30,222 additional dwellings), followed by attached dwellings (9,364 additional dwellings) with limited demand for flats and apartments (3,727 additional dwellings). This scenario reflects recent demographic and housing trends.
- Under the adjusted demand scenario, population growth translates to demand for an additional 22,319 Separate Houses, 12,969 attached dwellings and 8,817 apartments between 2016-2036. This would represent the continuation of very recent development rates, but would require a shift in household preferences and additional infrastructure investment.

Liverpool Housing Study

Affordable Housing Demand

SGS Economics & Planning

Housing demand assistance model

Household financial stress, which drives demand for social and affordable housing (SAH), is influenced by a range of factors, including the supply and location of housing stock. Households who are in need of SAH can be defined as either:

- Being unable to access market housing (including homeless persons), or
- Having low household incomes and spending a high proportion of those income on rent (experiencing rental stress).

This definition does not consider homeowners who may be experiencing mortgage stress.

SGS has applied its Housing Demand Assistance model to project the need for SAH in the Liverpool LGA. The model uses a combination of Census data and the NSW Affordable Housing Guidelines to identify income bands for very low, low and moderate income households and estimate the likely future need for affordable housing.

Current Demand

As of 2016, there was estimated to be demand for around 13,858 SAH dwellings in the LGA. The table below shows this demand by tenure and household type. Compared to Greater Sydney, there is greater demand for SAH in the Liverpool as a proportion of the population, at 19.6 per cent of households compared to 17 per cent for the Metropolitan Area.

Demand for SAH in Liverpool is mostly driven by the 7,268 households currently experiencing rental stress, of which 3,416 are experiencing severe rental stress. The current 5,172 households living in social housing also contributes to the higher expressed demand compared to Greater Sydney.

	Homeless	Living in Social Housing	Severe Rental Stress	Moderate Rental Stress	Total Demand for SAH	Total Households	Demand % of Total households
Couple family with children	0	799	1,004	1,708	3,511	34,138	10%
Couple family with no children	0	628	522	735	1,884	13,062	14%
Group household	0	104	58	126	288	950	30%
Lone person household	1,058	2,064	835	513	4,470	11,058	40%
One parent family	0	1,443	939	1,038	3,421	10,300	33%
Other family	0	133	58	92	283	1,150	25%
TOTAL	**1,058**	**5,172**	**3,416**	**4,212**	**13,858**	**70,658**	**19.6%**

Current Supply – Social and affordable housing

The existing supply of social and affordable housing in the City of Liverpool is primarily provided through public housing, community housing, and the NRAS.

The phasing out of NRAS funding (it involves a 10-year subsidy on new housing) may result in the conversion from affordable to full market rental dwellings and an associated reduction in the supply of affordable housing.

Current supply (2016)

LGA	Public Housing	Community Housing	NRAS	Total
Liverpool (A)	4,517	746	88	5,351

NRAS dwellings projected (2016)

LGA	2016	2021	2026
Liverpool (A)	88	98	0

Housing demand assistance model

Liverpool is expected to accommodate a large proportion of NSW's population growth in the future, driving demand for SAH.

Demand for SAH in the LGA is projected to increase by around 9,500 households by 2036, at an average annual growth rate of 2.6 per cent per annum, compared to 1.5 per cent across NSW.

'Other family' household types are projected to have the fastest rate and volume of growth in demand over this period. This is consistent with trends across NSW, being driven by the ageing of the population (increasing the number of multi-generational households) and more complex household compositions overall.

	2016	2021	2026	2031	2036	Change	AAGR
Couple family with children	3,511	3,939	4,428	4,784	5,165	1,654	1.9%
Couple family with no children	1,884	2,192	2,531	2,818	3,164	1,279	2.6%
Families (sub-total)	**5,395**	**6,132**	**6,959**	**7,602**	**8,328**	**2,933**	**2.2%**
One parent family	288	319	364	395	440	152	2.1%
Other family	4,470	5,312	6,351	7,347	8,497	4,027	3.3%
Group household	3,421	3,919	4,534	5,065	5,646	2,225	2.5%
Lone person household	283	308	357	394	443	160	2.3%
TOTAL	**13,858**	**15,989**	**18,565**	**20,803**	**23,355**	**9,497**	**2.6%**

Housing demand assistance model

The modelling above reflects a ‘base case’ where the distribution of household incomes and rents remains constant relative to each other. In reality, the change in these variables will be influenced by a variety of factors (many of which are outside of Council control).

The table on the next page shows the forecast demand for SAH under two scenarios to test the sensitivity of the forecasts:

- **Improving affordability** – household incomes grow by 1.0 per cent per annum relative to rents (i.e. over 20 years incomes grow by 20 per cent relative to rents)
- **Worsening affordability** – household rents increase by 1.0 per cent per annum relative to incomes (i.e. over 20 years rents grow by 20 per cent compared to incomes).

Housing demand assistance model

Under the ‘improving affordability’ scenario, there would be demand for around 585 fewer SAH dwellings compared to the base forecast by 2036.

Under the ‘worsening affordability’ scenario, there would be demand for an additional 684 dwellings compared to the base forecast by 2036.

	2016	2021	2026	2031	2036	Change	AAGR
Base	13,858	15,989	18,565	20,803	23,355	9,497	2.64%
Improving affordability	13,858	15,571	18,086	20,274	22,770	8,912	2.51%
Difference	**0**	**-418**	**-479**	**-529**	**-585**		
Worsening affordability	13,858	16,484	19,131	21,424	24,039	10,181	2.79%
Difference	**0**	**495**	**566**	**621**	**684**		

Key findings

- In 2016, demand for social and affordable housing within the Liverpool LGA was 13,858 dwellings. The majority of this demand stems from households in rental stress or those currently residing in social housing.
- Excluding households currently residing in social housing shows there to be current demand for approximately 8,700 additional affordable dwellings in the LGA.
- Overall, demand for SAH in Liverpool is expected to grow by 9,497 dwellings between 2016 and 2036, resulting in a total demand of 23,355 dwellings.
- Sensitivity tests, which correspond to improving and worsening rental affordability, imply the following lower and upper bounds for growth in SAH demand:
  - Improving affordability: Total SAH demand growth of 8,912 dwellings
  - Worsening affordability: Total SAH demand growth of 10,181 dwellings
- Policy options for increasing the supply of affordable housing are discussed at the end of this report. The options available to Council are relatively limited, and significant investment by all levels of government would be needed to address increasing levels of demand for affordable housing.

LIVERPOOL HOUSING STUDY

HOUSING FUTURES

SGS Economics & Planning

Capacity and demand

The above analysis has identified that the Liverpool LGA has an estimated net capacity for approximately **89,700** dwellings (rounded to the nearest 100) under current planning controls. Housing demand modelling has identified future demand for an additional **36,200-54,400** dwellings by 2036.

At a high level, this suggests that the current planning controls in the LGA may be sufficient to allow for the projected demand for dwellings to 2036.

However, factoring in the potential feasibility of development this capacity is reduced to around **49,800** dwellings across the LGA. This is similar to the upper end of the demand range by 2036. Development up to the maximum capacity is not possible across the LGA, and so additional feasible capacity would have to be created for this number of dwellings to be built.

It is likely that additional greenfield development land will be rezoned by 2036 and the Aerotropolis will be under development. This would be particularly likely if feasible capacity was constrained. On this basis, there is likely to be no need to rezone additional land to create dwelling capacity in the short-medium term.

	Estimated number of dwellings
Capacity under current controls	89,700
Projected additional demand to 2036	36,200-54,400
Difference (capacity – demand)	**36,100 - 54,300**
Feasible development capacity (feasible and marginally feasible)	49,800
Difference (capacity – demand)	**2,200 - 20,400**

Capacity and demand

Comparing new demand and capacity figures at an LGA-wide level does not account for what kinds of dwellings are required or likely to be built.

Comparing housing demand and capacity by dwelling type shows that there are large amounts of capacity under current planning controls for apartments and for attached dwellings, although some of the capacity may currently be unfeasible.

There is likely to be insufficient capacity to meet demand for separate houses until 2036, particularly under the base case demand scenario (30,222 additional dwellings needed with greenfield subdivision capacity for 23,233 dwellings). Additional greenfield land would need to be rezoned by 2036 to address this.

	Attached dwelling	Greenfield subdivision	Greenfield subdivision (low density)	Multi-dwelling housing	Non-greenfield subdivision	Residential flat building	Shop top housing	Subtotal
2168 District	4,095			399	10	5,902	574	10,979
City Centre District						3,251	21,542	24,793
Eastern District	4,111			2,207	239	1,746	969	9,273
Established District	3,968			1,352	247	4,735	1,298	11,599
New Release District	1,943	22,525	708	418	443	0	6,970	33,008
Total	14,117	22,525	708	4,376	939	15,634	31,353	89,652

Dwelling type	2016	2021	2026	2031	2036	Change 2016-36
Base case demand						
Separate house	49,923	56,790	63,745	72,333	80,146	30,222
Semi-detached dwelling	7,227	9,597	11,564	14,027	16,592	9,364
Apartment	9,953	10,222	11,250	12,529	13,680	3,727
Adjusted demand						
Separate house	49,923	55,198	60,469	66,922	72,243	22,319
Semi-detached dwelling	7,227	9,704	12,570	16,206	20,197	12,969
Apartment	9,953	11,836	13,821	16,284	18,771	8,818

Housing scenario

The table on the right shows a housing development scenario, showing where development would be likely to occur under the adjusted demand scenario and based on identified capacity in each district in the LGA. The following assumptions were used:

- 250 attached dwellings will be built in established areas per year, a small increase on current levels
- The 250 yearly attached dwellings in each of the 2168, Eastern and Established districts will be distributed proportionally to current capacity
- New separate houses will be built in greenfield development areas
- Most apartments will be built in the City Centre District, with 20% of demand for this dwelling type being met in the New Release District from 2021 onwards

Dwelling development between September 2016 – December 2018 in major precincts has been considered in this scenario.

The results of this scenario are shown on the right. Most development would occur in the New Release District, with development of 7,400 apartments in the City Centre District and some infill development in other districts.

Time period	Dwelling Type	2168 District	City Centre District	Eastern District	Established District	New Release District	Total
2016-2021	Separate house	-97		-141	4	5,508	6,779
	Semi-detached house	290		422	358	1,407	1,743
	Flat, unit or apartment		1,883				964
	Subtotal	*193*	*1,883*	*281*	*362*	*6,915*	*9,485*
2021-2026	Separate house	-97		-141	4	5,504	6,688
	Semi-detached house	290		422	358	1,797	1,483
	Flat, unit or apartment		1,587			397	1,269
	Subtotal	*193*	*1,587*	*281*	*362*	*7,698*	*9,440*
2026-2031	Separate house	-97		-141	-119	6,809	5,075
	Semi-detached house	290		422	358	2,567	1,483
	Flat, unit or apartment		1,970			493	970
	Subtotal	*193*	*1,970*	*281*	*239*	*9,869*	*7,528*
2031-2036	Separate house	-97		-141	-119	5,678	5,637
	Semi-detached house	290		422	358	2,920	1,468
	Flat, unit or apartment		1,990			497	1,102
	Subtotal	*193*	*1,990*	*281*	*239*	*9,095*	*8,207*
2016-2036	Separate house	-386		-562	-231	23,499	24,180
	Semi-detached house	1,159		1,687	1,432	8,691	6,176
	Flat, unit or apartment		7,431			1,387	4,305
	Total	**773**	**7,431**	**1,125**	**1,201**	**33,577**	**34,661**

Remaining capacity

By comparing the housing development scenario discussed above with identified dwelling capacity, it is possible to calculate how much capacity would be remaining at the end of each five year period and to identify any capacity constraints in each district. The higher greenfield density capacity scenario has been used in this calculation.

The only capacity constraint by 2036 would be for dwellings in greenfield developments. Capacity for this dwelling type would run out shortly before 2036. Only a small amount of the capacity for attached dwellings in the established parts of Liverpool or for apartments will need to be developed by 2036, and so even if some development is unfeasible capacity is unlikely to be constrained for these dwelling types.

		2168 District	City Centre District	Eastern District	Established District	New Release District	Total
2021	Separate house	0	0	0	123		
	Semi-detached house	4,214	0	6,136	5,208	22,340	38,022
	Flat, unit or apartment	6,476	22,910	2,715	6,033	6,970	45,104
	Subtotal	10,690	22,910	8,851	11,364	*29,311*	***83,126***
2026	Separate house	0	0	0	0		
	Semi-detached house	3,924	0	5,714	4,850	15,039	29,528
	Flat, unit or apartment	6,476	21,323	2,715	6,033	6,574	43,120
	Subtotal	10,400	21,323	8,429	10,883	*21,613*	***72,648***
2031	Separate house	0	0	0	0		
	Semi-detached house	3,635	0	5,292	4,492	5,663	19,083
	Flat, unit or apartment	6,476	19,352	2,715	6,033	6,478	41,053
	Subtotal	10,110	19,352	8,007	10,525	*12,141*	***60,136***
2036	Separate house	0	0	0	0		
	Semi-detached house	3,345	0	4,871	4,134	-2,935	Constrained
	Flat, unit or apartment	6,476	17,362	2,715	6,033	6,473	39,059
	Subtotal	9,821	17,362	7,586	10,167	*Constrained*	***Constrained***

Key findings

- Housing capacity substantially outpaces likely demand in the Liverpool LGA overall between 206-2036.
- Feasible capacity is lower than the upper estimate of housing demand. If this demand scenario were to occur, additional housing capacity would need to be found or housing development would need to become more feasible in the long-term.
- There is likely to be insufficient capacity for separate houses to meet demand until 2036, with supply likely to run out between 2031-36.
- Capacity for medium density and high-density dwellings is likely to outpace demand when capacity is considered across the whole LGA.
- As additional greenfield land release is likely to occur before 2036 and the Aerotropolis is likely to be under development, there is likely to be no need to rezone additional land to create dwelling capacity in the short-medium term.

LIVERPOOL HOUSING STUDY

OPPORTUNITIES AND CONSTRAINTS

SGS Economics & Planning

Best locations for additional housing

Housing intensification should be concentrated in the places that are the most accessible and liveable with good access to social infrastructure.

There are many ways to measure liveability and accessibility. SGS has determined the suitability of each part of Liverpool Council for housing intensification based on the proximity of each area to certain destinations.

There are many different destinations people want to be located near, and how important these different destinations are considered will vary from person to person. SGS has measured the proximity of each part of the Liverpool LGA to the destinations shown on the right along the road and footpath network. Proximity to most of these things is required under NSW Government planning policy for land to be zoned for high-density residential development.

Higher density housing should be near:

- **Public transport**, with train stations the most appropriate followed by T-Way stops and then other bus stops. Only bus stops with a bus at least every 30 minutes on average between 7am-7pm on a weekday have been considered.
- **Retail centres**, with larger centres more suitable for higher density housing than smaller centres.
- **Open space**
- **Primary and secondary schools**
- **Libraries and community centres**

Proximity Analysis

Opportunity Mapping Method

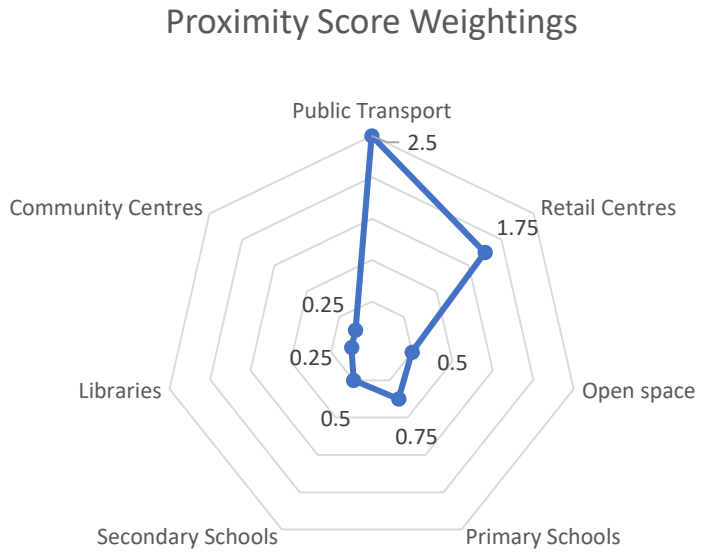
Each meshblock in the established parts of Liverpool LGA (excluding industrial and employment land) was given a score for proximity to each required destination based upon whether it fell within a primary or secondary catchment along the road network.

By weighting and combining these attributes, an overall proximity score was produced showing suitability for housing intensification. A low weight was used for open space, despite its importance, to reflect that it is very accessible from most of the LGA and so does not differentiate well between different areas.

This proximity score measures high-level opportunities for housing intensification, but needs to be combined with a detailed understanding of local market conditions and development contexts. Increasing public transport accessibility or the size of a retail centre, for example, could dramatically change suitability for development.

Greenfield development areas and rural areas were excluded from the analysis as the large statistical units and developing road network in these areas limits the accuracy of the analysis. In general, infrastructure in greenfield development areas is still being developed, and so they have poor proximity to facilities, social infrastructure and public transport.

Factors influencing ease of development, including lot size and environmental constraints, are also important and are considered later in this section.



Destination	Primary catchment size (m)	Secondary catchment size (m)
Train stations	800	1200
T-way stops	800	1200
Other public transport stops	400	800
Retail centres	800	1200
Open space	400	800
Primary Schools	800	1200
Secondary Schools	1200	2400
Libraries	1200	2400
Community Centres	1200	2400

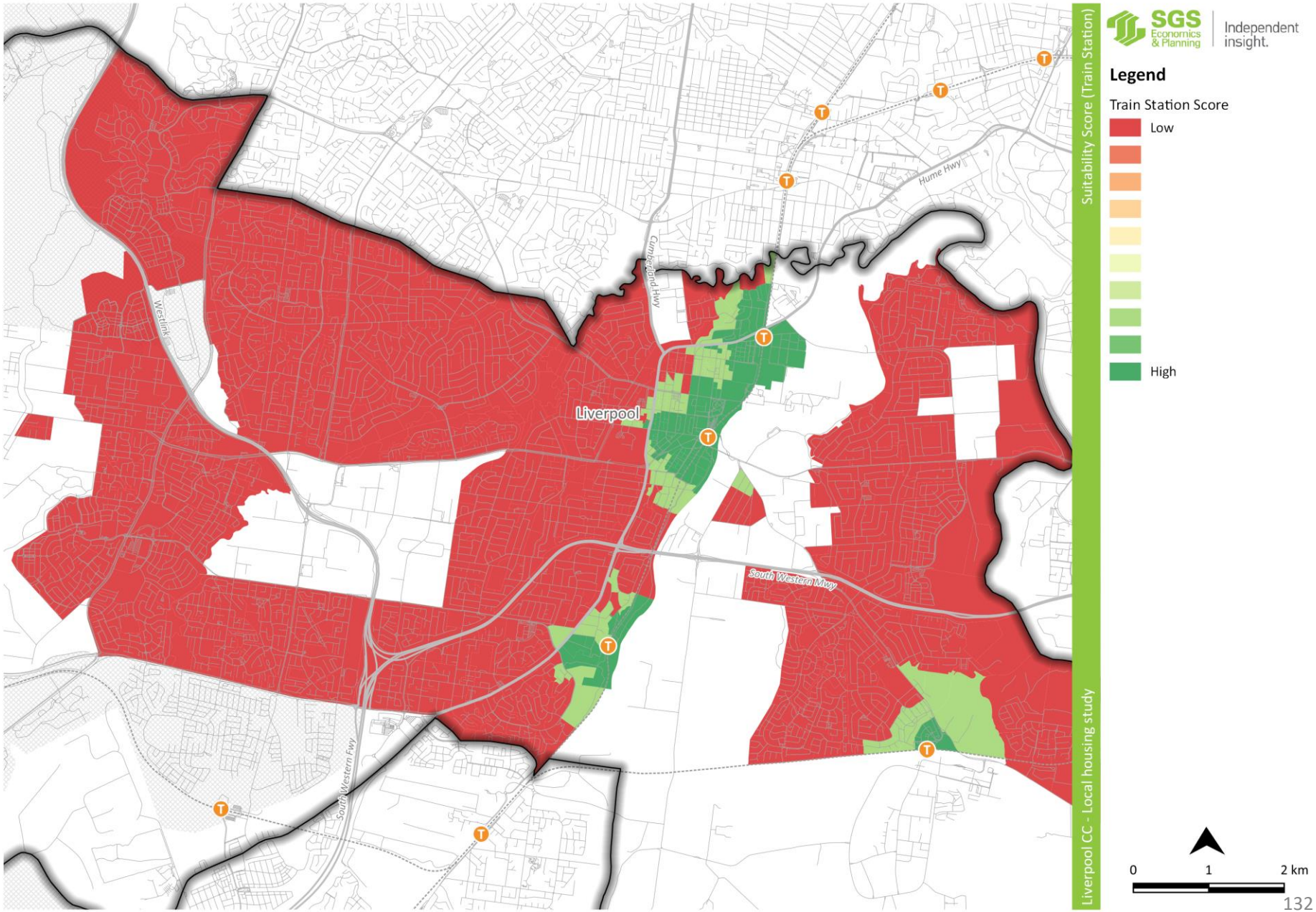
Proximity Analysis Results

Proximity to train stations

Most of the LGA is not within a walking catchment of a train station.

The largest walking catchments surround the Liverpool and Warwick Farm Stations. Walking catchments at Casula and Holsworthy are smaller due to the layout of the road network and the topography at Casula.

The road network at Edmondson Park is under construction, and so this score does not give an accurate representation of accessibility to the Edmondson Park Railway Station.



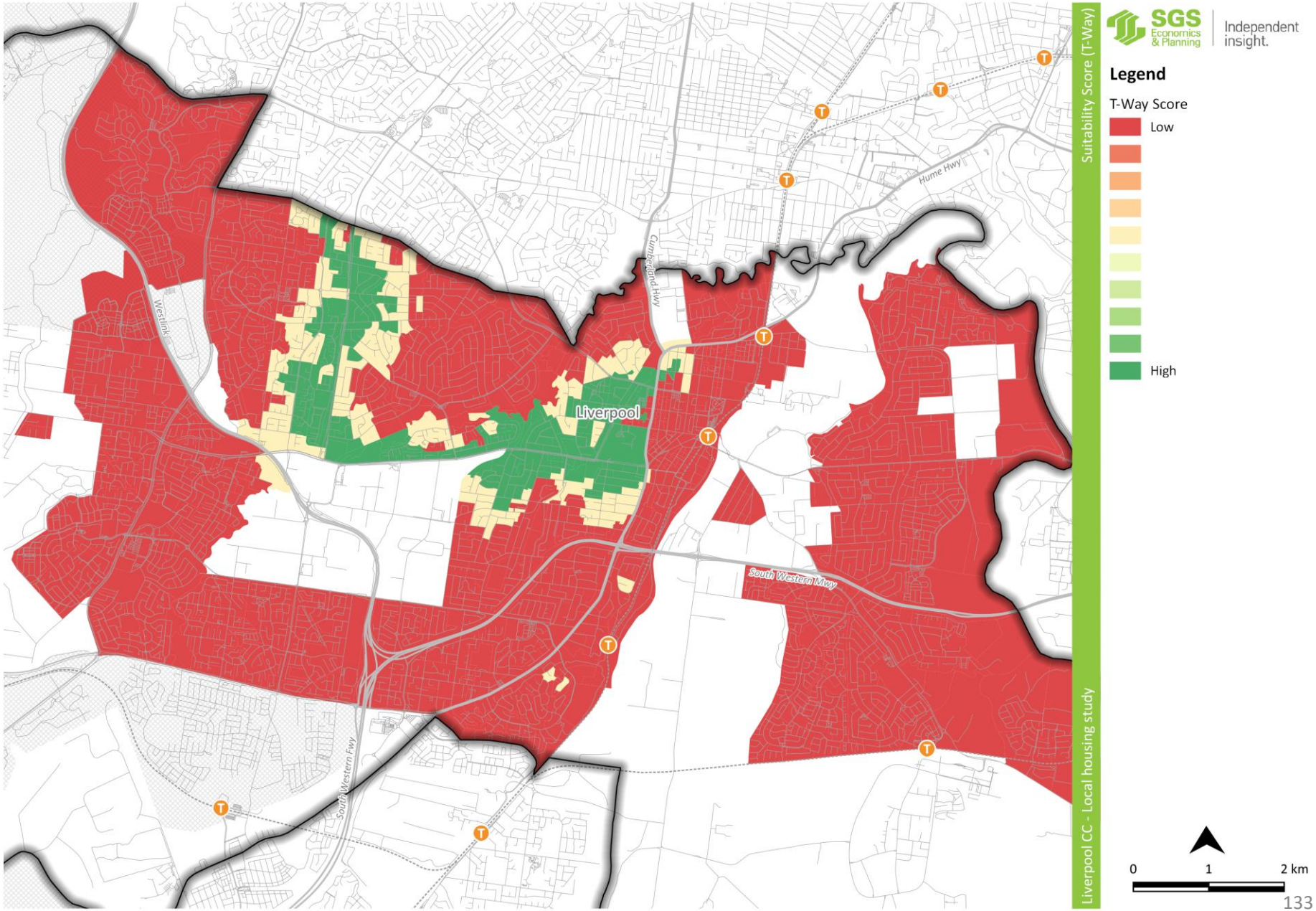
Proximity Analysis Results

Proximity to T-Way stops

Opportunities for intensification near frequent public transport in the absence of accessibility to train stations should focus on the T-Way.

Parts of Liverpool, Lurnea, Cartwright, Miller, Busby, Hinchinbrook and Green Valley have good accessibility to the T-Way.

Note that areas with good accessibility to train stations have been excluded from this accessibility score.



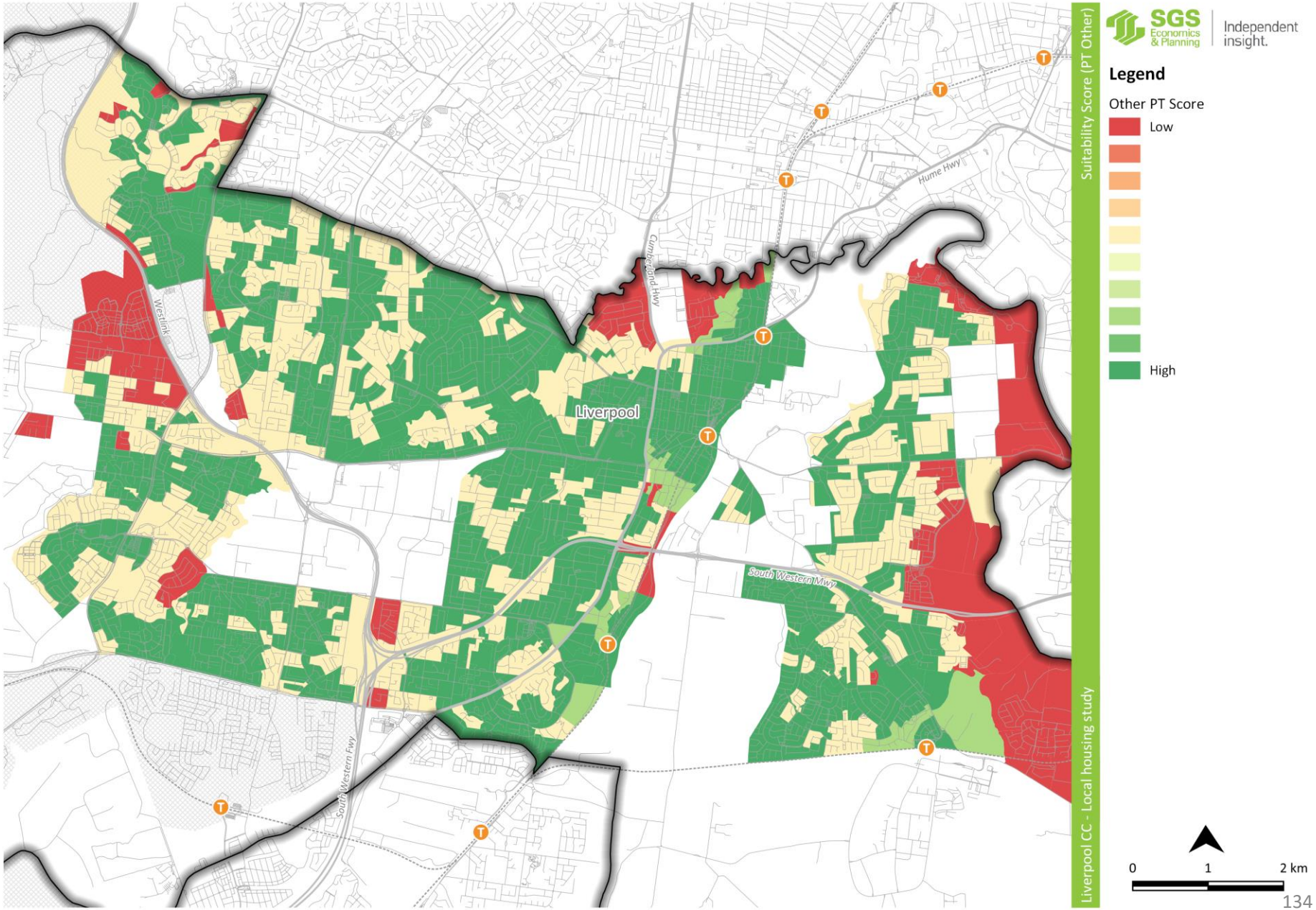
Proximity Analysis Results

Proximity to Other Public Transport Stops

Most of the remainder of the LGA is covered by other bus services, although these are mostly infrequent and indirect.

Suitability for this attribute has been based on accessibility to a bus stop which is visited by a bus at least every 30 minutes on average between 7am-7pm on weekdays.

Indirect road networks or long blocks in the Eastern and Western parts of the LGA reduce accessibility to public transport stops.



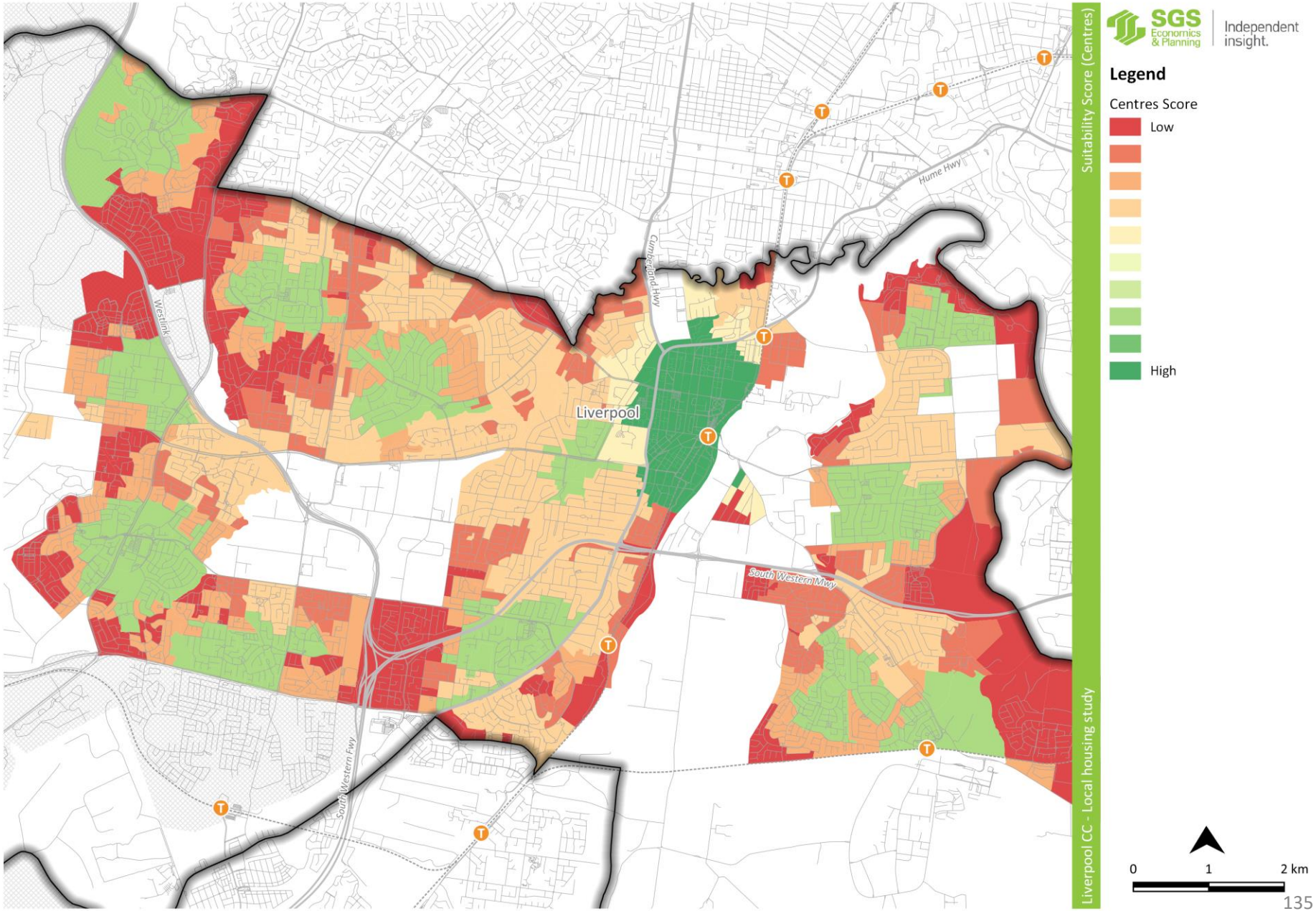
Proximity Analysis Results

Proximity to retail centres

The best access to retail is afforded by the Liverpool City Centre, which is accessible from Liverpool and Warwick Farm.

Other centres zoned B2 have large catchments in other parts of the LGA. It has been assumed that centres will be developed in Holsworthy and Middleton Grange where land with a business zoning is currently vacant.

Large parts of the LGA are serviced only by local centres within walking distance, with access to other retail centres requiring people to drive.

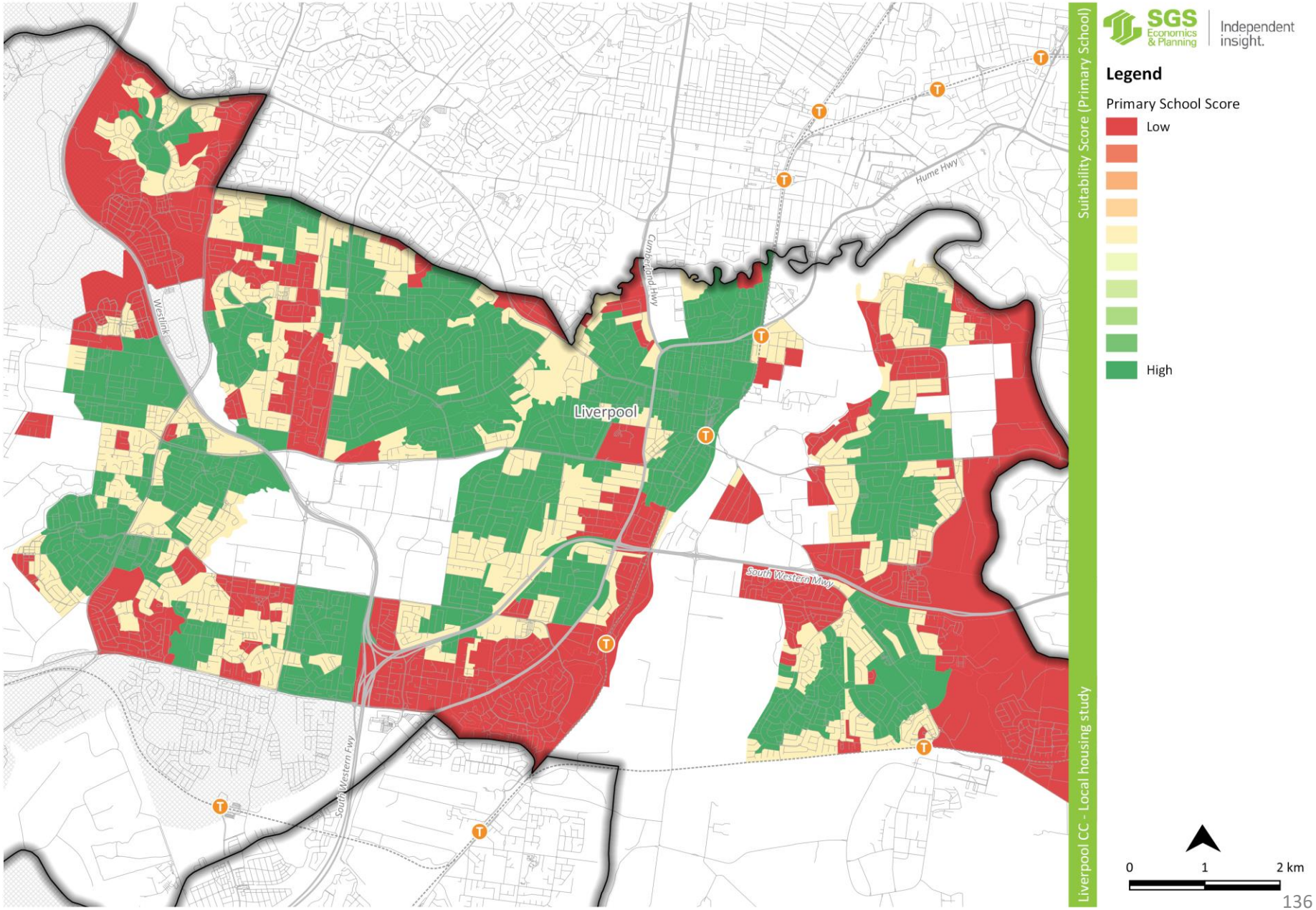


Proximity Analysis Results

Proximity to primary schools

The land surrounding local centres is generally accessible to primary schools within 800m. The indirect road network in parts of the LGA restricts availability, as does the relatively small number of primary schools in the western part of the LGA.

There are large areas of housing, particularly in the western part of the LGA, which are not within a 1200m walk of a primary school.



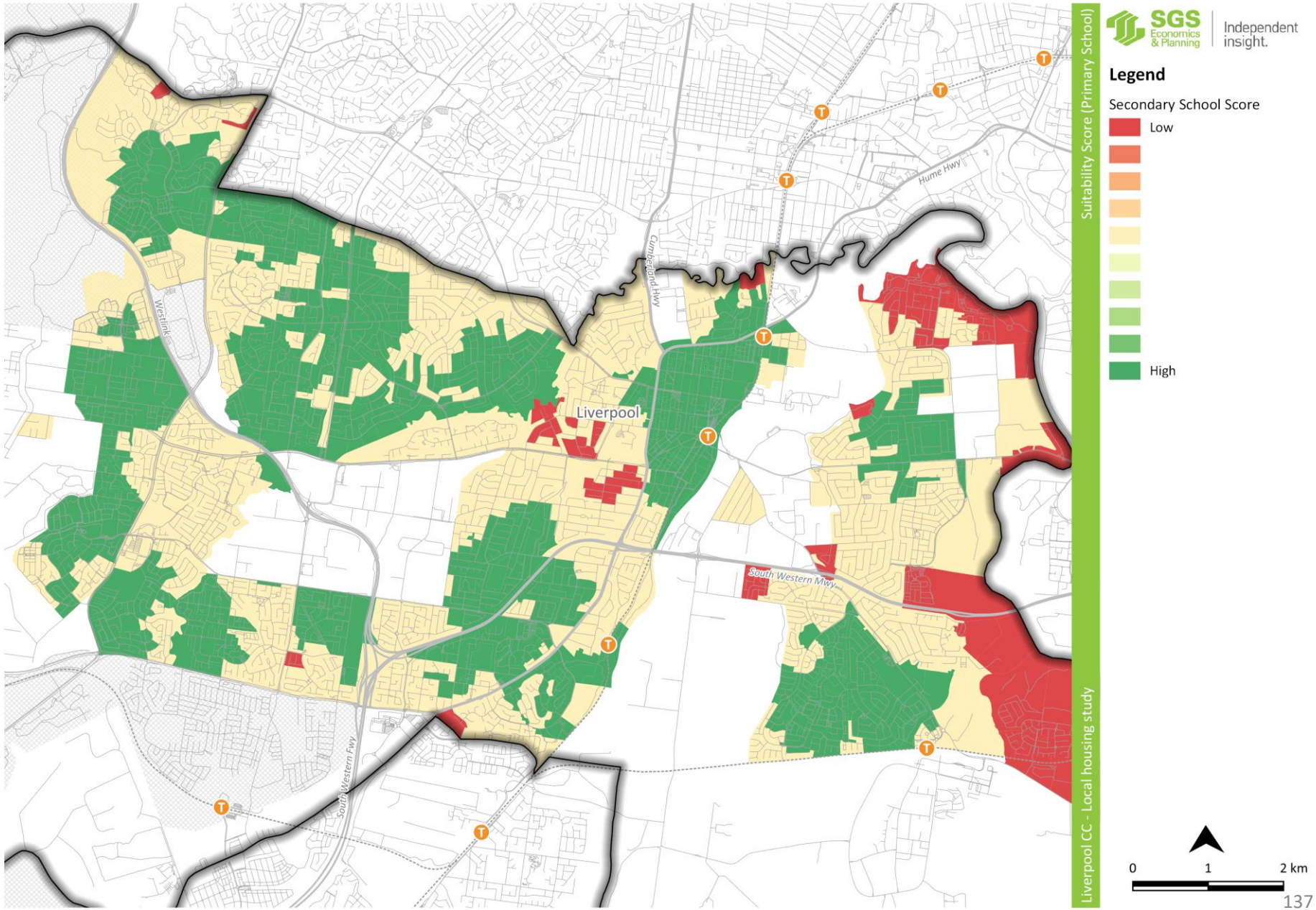
Proximity Analysis Results

Proximity to Secondary Schools

A larger catchment was used for secondary schools than primary schools to reflect their larger size.

The land surrounding local centres is generally accessible to secondary schools within 1200m.

Much of the LGA is not within a 1200m walk of a secondary school.

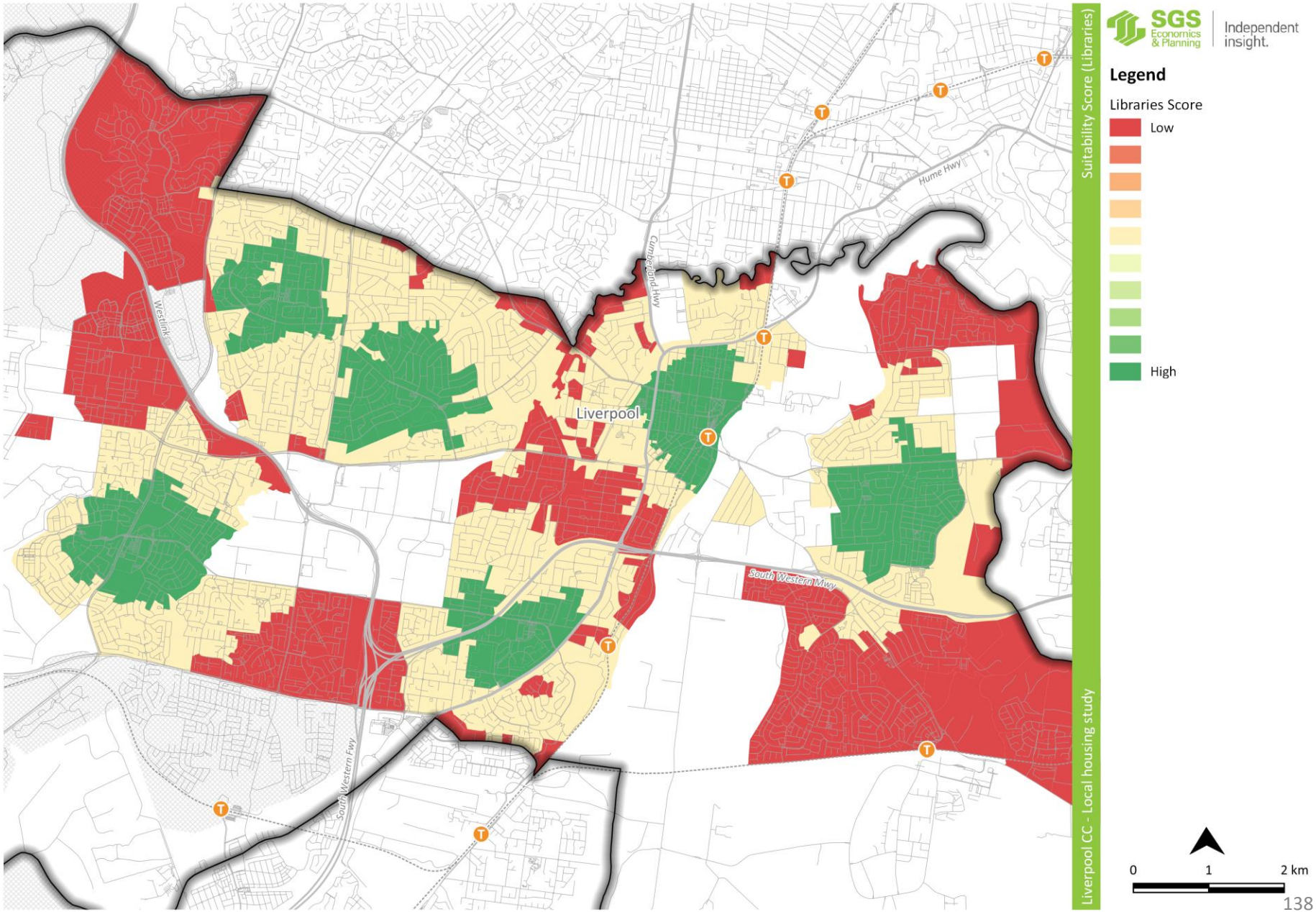


Proximity Analysis Results

Proximity to Libraries

The location of libraries in Liverpool is generally well aligned with the location of local centres.

Large parts of the LGA cannot access a library within 2400m.

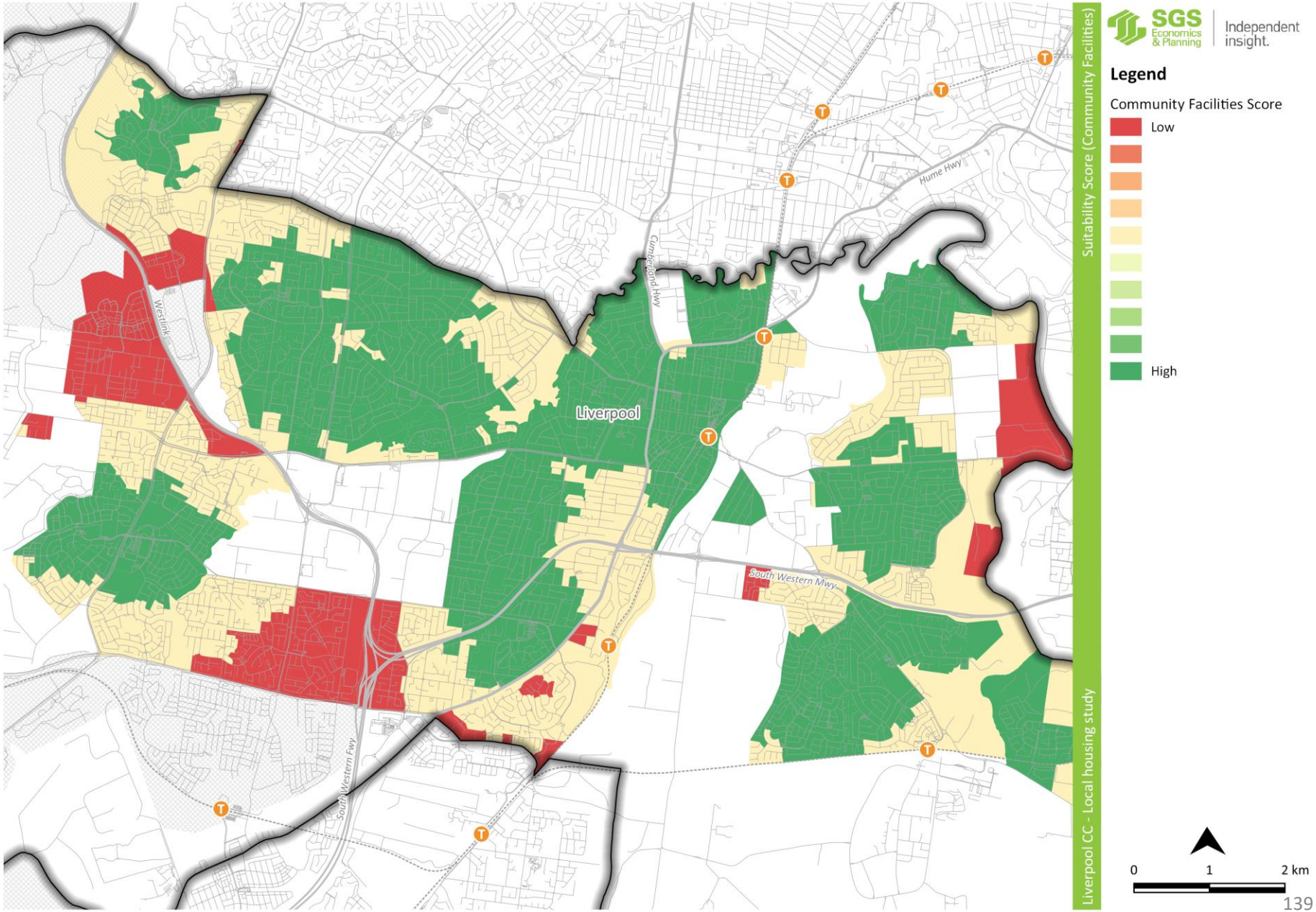


Proximity Analysis Results

Proximity to Community Facilities

There are a larger number of community facilities in the LGA than libraries. As with libraries, community facilities are generally most accessible around local centres.

Prestons has notably poor access to both libraries and community facilities.



Proximity Analysis Results

Overall suitability

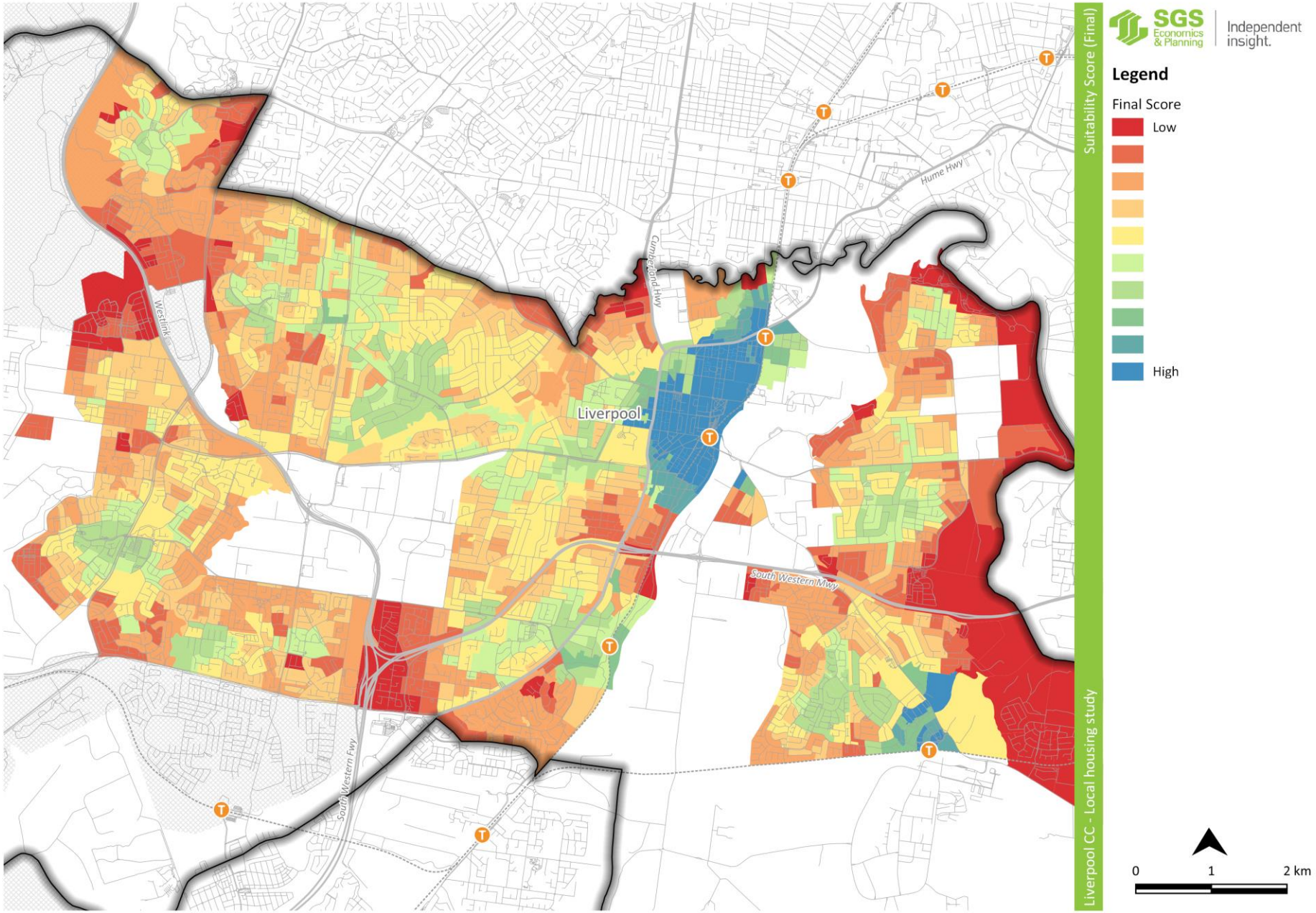
The overall suitability score is shown on the following page. Suitability in this analysis is heavily influenced by the availability of public transport and proximity to retail centres. For these reasons, Liverpool City Centre, Warwick Farm and Holsworthy have the highest scores. The suitability of Holsworthy would depend on the development of a local centre with good retail provision on the vacant land zoned B2.

The land around the Casula Train Station has a moderate suitability score, but the topography around the Train Station has not been factored into this accessibility analysis and limits suitability for housing intensification.

While the T-Way provides a relatively high-quality public transport connection, there are few local centres or services along its route, reducing suitability for housing intensification.

The walking catchments of local centres such as Moorebank, Miller, Green Valley and Carnes Hill are the next most suitable places for residential intensification. However, the low public transport provision in most of those locations limits their suitability for high-density housing. In this case, medium density redevelopment may be more appropriate. Poor perceptions of some areas (such as Miller) and character constraints (such as at Moorebank) may also limit suitability for high-density housing but have not been reflected in this analysis.

Proximity Analysis Results **Overall Suitability**



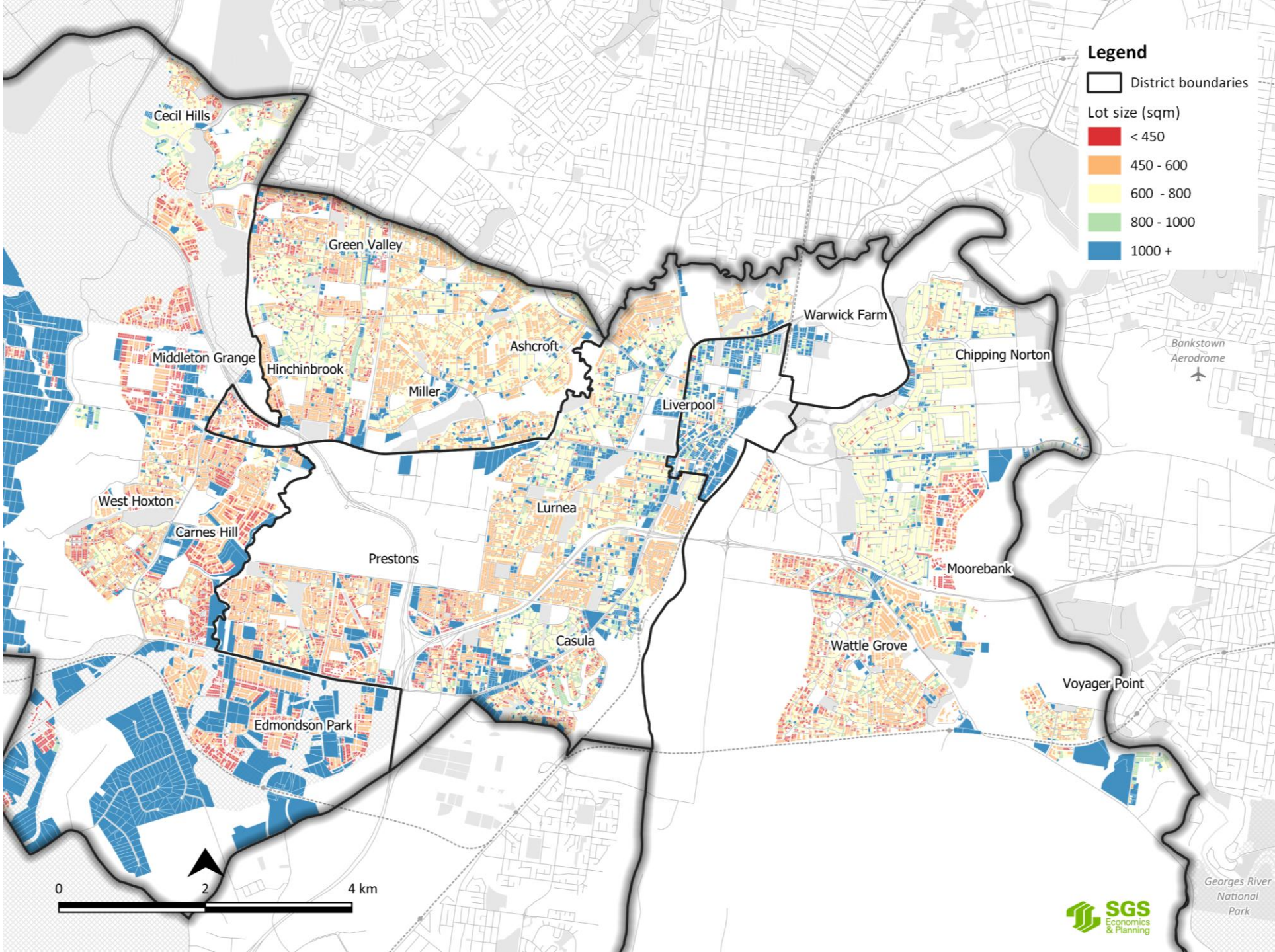
Constraints

Lot size

Lot sizes of greater than 600sqm present the greatest opportunities for infill development without site amalgamation. Lot sizes between 450-600sqm present reduced opportunities for multi-dwelling housing development, but may be appropriate for dual occupancies. Lot sizes less than 450sqm are unlikely to be appropriate for infill development without site amalgamation.

There are a large number of lots with areas greater than 600sqm in Liverpool, Moorebank and Chipping Norton. There are fewer in Casula and the 2168 District, with many lots between 450-600sqm. Holsworthy and Hammondville contain predominately lots between 450-600sqm.

The parts of the New Release District where land has been developed for urban purposes contain predominately smaller lot sizes. These are less suitable for infill redevelopment. Recent development of these areas is also likely to discourage redevelopment.



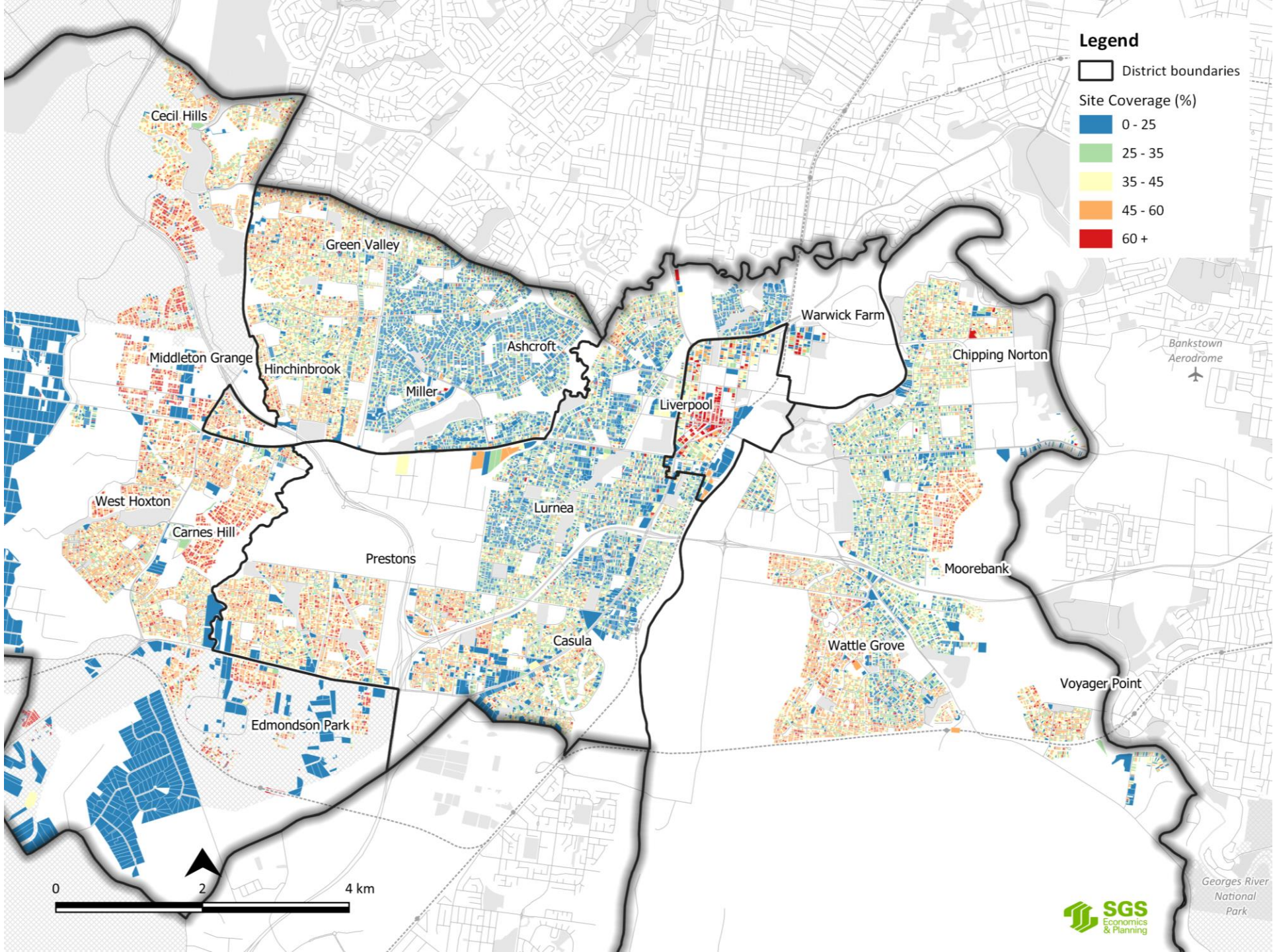
Constraints

Site coverage

Infill development is more feasible on lots which have smaller dwellings on them as the acquisition price is lower.

Site coverage generally mirrors lot size, with smaller lots having higher site coverage. However, large lots in Liverpool, Lurnea, Casula, Moorebank, Chipping Norton, Moorebank and the 2168 Housing Estate have low site coverages, suggesting opportunities for infill development.

Relatively high site coverages in Hinchinbrook and Green Valley make infill development less likely, despite the large number of lots with areas of 600sqm or greater.

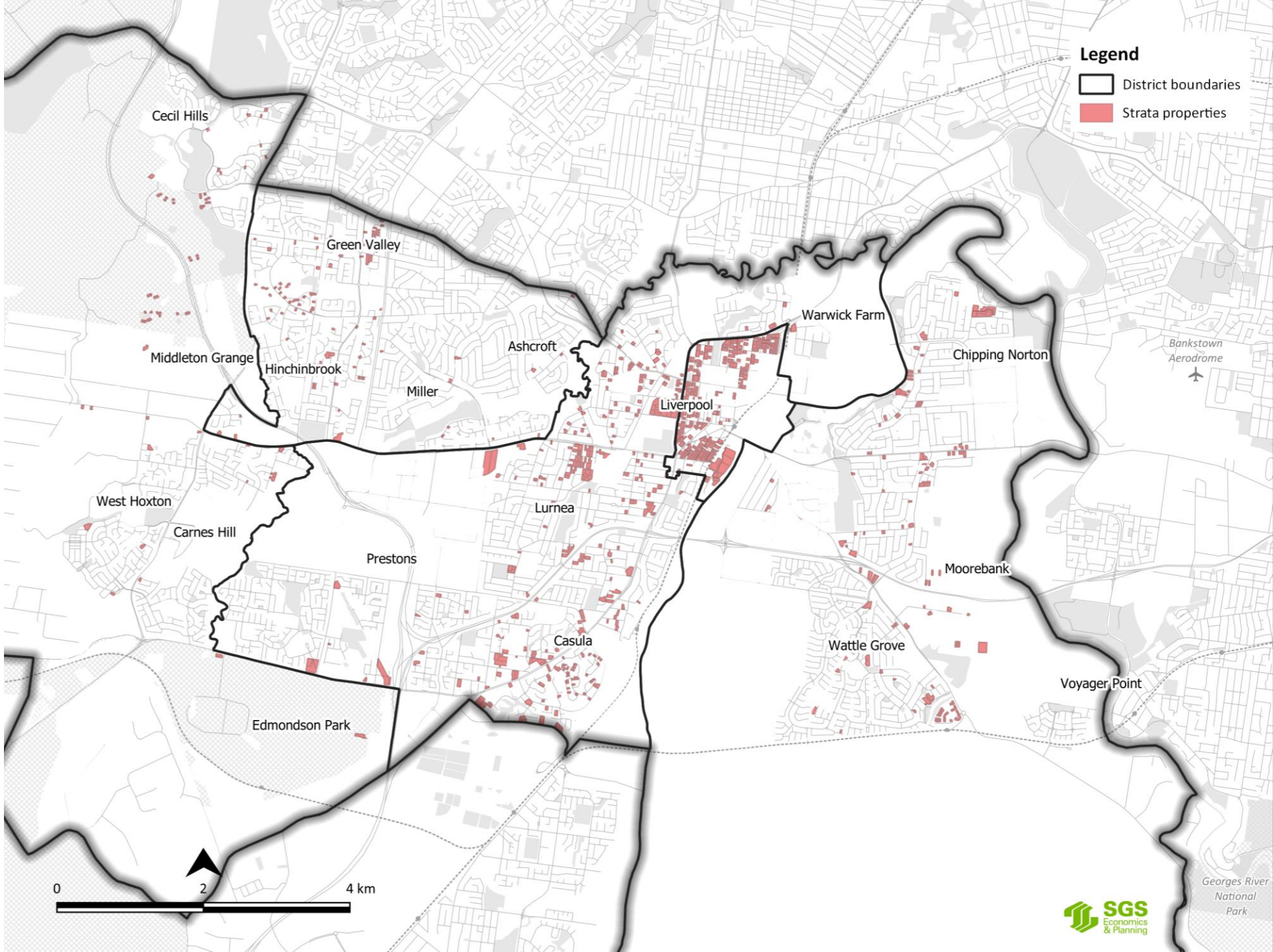


Constraints

Strata subdivision

Strata subdivision generally indicates that land is already developed for higher density use and is unlikely to be redeveloped. The distributed ownership nature of strata-subdivided lots also makes redevelopment more difficult.

Most strata-subdivided residential properties are located in the Liverpool City Centre. Development opportunities are also limited in part of Lurnea where there is a large amount of multi-dwelling housing.

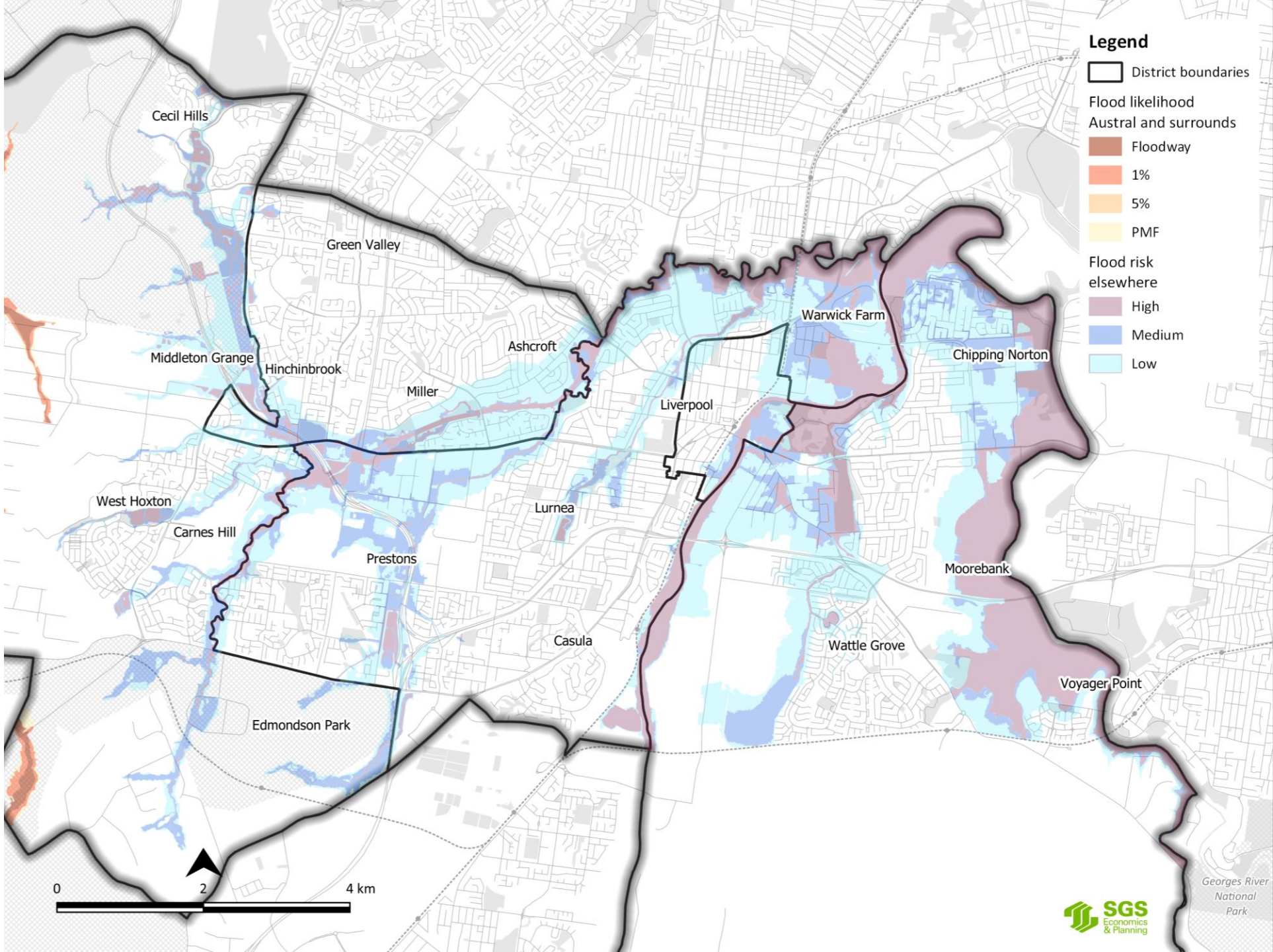


Constraints

Flooding

Large parts of the Liverpool LGA are flood prone. In the established parts of Liverpool this is mostly due to flooding along the Georges River and the Cabramatta Creek and its tributaries.

Flood affectation, particularly at medium or high risk, limits development potential in the absence of expensive flood mitigation works.



Opportunities and constraints

The map on the right shows properties which:

- Are greater than 450sqm in area
- Have site coverage of less than 35%
- Are not strata-subdivided
- On which residential development is permissible

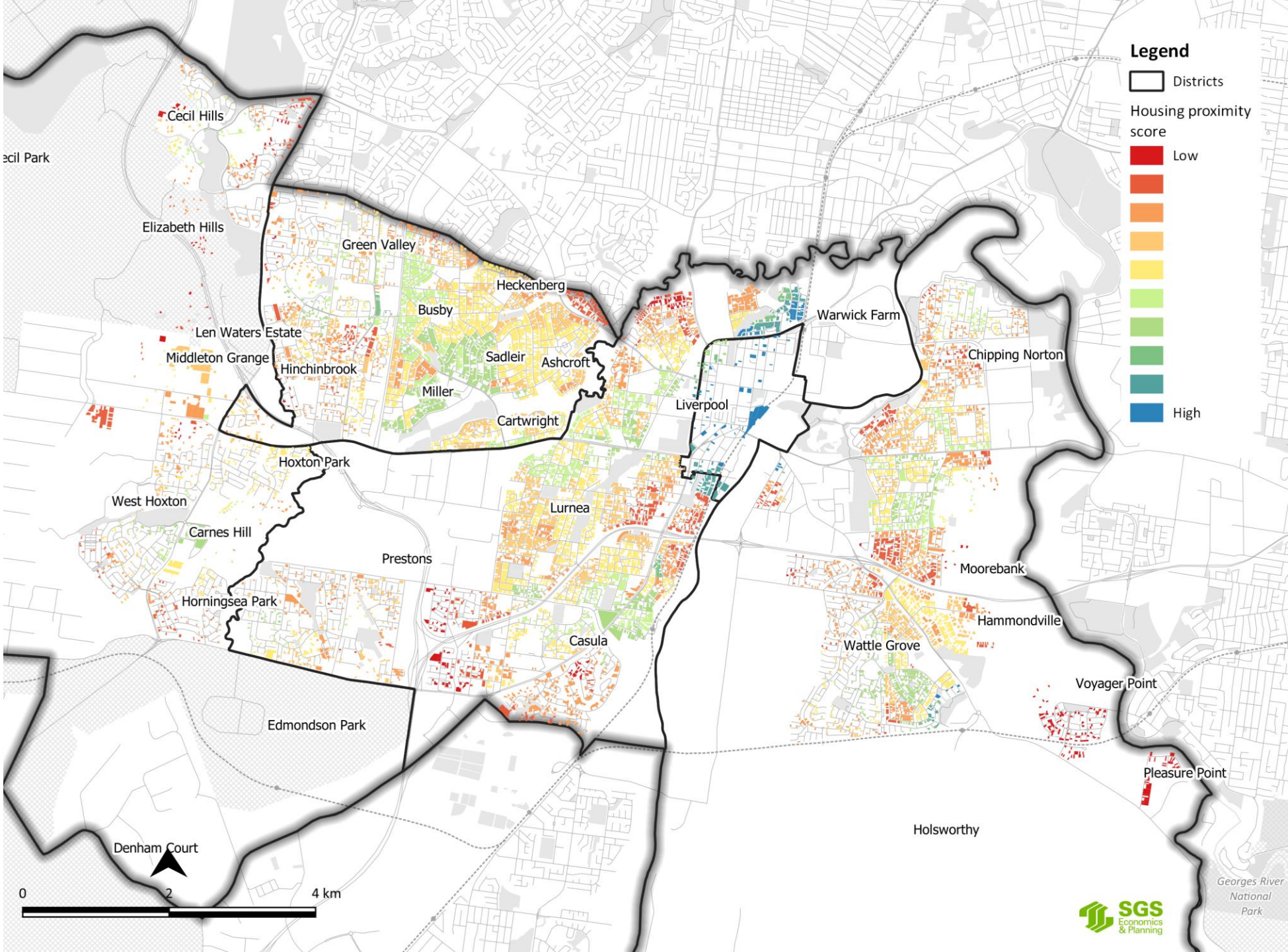
Properties have been excluded if they have the following environmental constraints which limit suitability for high density housing:

- Medium or high flood risk
- Sit within an odour buffer applying in Warwick Farm around the sewerage treatment facility

Properties are coloured by their suitability for residential intensification.

The greatest opportunities are in Warwick Farm north of the Hume Highway, in the southern part of the Liverpool City Centre and immediately south of it, and around Miller.

There are also opportunities for redevelopment, although lower housing densities may be more appropriate, in Moorebank, Holsworthy, Casula and around some centres in the 2168 area apart from Miller.



Key findings

- Based on this proximity analysis, Liverpool City Centre, Warwick Farm (north of the Hume Highway and west of the Railway Line) and Holsworthy are the most suitable locations for additional higher density housing development.
- This analysis does not take into account site-specific development constraints or environmental constraints, which may limit suitability for development.
- While the T-Way provides a relatively high-quality public transport connection, there are few local centres or services along its route, limiting suitability for housing intensification.
- The walking catchments of local centres such as Moorebank, Miller, Green Valley and Carnes Hill are the next most suitable places for residential intensification, but their suitability for higher-density housing is limited by public transport accessibility and medium-density housing redevelopment may be more appropriate.
- Considering lot sizes, site coverage, existing development and flooding reinforces Warwick Farm (north of the Hume Highway and west of the Railway Line) as the most appropriate location for housing intensification.
- Infill opportunities without site amalgamation are limited in the New Release District, the western part of the 2168 District, Prestons and Wattle Grove.

LIVERPOOL HOUSING STUDY

HOUSING CHARACTER

SGS Economics & Planning

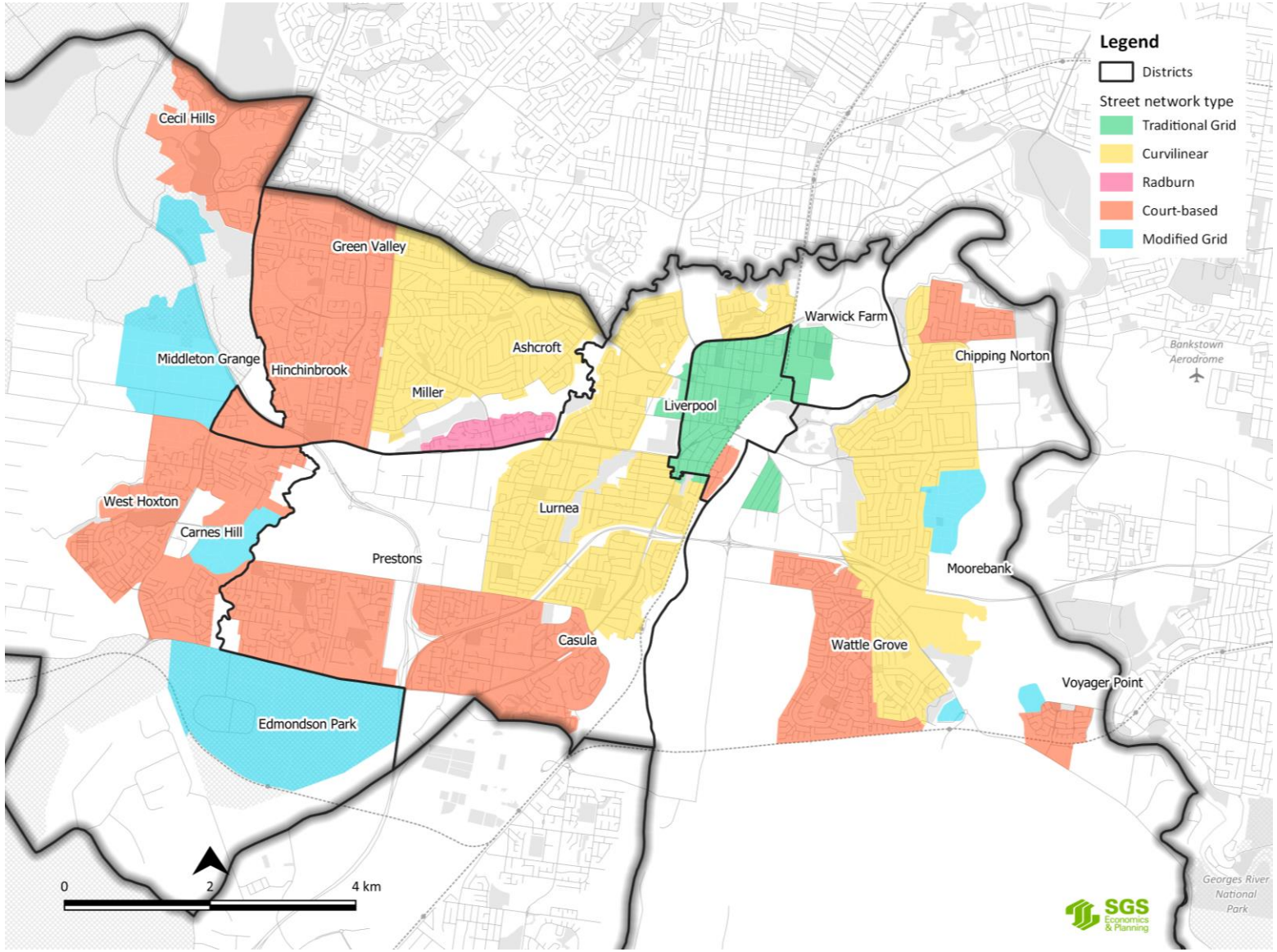
Housing Character

Street networks

This section discusses the housing character of each District in the Liverpool LGA. Additional analysis of the street network, building heights, lot sizes, site coverage, open space and topography is provided in Appendix B. The Rural District is not considered as it has not been developed for urban uses and housing makes up only a small part of its character.

The housing character of each part of Liverpool charts new-release development practices at the time that development occurred. In most parts of the LGA owing to the relative recency of initial subdivision and the local housing market there has been little redevelopment and the housing character is relatively uniform.

Greenfield development practices and housing character are encapsulated by street network and subdivision design. The different kinds of street network in Liverpool are shown on the right and discussed on the following page.



Housing Character

Street networks

Liverpool City Centre has a strong grid layout surveyed by Robert Hoddle when the town was founded.

Development outside the area now known as the Liverpool City Centre did not take place until after World War 2. The curvilinear layout of areas close to Liverpool was popular at the time and is relatively walkable although hampered by long blocks which limit permeability.

The Radburn Layout was only applied to the suburb of Cartwright. It is theoretically walkable due to the large number of pedestrian paths, but there is a poor perception of safety on both the roads and internal paths. Redevelopment in this area should consider its unique layout.

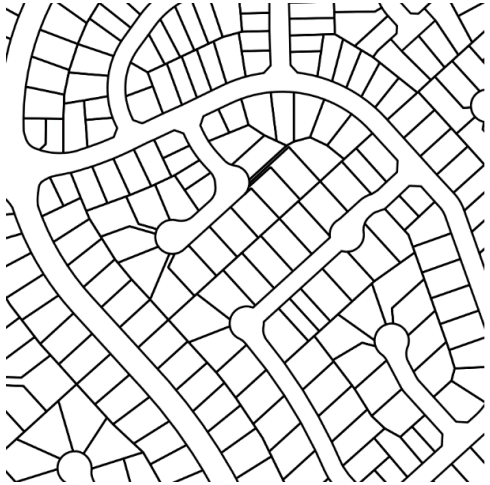
More recent development was dominated by curvy, indirect roads with courts leading off them. This establishes a strong road hierarchy, but has poor walkability.

The most recent road layout evident in the Liverpool LGA is a modified grid layout which has been planned for current and very recent land-release developments. These layouts aim to be walkable, although make more concessions to road hierarchies, topography and subdivision patterns than a completely grid-based layout.

Traditional Grid Layout
Liverpool City Centre

Curvilinear Layout
Moorebank

Radburn Layout
Cartwright



Court-based layout
Green Valley

Modified grid layout
Georges Fair

Liverpool City Centre District

The Liverpool City Centre is bounded by the Hume Highway and the Georges River. It's commercial area and previously low density housing are transitioning to higher density residential and commercial development.

The City Centre contains a mix of high density commercial and residential areas. Residential development is located around the periphery of the District, particularly in the south west and the north.

The north-western portion of the City Centre District is transitioning from single and double storey detached dwellings to residential flat buildings of eight or more storeys.

The western and southern portions of the City Centre District outside the immediate centre core are generally older, and contain a broad mix of residential typologies. Most residential buildings are three to four storey walk-ups. There are also some larger and more recently built residential flat buildings, as well as multi-dwelling housing developments and detached single storey dwellings.

The south-western part of the District around Macquarie Street and Terminus Street contains the highest-density development. Several very large residential flat buildings have been built or are under construction in that area. Large lot sizes indicate that this is likely to continue in the future.

Large residential flat buildings in the south-west part of the Liverpool City Centre

Walk-up development in the Liverpool City Centre

Eastern District

The Eastern District contains four centres, the largest of which is the Moorebank Centre. The surroundings of this local centre are predominantly low-density with single storey residential buildings and low site coverage, creating a distinctly suburban local character. However, some residential flat buildings have been built recently.

The residential character of the southern part of Chipping Norton, Hammondville and Holsworthy is similar to that of Moorebank. The Northern Part of Chipping Norton contains larger predominately two-storey houses.

Wattle Grove has a leafy suburban character and a court-based street layout. It has smaller lot sizes than older suburban areas, although most dwellings are one storey. The entry gateways to quiet residential streets are an important part of the local character.

The newer housing estates of Moorebank and New Brighton on the outer ring of the district are made up of predominantly smaller lots with higher site coverage. These smaller lots contain larger homes than those common in older parts of the District.

There are some parts of this District that contain dual occupancy and multi dwelling terrace type housing, mostly concentrated near Newbridge Road and the Chipping Norton Lakes.

The juxtaposition between high and low density residential development around Moorebank

Larger houses in the northern part of Chipping Norton

Low density residential housing in Moorebank

Housing in Wattle Grove

2168 District

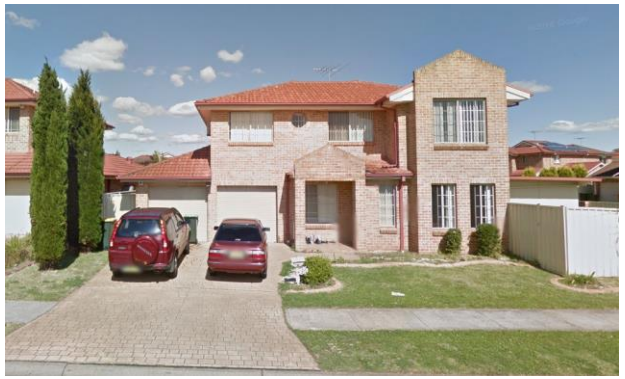
The 2168 District is composed of the Green Valley housing estate east of Banks Road and more recent residential development in the suburbs of Green Valley and Hinchinbrook.

The suburbs of Heckenberg, Busby, Miller, Sadlier, Cartwright, and Ashcroft comprise the original public housing estate and have a high proportion of social housing. The social housing stock is characterised by 3-4 storey walk ups around the centres and small single-storey low density residential detached dwellings, many of which are of fibro construction. There are also many dwellings which were social housing but are now privately owned. These generally resemble the remaining low-density social housing in form, with many small detached fibro houses.

The suburbs of Green Valley and Hinchinbrook have larger houses and higher site coverage than the 2168 Estate. The road network is court-based.

Public housing apartments in the eastern part of the 216 District

A road with vehicle frontages rather than dwelling frontages in Cartwright



Large housing in the suburb of Green Valley, similar to many dwellings in the western half of the 2168 District

Smaller housing in the suburb of Miller, similar to many dwellings in the eastern half of the 2168 District

Established District

The established district is predominantly composed of low-density residential housing and also contains the Prestons Industrial area.

The part of the suburb of Liverpool outside of the City Centre has a higher density and greater dwelling diversity than some other parts of the district. There are significant amounts of social housing in Warwick Farm.

Lurnea contains a large area occupied almost exclusively by villa developments. Most of the other housing in Lurnea is relatively small separate house, and of similar character to houses in the suburb of Liverpool outside of the City Centre.

Casula contains a mix of recent subdivisions, older suburban developments with a curvilinear road layout and relatively small houses, and the Leacocks Lane Estate, which has a distinctive character created by its leafy open space corridors and steep topography.

The residential parts of Prestons were more recently developed than the rest of the District, with larger houses, smaller lots and a court-based road network. It contains a small local centre and several parcels of remnant bushland.

Public housing apartments in Warwick Farm

The Leacocks Estate

Infill townhouse development in the suburb of Liverpool

Substantial housing in the suburb of Prestons

New Release District

The new release district contains current and recent land release areas. The suburbs of Elizabeth Hills, West Hoxton, Hoxton Park and Horningsea Park were developed in the 1990s and early 2000s and have highly indirect court-based road layouts.

The suburbs of Edmondson Park, Austral, Middleton Grange, Leppington and part of Carnes Hill are current land release areas and have a character which is similar to that of many other current land-release areas. The roads have a modified grid layout, lot sizes are small, site coverage is high and dwellings generally have similar designs to each other and dark coloured roofs, which can dominate vistas. Despite high site coverage, many houses are single storey.

The Western Sydney Parklands and the ridgeline along which it is situated provide a landscape character to the western part of this District. Views to and from this ridgeline are an important part of the local character.

Larger houses and traffic calming characteristic of the older parts of the New Release District

Recent housing developments in Carnes Hill characteristic of newer greenfield developments

LIVERPOOL HOUSING STUDY

KEY FINDINGS

SGS Economics & Planning

Key findings for the future of housing in Liverpool

This study identified that Liverpool is on track to meet its dwelling targets and that there is no need to rezone land for additional dwellings in the short-medium term. Greenfield dwelling capacity may run out shortly before 2036 (or earlier if different housing demand assumptions are made), at which time additional greenfield development land may be needed.

Apart from the sufficiency of dwelling capacity in the Liverpool LGA, the following key issues have emerged from this study:

- Dwelling development is dominated by detached dwellings in greenfield areas and apartments in the Liverpool City Centre, which may not provide appropriate housing for a broad range of household types.
- While there are a variety of dwelling types in the Liverpool LGA, many parts of the LGA do not contain housing diversity and some people may struggle to enter the housing market as affordability decreases.
- While there is enough dwelling capacity, but some capacity is not feasible, particularly for apartment development outside the Liverpool City Centre.
- Housing affordability has declined and the demand for affordable housing far outstrips supply.
- The strategic context of the LGA is expected to evolve in the long-term with the opening of WSA and development of the Aerotropolis.
- The part of Warwick Farm north of the Hume Highway and west of the Railway Line and Holsworthy (assuming that the local centre is built) are the most appropriate places for higher-density housing development outside the Liverpool City Centre.
- The greatest infill development opportunities are in Moorebank, Chipping Norton, Liverpool, part of Lurnea and Casula and the 2168 housing estate. However, Moorebank and Chipping Norton also have consistent low-density suburban characters which should be considered as part of any planned redevelopment.

LIVERPOOL HOUSING STUDY

POLICY OPTIONS

SGS Economics & Planning

Local government role in housing policy

Many areas of housing policy relating to housing demand and supply are the responsibility of Commonwealth and State Governments. In general the Commonwealth government has responsibility for matters that relate to housing demand such as migration rates, while state and territory governments have responsibility for housing supply, including planning policy, infrastructure provision and housing regulation.

Local Government's responsibility relates to some areas of local planning and management for housing supply, primarily regulating private sector housing delivery. More detailed areas of responsibility and policies available to local government are noted in the diagram on the right.

Potential policy options for Liverpool within these categories are discussed on the following pages, including the pros and cons of each option and how it could apply to the Liverpool LGA. Which approaches are adopted as part of the local housing strategy are a policy decision that must be made by Liverpool Council.

Commonwealth Government role

- Housing demand impacted through population/migration policies as well as taxation and benefits for housing investors
- Social housing investment through National Housing and Homelessness Agreement (for social housing providers), National Housing Finance Investment Corporation (for community housing providers)
- Commonwealth private rental assistance as part of welfare payments
- Infrastructure investment in partnership with states and territories – including National Housing Infrastructure Facility to fund critical infrastructure for housing delivery

State & Territory Government role

- Public and community housing provision and management
- Infrastructure provision (transport, education, health etc) and investment, including low cost loans for local government infrastructure
- Land use planning legislation and framework, including regional and district planning and requirements for LG
- Major development (panels)
- Property taxes (including stamp duty on transfer)

Local government role

- Local land use planning and zoning
- Local development standards and regulation
- Local infrastructure provision
- Inclusionary zoning for affordable housing
- Redevelopment of Council property assets
- Advocacy and demonstration
- Property rates

Potential policy options

A housing strategy in Liverpool LGA should address the following issues which emerged in this study:

- Creating **dwelling diversity** in small areas across the LGA
- Addressing declining **housing affordability**
- Facilitating development **feasibility** where possible
- Ensuring that housing development meets **changing community needs**
- Investigating housing policies which respond to the changing **strategic context**
- Balancing the need for greater housing diversity with **local housing character**

Note that these objectives are not mutually exclusive. For example, increased dwelling diversity would provide opportunities for older people to downsize, ensuring housing meets their changing needs.

The following policies are available to Liverpool Council, ranked by the degree of intervention in the housing market and housing development as well as the amount of action which would be required by Council:

Advocacy	Advocacy to, and collaboration with, the NSW government regarding planning controls and housing policy . Demonstration of best practice and design quality.
Planning assessment processes	Regulating local development and building including assessment of development applications as well as compliance, although regulation of major development may be by state panels.
Changes to planning controls	Planning for housing location, including land use zoning and density controls through Council's Local Environmental Plan. Establishment of development control standards that regulate the form and density of housing provision (i.e. LEP and DCPs). These may include density incentives for particular kinds of housing or for affordable housing. Establishment of inclusionary zoning requirements for affordable housing that would add to housing supply for low-moderate income households.
Infrastructure funding and delivery	Local infrastructure provision which affect accessibility, amenity and liveability and may encourage denser forms of housing in higher-amenity and more accessible areas. Establishing development contributions requirements or agreements that require development to contribute to the provision local infrastructure and facilities, which would impact on the cost of housing.
Council assets	Potential use and development of Council property assets, which may include provision of affordable housing.
Development partnership	Partnerships with public and private land owners and developers to assemble sites for development, to conduct demonstration projects and to co-design sustainable development precincts.

These options are discussed on the following pages, although affordable housing mechanisms are discussed separately from others.

Housing affordability mechanisms

The following mechanisms are available to Liverpool Council to increase the supply of affordable housing:

- Putting a SEPP 70 contribution in place. More detail regarding different approaches to SEPP 70 are provided on the following page.
- Negotiating the delivery of affordable housing through VPAs
- Providing affordable housing through development of Council-owned land
- Providing density incentives that would assist community housing providers development

Even if all of these mechanisms were pursued, it would likely not be possible to deliver enough affordable housing to meet the demand. This reflects that most housing which will exist in Liverpool in 2036 already exists. Even if 10% of more of new housing that was provided was affordable, it would still be a modest share of the total housing in the LGA. NSW and Australian government investment would be needed to address more of the identified affordable housing demand.

Even if the overall demand for affordable housing cannot be met, Council can use the above measures to seek to increase the affordable housing supply. Requiring a development contribution for affordable housing is likely to yield the highest number of dwellings if the contribution is broadly applied, as the private housing development market accounts for almost all dwelling construction in the LGA. The other mechanisms listed above can increase the supply further, but would not deliver a significant amount of affordable housing by themselves.

Given Liverpool Council has a constrained set of 'levers' to meet the demand for affordable housing, the importance of retaining relatively affordable rental housing in the LGA is heightened. This housing is most concentrated in the walk-up apartments which fringe the Liverpool City Centre. Redevelopment of these dwellings would significantly reduce the supply of affordable rental housing and displace current tenants, who would likely be required to move out of the LGA. Secondary dwellings are also a source of relatively affordable rental housing for people if there is otherwise a lack of available small dwellings in an area.

Dwelling diversity	
Housing affordability	☑
Feasibility	☒
Changing community needs	
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Housing affordability mechanisms

SEPP 70 could be used to impose an affordable housing contribution in two different ways:

- A requirement for a contribution in particular sites or precincts following rezoning (this could be a percentage of the total uplift), or
- A percentage of total development in a broad area to be delivered as a contribution without rezoning occurring.

The first of these approaches would seek to capture some of the value created by rezoning land. As the value of land increases following rezoning, a contribution can require payment of some of this increase in order to deliver affordable housing. This would reduce the increase in the price that a developer could pay for land, but would not impact on development feasibility if the contribution size is appropriate. If a SEPP70 scheme only applies to particular precincts to be rezoned for additional development the total affordable housing contribution may be limited, as few if any rezonings are contemplated or required in the Liverpool LGA in the short to medium term.

The second approach identified above is to apply an affordable housing contribution more broadly. This is referred to as inclusionary zoning and considers provision of affordable housing as an important component of housing development in the same way that existing contributions seek to fund infrastructure upgrades made necessary as a result of development. An inclusionary zoning contribution would be applied even if the value of the land on which that development is to occur has not increased as a result of rezoning.

An inclusionary zoning contribution could take the form of a monetary contribution as a percentage of development cost or floor area, and could be applied to existing precincts like the Liverpool City Centre. It would probably be transitioned in over time (e.g. 2.5 % in 2 years, 5% after 5 years) to minimise effects on existing feasibility and land value. It would likely yield a higher total affordable housing contribution than under a contribution with an exclusively value-capture based approach, but could impact on development feasibility if not appropriately managed.

Value capture and inclusionary zoning affordable housing contributions are not mutually exclusive. If an inclusionary zoning contribution applies in a particular precinct, it may still be possible to capture additional value if the precinct is rezoned. Existing contribution amounts would form one input to feasibility modelling to determine appropriate value-capturing contribution rates.

Dwelling diversity	
Housing affordability	☑
Feasibility	☒
Changing community needs	
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Affordable housing mechanisms

SEPP 70 contribution

Pros:

- Does not place a fiscal burden on Council in the delivery of affordable housing.
- If applied with a broad base, this approach is likely to provide the highest yield of affordable housing.

Cons:

- A required contribution could reduce feasibility if applied in areas in which development is unfeasible or of marginal feasibility.
- A contribution would ideally be applied from when a precinct is initially zoned for development. Few additional precincts are likely to be rezoned in the short-medium term.
- High density precincts including the Liverpool City Centre have already been rezoned, and so a contribution cannot be applied from the outset. Rather, a contribution would need to be phased in over time, which may limit the resulting yield.

VPA negotiation

Pros:

- Does not place a fiscal burden on Council in the delivery of affordable housing.
- Could deliver additional affordable housing in some developments beyond contribution rates as site-by-site contributions can be negotiated.

Cons:

- May require the delivery of higher densities in private developments to incentivise the creation of affordable housing.
- Is likely to only yield a limited number of dwellings as contributions would need to be negotiated no a case by case basis and only large developments will be feasible enough to be able to make a contribution to affordable housing.
- VPA negotiations typically cover a variety of items such as additional infrastructure contributions, which could limit the scope for additional affordable housing contributions
- For transparency the development of an affordable housing policy should be the bases for VPA negotiations.

Development of Council-owned land

Pros:

- Allows creation of affordable housing which does not depend upon the initiation of development projects by private developers.

Cons:

- A limited number of Council sites are likely to be redeveloped at any one time.
- There may be opportunity costs associated with the development of Council owned sites, and so inclusion of affordable housing could reduce monetary returns to Council or the delivery of infrastructure or other public benefits.
- Effectively a subsidy from Council for affordable housing.

Density incentives for community housing providers

Pros:

- Can incentivise development in locations where other commercial developments may not be feasible.
- Does not place a fiscal burden on Council in the delivery of affordable housing.

Cons:

- Increases in density beyond may be required beyond those which would be appropriate with regard to urban design considerations.
- May requirement amendment to the LEP for density incentives or site-specific rezoning in partnership with community housing providers, requiring NSW Government approval.

Existing zoning framework

The zoning framework in the Liverpool LGA is set by the *Liverpool Local Environmental Plan 2008*, *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* and *State Environmental Planning Policy (State Significant Precincts) 2005.* Changes to these instruments could address some of the housing issues identified in this study. This could include changes to which zones are used in Liverpool, what is permissible in each zone and how much density and height is allowed.

The following are the main housing zones currently used in the Liverpool LGA:

- The **R1 General Residential Zone** applies to the greenfield development precincts of Edmondson Park, Middleton Grange and New Brighton. It permits a broad range of housing types. More detailed guidance about the form of future development is provided through development density controls in the Liverpool LEP and in the relevant development control plans.
- The **R2 Low Density Residential Zone** applies to much of the Liverpool LGA. Its intent is to provide for residential neighbourhoods with predominately separate houses and some semi-detached dwellings.
- The **R3 Medium Density Residential Zone** applies to large areas around Liverpool's local centres. Its intent is to facilitate medium density development including villa style developments and terraces, referred to as multi-dwelling housing in planning instruments. Most land covered by this zone contains separate houses.
- The **R4 High Density Residential Zone** applies in the Liverpool City Centre as well as around other large local centres such as Moorebank. Its intent is to facilitate apartment development. The density and height of apartment development is controlled by separate height of building and floor space ratio controls.

Housing development in the form of shop-top housing (generally apartments with retail on the ground floor) and mixed-use developments are also permitted in some of Liverpool's commercial zones: the **B1 Neighbourhood Centre, B2 Local Centre, B4 Mixed Use** and **B6 Enterprise Corridor** zones.

Development design standards are provided in development control plans (DCPs). Changes to these design standards could facilitate design outcomes which improve housing feasibility or suitability.

Potential LEP amendments

There is sufficient dwelling capacity in the Liverpool LGA under the current LEP and applicable SEPPs. Any changes to the Liverpool LEP should therefore seek to create dwelling diversity throughout the LGA, focused around local centres.

The current Liverpool LEP takes a centres-based framework, with R3 zones around local centres. As attached dwellings are already permissible, Council's options are to seek to facilitate development through more flexible provisions, expand permissibility to other attached dwelling types or to increase allowable densities to make development more feasible.

Council could pursue the following changes to the Liverpool LEP:

- Increase the size of the R3 zones around some local centres
- Replace some existing R4 zones with R3 zones
- Make dual occupancies permissible in some of the R1, R2 and R3 zones, in concert with application of the medium density code
- Review floor space ratios to ensure attached dwelling types are feasible
- Implement variable floor space ratios which are dependent on development type
- Insert density incentives for dwelling size mix in apartment developments
- Insert minimum density controls
- Increase allowable building heights in R3 zones

Potential LEP amendments

Downzoning some R4 zones to R3

Most of the capacity for residential flat buildings in the R4 zone outside of the Liverpool City Centre is unfeasible. This capacity is not needed to ensure sufficient capacity until 2036, as demonstrated in this report.

Land prices for properties zoned R4 are likely to be inflated by expectations of the possibility of apartment development. This is likely to reduce the feasibility and likelihood of development of multi-dwelling housing and other attached dwelling types. Rezoning some land from R4 to R3 would decrease development expectations and land prices and so encourage attached dwelling development. In this way, the R4 zone may be constraining rather than encouraging development. This could be confirmed by more detailed feasibility modelling.

The Medium Density Code applies in the R3 zone but not the R4 zone, and so downzoning would also encourage medium density development through a complying development pathway.

Some of the land zoned R4, particularly in the Eastern District, has a low-density suburban character. An R3 zone may be more compatible with the local character than the existing R4 zone.

Pros:

- Development permissible in the R3 zone may be more compatible with local character.
- The likelihood of development occurring in areas downzoned may increase.

Cons:

- Properties which are redeveloped for attached dwellings will be unavailable to be redeveloped in the future when there may be more demand for apartment buildings.
- Decreases in land values associated with this rezoning could disadvantage local land owners.
- Rezoning land would prohibit apartment development projects which are in the development pipeline but which do not have development approval.

Dwelling diversity	☑
Housing affordability	
Feasibility	☑
Changing community needs	
Local housing character	☑
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential LEP amendments

Increasing the size of R3 zones

While the 2008 Liverpool LEP took a centres-based approach and applied broad areas of R3 and R4 around centres in the east and centre of the LGA, there are some centres around which the R3 zone could be expanded. This would provide additional capacity for diverse dwelling types in parts of the LGA which currently have very little dwelling diversity. However, it would not address any lack of development feasibility.

Opportunities for infill development are generally low in the New Release District and western part of the 2168 District as lot sizes are mostly smaller than 600sqm (with some smaller than 450sqm) and site coverage is relatively high, suggesting that existing dwellings are relatively valuable and redevelopment may not be feasible.

Some centres in which this option could be pursued are listed on the following pages. These are potential zone expansions only, and any rezoning in these areas would need to follow from more detailed analysis.

Pros:

- Would create more capacity for dwelling diversity in areas with little current diversity if development was feasible.

Cons:

- Redevelopment may be viewed as incompatible with existing local character.
- Redevelopment is likely to be relatively unfeasible due to high site coverage and relatively high land prices.
- Sites are generally small in these areas, which limits infill opportunities.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☒
Strategic context	

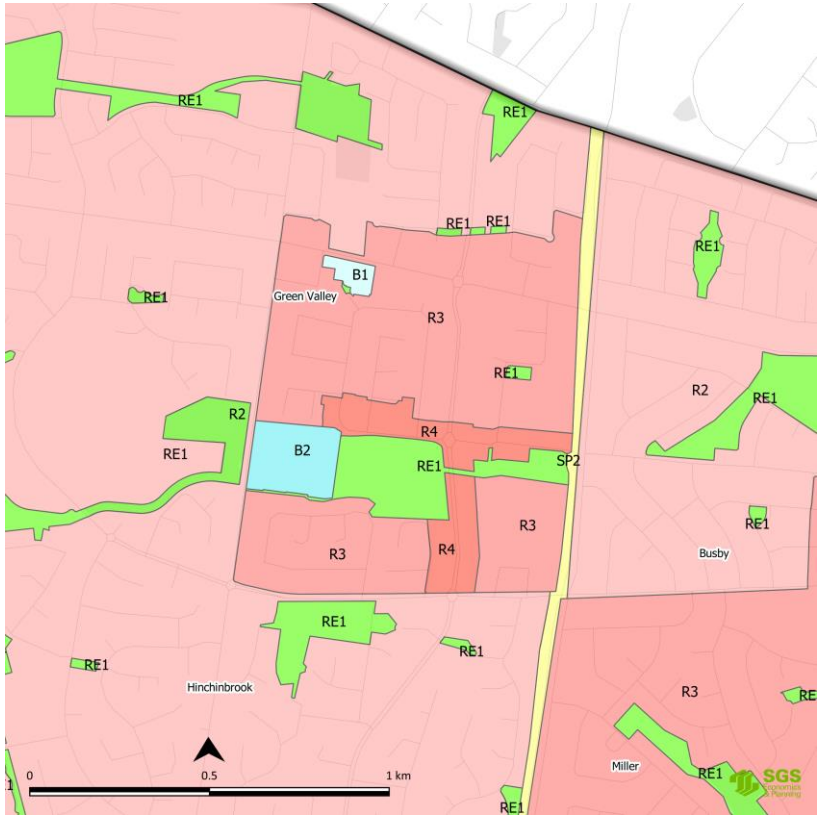
☑ Potential positive impact

☒ Potential negative impact

Potential LEP amendments

Increasing the size of R3 zones – Green Valley

The R3 zone around the Green Valley Centre predominately covers an area with lots of between 450-600sqm east of Wilson Road. There are larger lots west of Wilson Road where some redevelopment for medium density may be possible if the R3 zone was expanded.

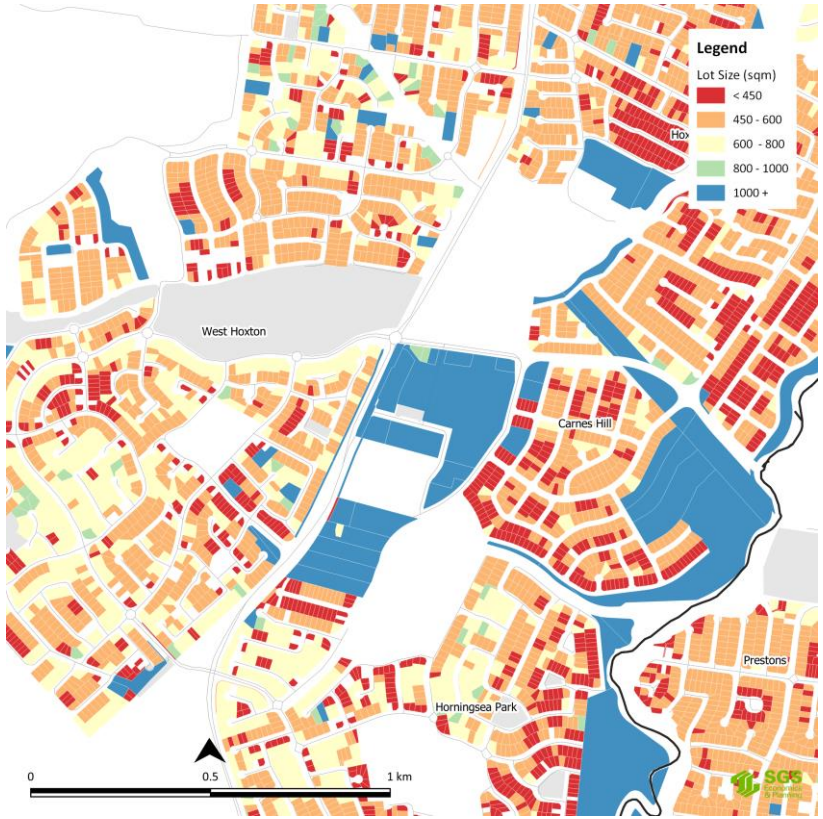


Potential LEP amendments

Increasing the size of R3 zones – Carnes Hill

The R3 zone around the Carnes Hill Centre predominately covers an east of Cowpasture Road and the existing centre in which recent greenfield development has occurred. Despite the R3 zone, there are almost no attached dwellings in this area. The R3 zone could be expanded on the western side of Cowpasture Road if pedestrian connections to the Carnes Hill Centre were improved, but the relatively small lot sizes in West Hoxton and its recent development would likely limit infill opportunities.

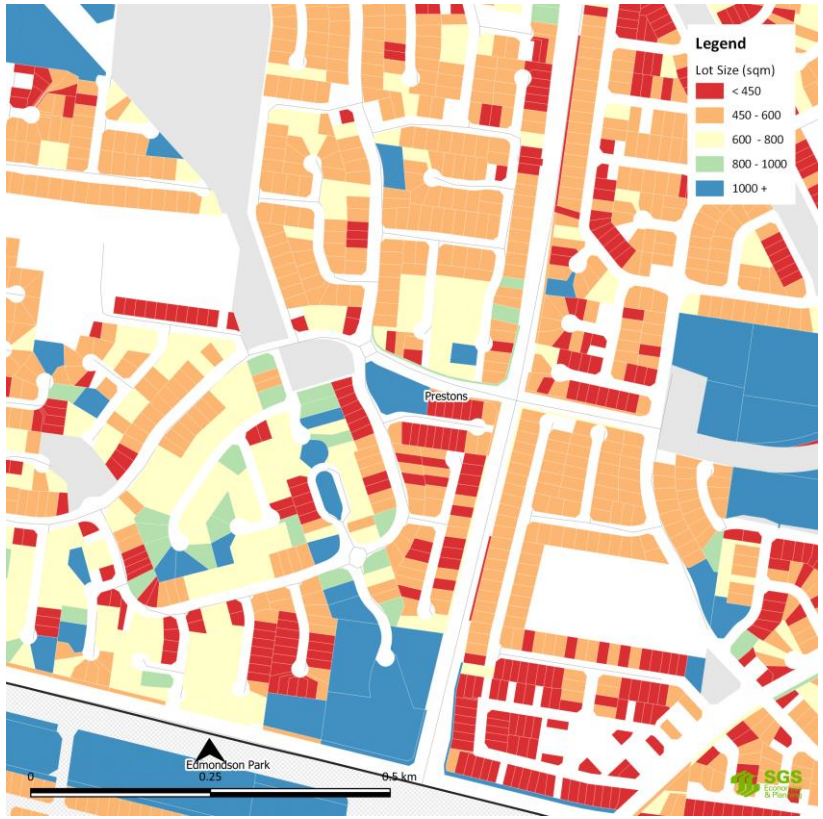
Any development on the remaining undeveloped land zoned R3 south of the Carnes Hill Centre should include attached dwellings to increase housing diversity in this area.



Potential LEP amendments

Increasing the size of R3 zones – Prestons

The R3 zone around the Prestons Local Centre extends east to Bernera Road and south to Camden Valley Way. It does not extend very far west of the local centre, and could be extended in that direction, particularly around the transmission line and open space corridor. There are a number of larger sized lots east of the Prestons Local Centre. These lots are located on courts, and any medium-density development would need to consider appropriate design responses at the ends of the courts to limit driveway dominance of the road. The large houses and land values in this area could limit the feasibility of medium density redevelopment.



Potential LEP amendments

Make dual occupancies permissible

Dual occupancies are currently not permissible in the Liverpool LGA. Instead semi-detached dwellings are permissible, and so a site must be subdivided for a dual-occupancy style development to occur. This gives Council control over the size of development sites through the minimum lot size LEP control. It also means that the dual occupancy provisions of the Medium Density Code would not apply to the established parts of the Liverpool LGA.

If the Code applies to the Liverpool LGA, more capacity for infill development could be created by making dual occupancies permissible in the R2 and R3 zones. Council could limit the extent of permissibility of dual occupancies under the code by applying a specific minimum lot size for dual occupancies in the Liverpool LEP.

The amount of capacity which would be created by this approach is explored in the discussion of the medium density code in Appendix A.

Complying development is an easier development pathway which may encourage development, but limits Council oversight of development or the opportunities of neighbours and other stakeholders to make submissions about proposed development.

Pros:

- Would encourage dual occupancy development, which would increase dwelling diversity.
- Could encourage development in areas with smaller lot sizes in which it would be otherwise unlikely to occur.
- Would reduce the difficulty of obtaining approval for infill development for proponents by allowable complying development dual occupancies.

Cons:

- Would limit Council oversight of infill development.
- Neighbours and other stakeholders could not make submissions on complying development applications prior to determination.
- Making dual occupancies permissible in the R2 zone would allow them to be built throughout the LGA and it would be difficult for Council to direct where this development would occur.
- Council would not be able to use DA assessment to ensure that design responses have been provided to site-specific development constraints.
- Council could not revise the development standards in the Code applying to the LGA if they are found to be inappropriate for the local context.
- Complying development in Cartwright could lead to inappropriate designs which do not address the internal path network.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☒
Strategic context	☒

☑ Potential positive impact

☒ Potential negative impact

Potential LEP amendments

Increased or variable floor space ratios

The allowable floor space ratios (FSRs) of residential flat buildings and medium density development types could be reviewed. Increasing allowable development density would increase development feasibility, particularly for apartment developments.

Multi-dwelling housing development may be constrained by physical lot area and the need for vehicular access to dwellings, which usually takes the form of a central driveway. If this is the case, increasing the FSR would not increase development feasibility. If car access was provided through a basement car park, an increase in FSR may allow more dwellings to be delivered and increase feasibility. However, basement car parking is expensive for developers and could reduce development feasibility.

Variable FSRs could also be applied, with higher FSRs for particular development types which Council wants to encourage. For example, a higher floor space ratio could apply for terrace-type developments depending on site area, similar to the approach taken in the Medium Density Code. This would limit the built form impacts which could result from a more broad-based FSR change.

Pros:

- Could make development more feasible, which would encourage greater dwelling diversity.
- Requires minimal changes to the existing land use planning framework, and would be consistent with the aims of the existing zones.

Cons:

- Allow larger developments may not be consistent with local character.
- Increasing development density without increasing allowable building height may require higher site coverage and reduced permeable surfaces, leading to a less sustainable built form.

Dwelling diversity	☑
Housing affordability	
Feasibility	☑
Changing community needs	
Local housing character	☒
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential LEP amendments

Increase allowable building heights

Increasing allowable building heights would provide more flexibility for diverse housing types. For example, three storey terrace-housing and master-planned multi-dwelling housing developments could be built in high-amenity locations near centres where they would improve local urban design.

A detailed understanding of local housing character and desired built form outcomes would be needed if Council was to pursue this option. Uniformly increasing allowable building heights across a large area could lead to relatively high density infill development which is incompatible with local character interspersed with detached housing. However, if master-planning occurs for key areas, a slightly increased height limit (for example three storeys) matched with an appropriate FSR could encourage medium density development.

Increasing the allowable height for residential flat buildings in some cases could provide flexibility in building design if slender apartment buildings are considered to be an appropriate built form outcome. However, it could also lead to development which is overly visually prominent and casts extensive shadows.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☒
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Pros:

- Could encourage medium density housing development higher than two storeys.
- Could provide flexibility in apartment building design.
- If appropriately master-planned on a precinct basis, could complement the urban design of areas around centres.

Cons:

- Could lead to higher buildings interspersed with low-rise detached houses, harming local housing character.
- If applied to areas zoned for apartment buildings, could increase visual prominence, shadowing and other amenity impacts.

Potential LEP amendments

Density incentives for apartment diversity

There are many couple families with children who live in apartments in the Liverpool City Centre. There is likely to be continued demand in the future for dwellings which meet the needs of families but which are more affordable than separate houses. Family friendly apartments could fill this role, however almost all new apartments built in Liverpool have two bedrooms. Increasing the number of three-bedroom apartments could provide more options for families in the future.

A greater proportion of three bedroom apartments in new developments could be generated through density bonuses, with higher FSRs available for developments which provide greater housing diversity. The size of this density bonus would need to follow from urban design considerations such as appropriate building height and bulk and from testing of the impact of proposed bonuses.

Pros:

- Could encourage greater housing diversity in apartment developments.
- Could lead to more apartments which meet the needs of families and other large household types.
- Would note require the use of prescriptive design controls which could impact on development feasibility.

Cons:

- Higher densities may be inappropriate in some places.
- If there is not a strong enough market demand for three bedroom apartments, bonuses may have little effect.
- Three bedroom apartments are generally relatively expensive and may not provide an affordable housing option.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	☑
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Design mechanisms

Council could seek to deliver greater housing diversity and feasibility and to ensure that housing is suitable for the community's needs through ensuring appropriate development design. This could be implemented through changes to development design controls, and through development assessment processes and procedures.

Potential design mechanisms available to Council include the following:

- Master-planning of local centres and surrounding growth areas
- Residential requirements for retail developments
- Family friendly apartment guidelines
- Diverse car parking guidelines
- Housing mix and type controls
- Revise minimum site frontage and area standards

Potential design mechanisms

Centre catchment master-planning

Infill housing development can create conflicts with existing local character, particularly where detailed design work is not done to fit redevelopment into the local context. Master-planning of redevelopment precincts, particularly the areas immediately adjacent to local centres, could address this issue.

Master-planning of the area around local centres would ensure that redevelopment is integrated with the existing and future design of the centre, and with local housing character. The benefits of master-planning could stretch beyond local character compatibility to include increasing accessibility to local centres and services, providing a high-amenity public domain with good urban design and facilitating planning for any required infrastructure upgrades. There are diverse ways in which the Liverpool LEP could be amended, including using a highly permissive and flexible R1 zone, removing floor space ratio controls and providing building envelopes as well as detailed master-plan in the DCP.

Master plans could be developed in consultation with the local community, which has the potential to partly de-politicise future development applications.

Pros:

- Could encourage diverse housing redevelopment if additional land is rezoned for redevelopment or flexible design controls are put in place.
- Involvement of the local in the master-planning process could generate.
- Identifying desired housing forms and densities provides a basis to plan for local infrastructure upgrades.
- Connectivity and integration of local centres could be improved.

Cons:

- Creating many master plans would be time consuming and expensive for Council.
- Broad-based consultation with the community using abstract concept-plans could be misleading as to what kind of development is likely to occur, and could generate a negative reaction, particularly if people feel that their views are not listened to.
- Master-plans which do not alter allowed housing density or the flexibility of design controls are unlikely to encourage additional housing development.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☑
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential design mechanisms

Family friendly apartments

There are many couple families with children who live in apartments in the Liverpool City Centre. There is likely to be continued demand in the future for apartments which meet the needs of families which are more affordable than separate houses or which provide the convenience of a centre-based location.

To cater to this demographic group, Council should ensure that new apartments which are built in the future can meet the needs of a family. Multiple elements of apartment design influence its suitability for families, including size, number of bedrooms, storage space, ability for play spaces to be watched by parents elsewhere and noise proofing.

Council could seek to ensure that new apartments are suitable for families through design standards and through development assessment. Two potential mechanisms for ensuring suitable design are:

- Reviewing existing design standards against family-friendly apartment guidelines
- Regulating the bedroom mix of new apartments

Potential design mechanisms

Family friendly apartment guidelines

Creating guidelines and design standards for family-friendly apartments would allow Council to communicate how apartments could be made more suitable for families. Council could use guidelines, or updated design standards in the Liverpool DCP, as part of development assessment.

Council's current controls may make sufficient provision for family-friendly apartments by particular design issues, or there may be limited scope to expand current requirements. This could be examined through a review of design controls against dedicated guidelines from other jurisdictions, such as Vancouver's 'High Density Housing for Families with Children Guidelines'.

Pros:

- Could make apartments more family friendly, meeting community needs.
- Would not require changes to the local planning framework.

Cons:

- Council is relatively constrained with regard to what it can consider in assessment of apartment development applications by SEPP 65, which may limit the impact of guidelines or new design controls.
- Significant changes to apartment designs may impact on development feasibility and may not be accepted by developers.

Dwelling diversity	
Housing affordability	
Feasibility	
Changing community needs	☑
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential design mechanisms

Housing mix and type controls

Large households may require larger apartments with multiple bedrooms for children, or members of the extended family. Council could ensure that these larger apartments are available by establishing apartment mix guidelines for new developments in either the Liverpool DCP or LEP. For example, a percentage of apartments could be required to have three bedrooms.

Apartments are typically more attractive to families if they have access to large amounts of private open space, for example in courtyards, and if they are located on the ground floor of developments. However, developers who are required to provide a large number of three bedroom apartments may locate them in otherwise less attractive parts of the development such as along southerly elevations with little solar access. For this reason, apartment mix and type controls should be complemented by policies regarding where large apartments should be located to be suitable for families or other diverse household types.

Pros:

- Could make apartments more family friendly, meeting community needs.
- Would increase dwelling diversity.

Cons:

- Significant changes to apartment designs may impact on development feasibility and may not be accepted by developers.
- Large new apartments with three or more bedrooms are typically expensive and may not provide affordable housing.

Dwelling diversity	☑
Housing affordability	
Feasibility	☒
Changing community needs	☑
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential design mechanisms

Flexible car parking requirements

Basement car parking is one of the most expensive parts of new residential developments in which it is provided. It significantly adds to the cost of new apartments for buyers and can reduce development feasibility. Developments which provide less car parking spaces or which provide car parking in other ways than in a basement under the development will cost less to construct. If there is a market demand for this kind of development, this could increase development feasibility. In the longer term, reducing car usage in the LGA, particularly in places like the Liverpool City Centre which are well connected transport network, would reduce carbon emissions and increase sustainability. Potential design control changes to facilitate this outcome are explored on the following page.

Most households in the Liverpool LGA own one or more cars, as shown earlier in this report. Journey to work statistics indicate that most trips in the Liverpool LGA take place using a car. Car ownership is much lower in the Liverpool City Centre, and while most households still have one or more cars and the average number of cars per household living in an apartment is 1.1, around 20% of households do not own a car.

The proportion of households in the Liverpool City Centre without a car suggests a potential market for more affordable apartments without a car space attached. As the City Centre and Liverpool LGA more broadly continues to develop, the size of this market is likely to increase. This creates an opportunity to encourage people to shift their travel behaviour, which would reduce the congestion impacts of more people moving into the Liverpool City Centre. As apartment development in the Liverpool City Centre is currently feasible, changes to car parking requirements should aim to improve sustainability, congestion, urban design and housing affordability instead of to make development feasible.

In places like Moorebank where some recent apartment development has occurred but development is only marginally feasible or unfeasible, feasibility of apartment development may be increased. Providing flexibility in how car spaces are provided in medium density development could also increase development feasibility for innovative attached housing types and increase the number of sites which are suitable for medium density infill development. Decoupling the location of car parking from the location of dwellings in particular would facilitate redevelopment of existing suburbs.

In parts of the LGA without access to high-quality and high-frequency public transport, mobility is dominated by the car and developments without car spaces may be less saleable than other developments. Making it difficult for people to own a car in these areas in the short-medium term could decrease their mobility, limiting their ability to access employment, services and leisure. Reducing car dependence through transformative shifts in public transport provision and nearby land uses may be possible, but in the longer-term.

Pros:

- Could increase feasibility of apartment development.
- Could increase the number of sites suitable for medium density development.
- If high-quality public transport is available, could encourage more sustainable travel behaviour and reduce congestion.

Cons:

- Could lead to worse design outcomes if not appropriately implemented, for example large amounts of surface car parking or unsleeved above-ground car parking in apartment developments.
- Developers may not adapt novel or innovative car parking solutions, limiting the effectiveness of this option.
- If less car parking is provided, people may still own cars but may park them on local streets, reducing the availability of on-street parking for existing residents.

Dwelling diversity	☑
Housing affordability	
Feasibility	☑
Changing community needs	
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential design mechanisms

Flexible car parking requirements

A revision of Council's DCP controls could facilitate diverse car parking design options. Flexibility could also be increased by developing some 'alternate' best practice design worked examples in the DCP.

There are several changes to development controls which could facilitate more flexible car parking approaches in developments. Because of variations in public transport accessibility, development context and demographics, these approaches should be tailored to different parts of the LGA. In some cases, design solutions such as delivering some car spaces at grade, partly underground, above ground in the building or separately to the development may be possible. However, increases in development feasibility would need to be balanced against potential impacts on urban design or the public domain.

Potential design control changes include:

- Reducing minimum car parking provision requirements would leave the development industry and housing market to determine how much car parking is provided. It would be expected that where people need to own a car for most of their travel there would be little demand for dwellings without car parks. As such dwellings would not be expected to be provided, this would limit the any impacts on population mobility, making this change appropriate for application in a variety of places.
- Requiring a proportion (for example 15%) of apartments to be provided without car parks. This approach could be applied in the Liverpool City Centre where public transport availability is high and would cater to the potential market for more affordable new apartments without car spaces.
- Providing a maximum car parking provision rate. This approach should only be applied where there is a high level of accessibility to high-quality public transport as well as to retail and services, for example within the walking catchment of the Liverpool Train Station inside the Liverpool City Centre.
- Reducing how prescriptive design controls are regarding car parking design within the DCP and in development assessment practices. Innovative cap parking solutions as part of a development could be instead be explored in consultation with Council's traffic engineers.

Shifts towards more sustainable travel behaviour could also be encouraged by additional requirements including:

- Requiring proponents for large developments to provide a sustainable transport plan.
- Increasing bicycle parking and motorcycle parking requirements.
- Encouraging the provision of car sharing spaces in and near large developments, reducing the need for people to own a car while still making car travel possible for occasional trips.

Dwelling diversity	☑
Housing affordability	
Feasibility	☑
Changing community needs	
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Potential design mechanisms

Revise minimum site frontage and area standards

Reducing minimum site frontage and site area standards for multi-dwelling housing and other medium density development types in the Liverpool DCP would increase infill capacity capacity. However, there is a significant amount of capacity for medium density infill development in the Liverpool LGA under current site area and frontage controls, as demonstrated by the capacity analysis in this report.

Rather, any reduction in site requirements would increase capacity in the more recently developed areas in the Council which contain smaller properties and in which capacity for infill is currently limited. The recent nature of development in these areas could discourage significant infill development from occurring.

Pros:

- Would increase infill development capacity, particularly in parts of the Council with smaller property sizes in which this capacity is limited.

Cons:

- Parts of the LGA which would benefit from this reduction have relatively high property values and site coverage, which could limit the feasibility of redevelopment.
- Redevelopment of smaller sites may have poor design outcomes or be incompatible with local character.
- Could impact on the amount of land available for deep soil zones and in which trees could be planted.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☒
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Assessment processes

Seeking increased dwelling diversity through planning proposals

Where proponents are seeking for a site to be rezoned, Council could seek a diversity of dwelling types to be delivered. Where apartment developments are proposed, Council could seek a greater proportion of large or three bedroom apartments. In large master planned developments, Council could also seek a range of housing typologies such as townhouses and apartments.

Where increased development densities are proposed as part of planning proposals, Council could secure greater housing diversity as a public benefit while facilitating greater housing supply. However, any planning outcome secured through this process would need to be appropriate with regard to infrastructure availability, urban design, environmental constraints, Council's planning policies and any other relevant strategic planning considerations.

Agreed dwelling diversity outcomes could be facilitated through the creation of site specific masterplans encoded in the DCP which would be used when DA assessment occurred.

Pros:

- Would deliver increased dwelling diversity and supply
- Development plans agreed with proponents are more likely to be developed in the short-term than plans completed independently by Council

Cons:

- If housing diversity is seen as a cost by proponents, its provision could compete with the provision of infrastructure upgrades, affordable housing and other public benefits
- Delivery of affordable housing could be seen to excuse otherwise inappropriate planning outcomes
- Could encourage site-specific planning proposals, which could undermine Council's strategic processes and plans.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☒
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Local infrastructure provision

The availability and quality of local infrastructure has a significant impact on suitability and demand for higher-density housing. In general, improving local infrastructure and transport accessibility will increase housing demand, making medium and higher density housing more feasible.

Council could improve the public domain in order to stimulate local development and increase feasibility. Major infrastructure investment, such as the proposed rapid bus route to the Western Sydney Airport, is likely to significantly increase feasibility and could be leveraged for transit-oriented development.

Some of the cost of local infrastructure works could be recovered from development contributions from new development. However, as it may be some time before a significant amount of development occurred, funding of catalytic infrastructure would be out step with contribution receipts.

Dwelling diversity	
Housing affordability	
Feasibility	☑
Changing community needs	
Local housing character	
Strategic context	☑

☑ Potential positive impact

☒ Potential negative impact

Pros:

- Council increase development feasibility in places in which development is currently unfeasible and is unlikely to become so in the short-medium term.
- Could take advantage of catalytic major infrastructure investments.
- Some funding could be recovered from development contributions.

Cons:

- Significant amounts of development may not occur if development does not become feasible due to the perception of the area or the broader property market.
- Could require Council funding in advance of any potential development contributions.
- Council is likely to have multiple infrastructure funding priorities which may not accord with opportunities for infill housing.

Local infrastructure provision

Varying development contributions

Development contribution rates could be varied, requiring less contributions for diverse housing types which Council wants to encourage. This would reduce development costs, which would make development more feasible and allow some reduction in new dwelling prices.

Current contribution rates in the Liverpool LGA outside of greenfield areas are relatively low, and so there is limited scope for variations in rates for some development types. Even if rates were higher, contributions are a relatively small part of the price of a new dwelling and so varying rates is likely to have a limited impact on overall dwelling diversity and feasibility.

Development contributions are intended to fund required infrastructure to support population growth. Reducing contribution rates risks leaving a funding shortfall whereby Council will have to fund a greater proportion of infrastructure from other revenue sources, or will not be able to provide required infrastructure.

Dwelling diversity	
Housing affordability	
Feasibility	☑
Changing community needs	
Local housing character	
Strategic context	☑

☑ Potential positive impact

☒ Potential negative impact

Pros:

- Could make development more feasible and reduce new dwelling prices.
- Could be targeted to particular dwelling types and places.

Cons:

- Is likely to have a limited effect due to the relatively small size of development contributions, particularly in the Liverpool LGA.
- Risks compromising funding and delivery of required infrastructure.

Advocacy

Advocacy to and collaboration with other levels of government

As noted above, Council has a relatively limited role in housing provision, with the land use system planning set by the NSW Government, which also delivers public housing and major infrastructure, and many demand-side housing policies controlled by the Australian Government.

An important part of Council's work is to advocate for better housing outcomes to these other levels of government. While Council is only one voice among many that will comment on significant policy change, policy submissions require a minimal outlay of Council time and money. In addition, Council is uniquely placed to comment on issues which primarily affect its local community, planning and infrastructure.

In many cases, the NSW Government (and sometimes Australian Government) will collaborate with Councils and other relevant agencies on local policies, infrastructure investment and planning controls. The Western Sydney City Deal is one example of this collaboration, as is the indicative layout of greenfield development precincts.

There are many outcomes which Council could seek through advocacy, but some which have emerged from this study are:

- The provision of additional transport infrastructure and public transport services to improve accessibility to parts of the LGA, making them more appropriate for diverse and medium-density housing
- Changing planning controls in greenfield areas to reduce site coverage and deliver real medium density dwellings instead of detached houses on ever small lots
- The exclusion of the medium density code from Cartwright where it could lead to inappropriate design outcomes
- The provision of additional affordable housing, including public housing
- Continued planning for the delivery of a rapid transport connection from Liverpool to the Western Sydney Airport, with potential transit oriented development along the route

Advocacy

Pattern books and guidelines for development

In cases in which the development industry is reluctant to provide certain dwelling forms or innovative design features, agencies such as Council can advocate with a pattern book of example and exemplary developments and with guidelines for development.

This is the approach that the NSW Government has taken in creating the Medium Density Housing Code. A design competition was run for medium-density infill housing, and the best designs profiled. Design guideline documents were created which include example floorplans and specify in detail the design objectives which should be achieved.

This kind of advocacy can be expensive and requires a high profile in order to be effective. It is most appropriate for the NSW Government or high-profile groupings of councils or similar bodies. However, Council could take a leadership role in advocating for particular kinds of development, for example medium-density greenfield development, greenfield town-centre housing development or medium-density development with diverse parking solutions.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	☑
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Pros:

- Could encourage development of diverse and innovative dwelling types which the development industry is reluctant to develop.

Cons:

- Can be expensive to develop.
- Requires a high profile in order to be effective.
- May not generate significant development if partnerships are not built with local developers.

Development partnerships

Redevelopment of public housing

The Land and Housing Corporation has been redeveloping public housing estates through the Communities Plus program. Under this program housing is redeveloped at high densities with a much larger private component. Sales of the private component fund the overall redevelopment, resulting in renewal of public housing stock even if the number of public housing dwellings does not increase.

There is a large amount of public housing in the Liverpool LGA, most notably in Warwick Farm, Liverpool and the Green Valley Estate. Redevelopment in some of these areas could improve built form design outcomes and the perception of safety as well as providing newer public housing that is more suitable for the community's needs. Associated increases in density would increase local dwelling diversity.

Public housing in Warwick Farm north-west of the railway line would likely be particularly suitable for redevelopment. In the proximity analysis earlier in this report, this area was found to be the most suitable place in the LGA for additional high-density housing.

Facilitating the redevelopment of public housing estates would be a long process, in which Council would need to collaborate extensively with the Land and Housing Corporation. Council has previously completed the Miller Master Plan considering some development around the Miller Town Centre. This could be built upon in partnership with the Land and Housing Corporation to provide a blueprint for public housing renewal in the area.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	☑
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Development partnerships

Council could collaborate with local developers to create demonstration projects or to provide design input for a large development or precinct.

Creating demonstration projects would provide an advocacy platform for diverse and innovative housing products in a similar way to developing a pattern book. However, demonstration projects are shown to be realisable.

Partnering with the development industry in the design of a large development or precinct would expand Council's current role and be in addition to the assessment of planning proposals and development applications.

This would have to be structured to ensure probity in decision-making, but the advantages would include Council being able to encourage alternative building envelopes and design elements that may not occur otherwise but which could form 'deemed to comply' examples in the development control plan.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	☑
Local housing character	
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

Pros:

- Could lead to improved development designs
- Could encourage development of diverse and innovative dwelling types which the development industry is reluctant to develop

Cons:

- Requires Council to take an active and potentially difficult role collaborating with the development industry, which is not a role often taken by Councils
- Would require development of a probity plan to guide the collaborative process to ensure that independent decision making for development assessment occurs.

Long-term strategic planning

The development context of the Liverpool LGA is changing, with significant development occurring in the Liverpool City Centre, infrastructure investment occurring, the construction of the Western Sydney Airport and planning for the proposed Badgerys Creek Aerotropolis. The housing mechanisms summarised above respond to current planning issues but are not intended to provide a response to these long term issues.

Western Sydney Airport is not proposed to open until 2026, and is expected to be a relatively small airport for some time after that. For this reason, the Badgerys Creek Aerotropolis would not be expected to cause significant disruption to the Liverpool housing context until towards the end of the timeframe for this study. Immediate planning changes in response are not required at this point. However, Council may want to delay redevelopment of any land around Fifteenth Avenue that could be more intensively redeveloped in the future when a rapid transport connection to the Aerotropolis is opened.

To respond to the disruptive factors changing Liverpool's housing context, it will be important for the Council to continue to consider how proposals such as the Aerotropolis will impact on housing in the LGA. Council should review its planning framework in the future in response to any substantial changes in infrastructure plans or new planning for the aerotropolis.

Dwelling diversity	☑
Housing affordability	
Feasibility	
Changing community needs	
Local housing character	☒
Strategic context	

☑ Potential positive impact

☒ Potential negative impact

LIVERPOOL HOUSING STUDY

APPENDIX A

Medium Density Housing Code SEPP

SGS Economics & Planning

Medium Density Housing Code

The Medium Density Housing Code (the Code) in the *SEPP (Exempt and Complying Development) 2006* allows dual occupancies, terraces and manor houses to be approved through complying development when these development types are permissible in the R1, R2, R3 and RU5 zone and certain numerical standards are met. Torrens and strata-title subdivision of the resulting development can also be approved as complying development.

Liverpool Council, along with many other LGAs, has been granted a temporary deferral from the Code.

Under the Liverpool LEP and State Significant Precincts SEPP (which applies to Edmondson Park South), dual occupancies are not permissible. The dual occupancy provisions in the Code would therefore not apply to established parts of Liverpool Council or Edmondson Park. Terraces and Manor Houses could be approved through the Code in the R3 and R4 zones in established suburbs.

The Growth Centres SEPP contains the zoning provisions for Austral and East Leppington. It permits dual occupancies and multi dwelling housing throughout the R2 and R3 zones, and so complying development dual occupancies, terraces and manor houses would be possible if the Code applied to these areas. Applicability of the Code to greenfield developments is discussed in more detail below.

Instrument	Zone	Dual occupancies	Terraces	Manor houses
Liverpool LEP 2008	R1	Prohibited	Permissible	Permissible
	R2	Prohibited	Prohibited	Prohibited
	R3	Prohibited	Permissible	Permissible
SEPP (Sydney Region Growth Centres) 2006 Appendix 8	R2	Permissible	Permissible	Permissible
	R3	Permissible	Permissible	Permissible
SEPP (State Significant Precincts) 2005 Schedule 3 Part 31	R1	Prohibited	Permissible	Permissible

Permissible

Prohibited

Medium Density Housing Code

The table on the right shows minimum lot sizes and frontages for each kind of development under the *Liverpool DCP 2008* and under the Code.

The Code would substantially reduce the minimum lot size and frontage for dual occupancy development if dual occupancies were permissible under the Liverpool LEP. They are currently not permissible, and so without a change to permissibility the minimum lot size under the Liverpool LEP of 300sqm would continue to mean that a 600sqm site would be required for development of an attached dwelling.

The minimum lot sizes and frontages for multi-dwelling housing under the *Liverpool DCP 2008* and the Code are not substantially different. However, the yield under the Code for a manor house of 4 dwellings would be likely to be greater than the achievable multi-dwelling housing yield for the same site under the Liverpool LEP and DCP.

Housing Development Type	Measure	Liverpool DCP 2008	Low Rise Medium Density Code
Dual Occupancies	Minimum area (sqm)	600*	400
	Minimum frontage (m)	-	12
Multi dwellings housing (terraces)	Minimum area (sqm)	650	600
	Minimum frontage (m)	18	18
Manor houses	Minimum area (sqm)	-**	600
	Minimum frontage (m)	-**	15

* Note that dual occupancies are prohibited under the Liverpool LEP. The provisions shown are for attached dwellings.
** Note that there are no minimum standards for manor houses under the LDCP 2008, although if they are classed as multi-dwelling housing the minimum area and frontage presented for terraces would apply.

Medium Density Housing Code

Established areas

The table on the right shows the number of properties which could be developed without amalgamation in the established areas of the Liverpool LGA if the Code applied and dual occupancies were permissible.

The numbers in these rows cannot be added, as a property could be developable under the Code for multiple different dwelling typologies.

A large number of properties could be developed using the Code in every district. Under the Code, the minimum lot size and area requirements for dual occupancies are the least restrictive, and so the number of sites on which dual occupancies could be built is much larger than the number of sites on which manor houses or terraces could be built. However, there are still a substantial number of sites on which manor houses or terraces could be developed, particularly in the Eastern District.

Even if the Code applied, it would be expected that some of these properties would be developed through a development application process with site amalgamation as this would permit a higher yielding development.

	Zone	Dual occupancies	Manor houses	Terraces
2168 District	R2	5,554	-	-
	R3	2,274	764	372
	R4	733	278	142
	Subtotal	*8,561*	*1,042*	*514*
Eastern District	R2	4,414	-	-
	R3	3,428	2,142	1,514
	R4	227	201	159
	Subtotal	*8,069*	*2,343*	*1,673*
Established District	R2	6,734	-	-
	R3	2,718	1,434	718
	R4	549	265	139
	Subtotal	*10,001*	*1,699*	*857*
New Release District	R2	4,849	-	-
	R3	656	238	166
	Subtotal	*5,505*	*238*	*166*
Total		**32,136**	**5,322**	**3,210**

Medium Density Housing Code

Established areas

The table on the right shows the number of properties which could be developed without amalgamation in the established areas of the Liverpool LGA if the code applied and dual occupancies were permissible. Properties are only included in each column if the development yield under the Code would be the same or larger than the allowable yield under the Liverpool LEP and DCP. In this case development under the Code is likely to occur, while otherwise development through a development application is more likely.

The numbers in these rows cannot be added, as a property could be developable under the Code for multiple different typologies.

The total numbers of properties reported in this table for each dwelling typology are almost as high as the numbers on the previous page. This means that the yield of most development permitted under the Code is as high or higher than the yield permitted under the Liverpool LEP and DCP.

If dual occupancies were permissible and the Code applied, 15,796 properties which currently could not be developed without amalgamation could be developed with a dual occupancy. These properties are spread across every district, including the New Release District where there is currently little capacity for infill development.

District	Highest yielding development type without the Code	Dual occupancies	Manor houses	Terraces
2168 District	**No development possible**	4,088	6	3
	Attached dwellings	3,470	590	201
	Multi-dwelling housing	-	155	136
	Subtotal	*7,558*	*751*	*340*
Eastern District	**No development possible**	2,722	17	11
	Attached dwellings	3,912	1,017	395
	Multi-dwelling housing	-	1,078	782
	Subtotal	*6,634*	*2,112*	*1,188*
Established District	**No development possible**	5,537	8	5
	Attached dwellings	3,152	868	156
	Multi-dwelling housing	-	503	396
	Residential flat building	-	1	1
	Subtotal	*8,689*	*1,380*	*558*
New Release District	**No development possible**	3,665	10	10
	Attached dwellings	1,604	120	48
	Multi-dwelling housing	-	95	89
	Subtotal	*5,269*	*225*	*147*
Total		**28,174**	**4,482**	**2,239**

Medium Density Housing Code

Established areas

The table on the right shows the increase in capacity in the established areas of the Liverpool LGA if the Code applied and dual occupancies were permissible. This increase is listed by the highest yielding development type for each property, and so the total shows how much capacity would increase by if the Code applied and dual occupancies were permissible. Note that the entries on this table have been rounded, and so some of the totals are slightly larger than the sum of the values shown.

This is a substantial increase in total capacity, although not all of this capacity would be feasible or likely to be developed.

If dual occupancies remained prohibited in established areas, only the manor house and terrace portions of this table would apply. In this case, total dwelling capacity would increase by 7,454.

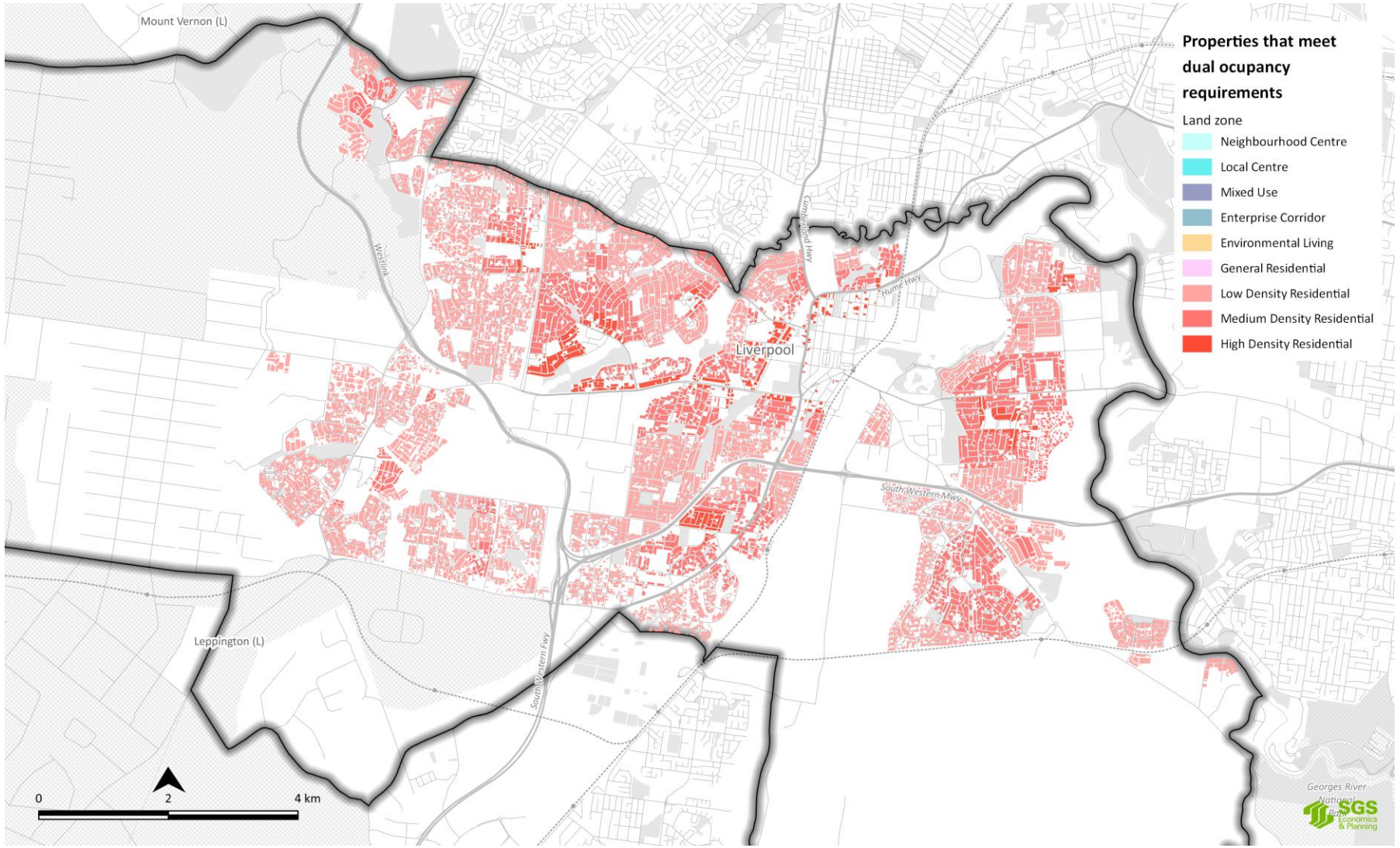
District	Dual occupancies	Manor houses & terraces	Total
2168 District	8,164	1,386	9,550
Eastern District	5,626	3,315	8,941
Established District	11,085	2,336	13,421
New Release District	7,370	416	7,786
Total	**32,245**	**7,454**	**39,699**

Dual occupancies

The figure on the right shows properties which are zoned R2, R3 or R4 and which have an area of at least 450sqm and a frontage of at least 12m.

If dual occupancies were permissible in the Liverpool LGA and the Code applied, all of these sites could be developed as dual occupancies using a complying development pathway.

Almost all sites zoned R2, R3 or R4 in the established parts of Liverpool LGA meet these minimum area and frontage requirements, with applicable sites spread across the established suburbs of the LGA.

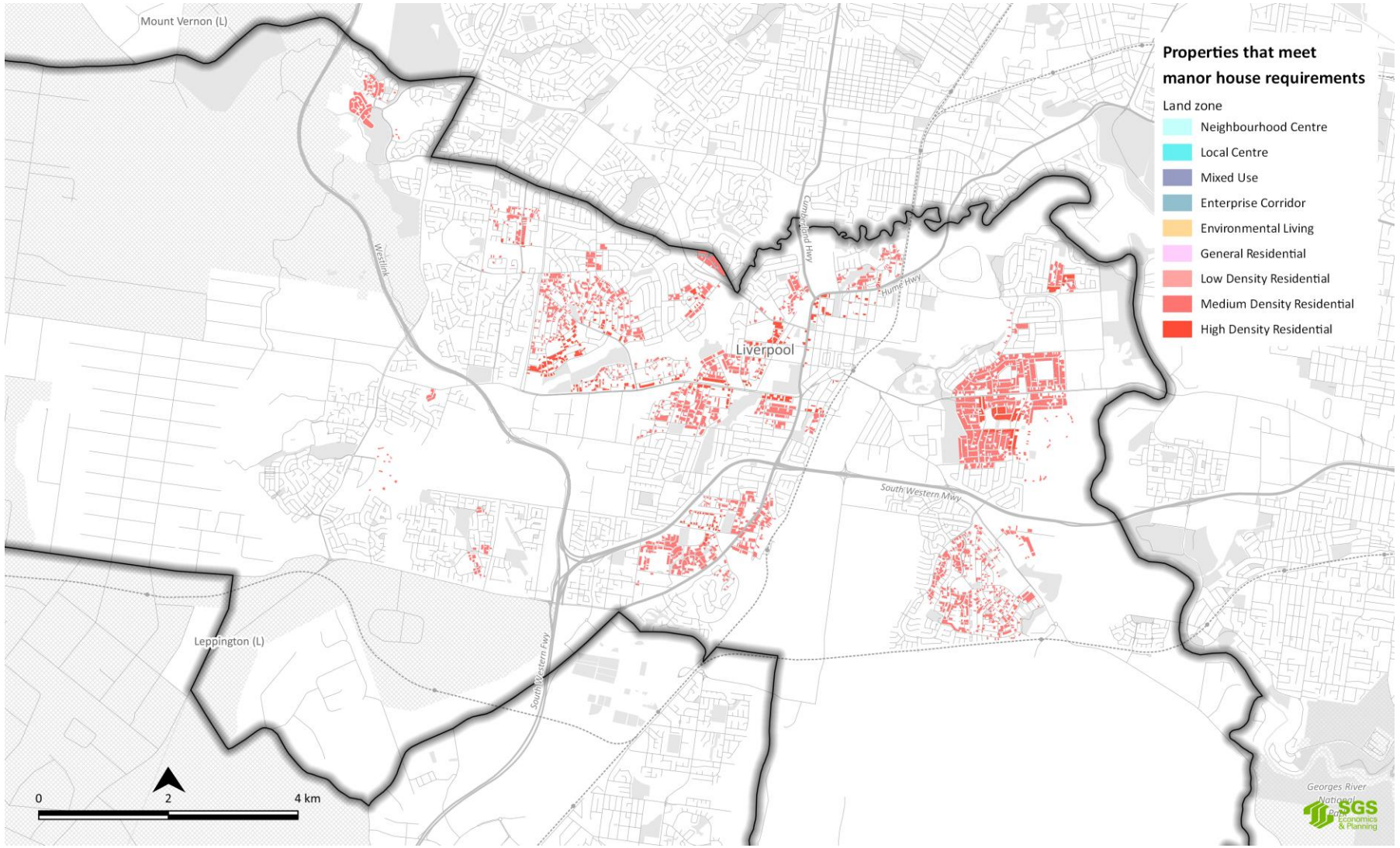


Manor houses

The figure on the right shows properties which are zoned R3 or R4 and which have an area of at least 600sqm and a frontage of at least 15m.

If the Code applied in the Liverpool LGA, all of these sites could be developed as manor houses using a complying development pathway without site amalgamation.

A large number of sites meet these area and frontage requirements, particularly in Moorebank and Chipping Norton.

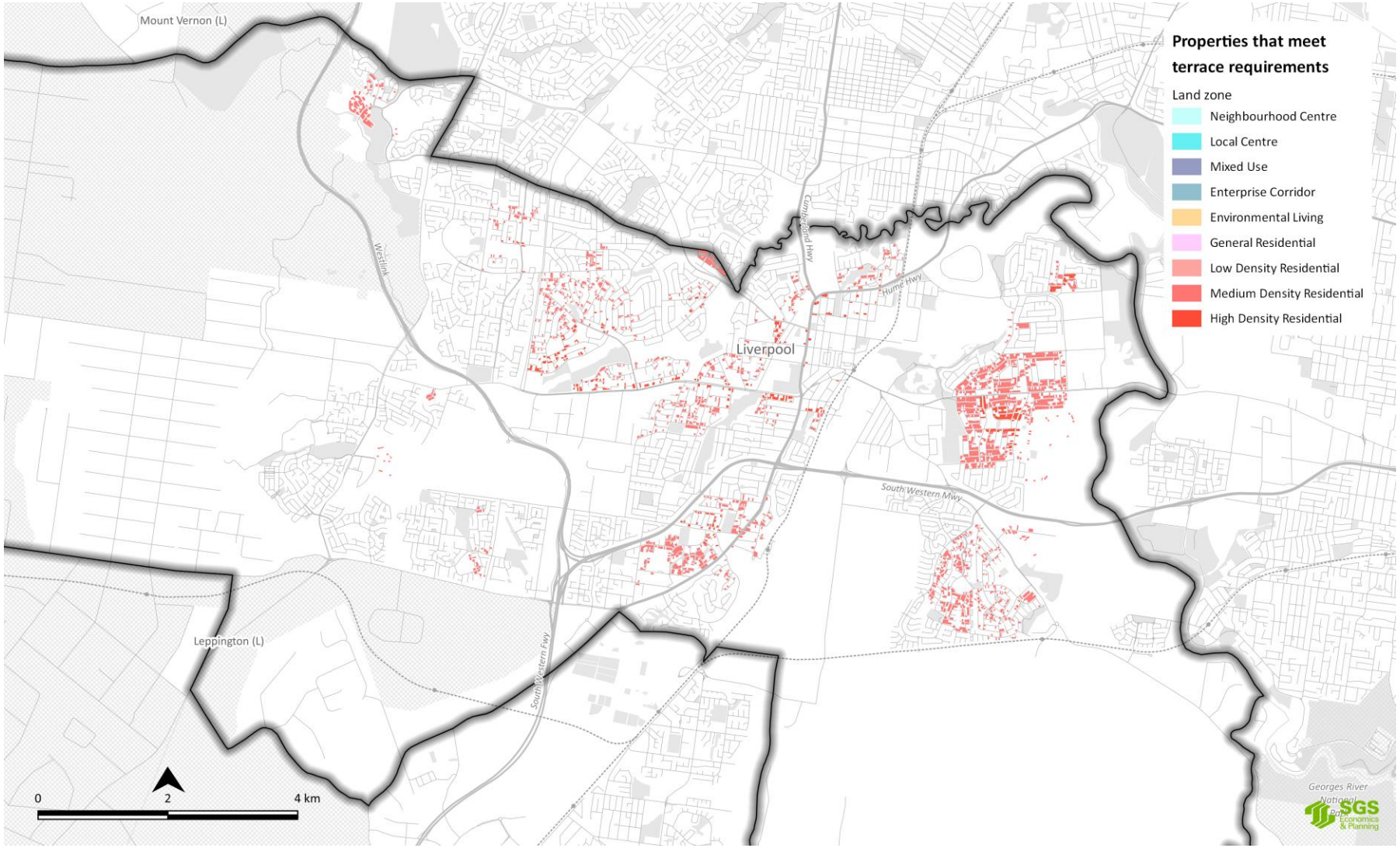


Terraces

The figure on the right shows properties which are zoned R3 or R4 and which have an area of at least 600sqm and a frontage of at least 18m.

If the Code applied in the Liverpool LGA, all of these sites could be developed as three or more terraces using a complying development pathway without site amalgamation.

There are less sites which could be developed as terraces than which could be developed as manor houses due to the increased frontage requirement. Nonetheless, most sites zoned R3 or R4 in Moorebank and Chipping Norton, and many sites in other parts of the LGA, meet these requirements.



Medium Density Housing Code

Greenfield development

Clause 3C.1 of the *SEPP (Exempt and Complying Development Codes) 2008* relates to the Greenfield Housing Code and contains the following provisions:

(1) This code applies to land within the Greenfield Housing Code Area

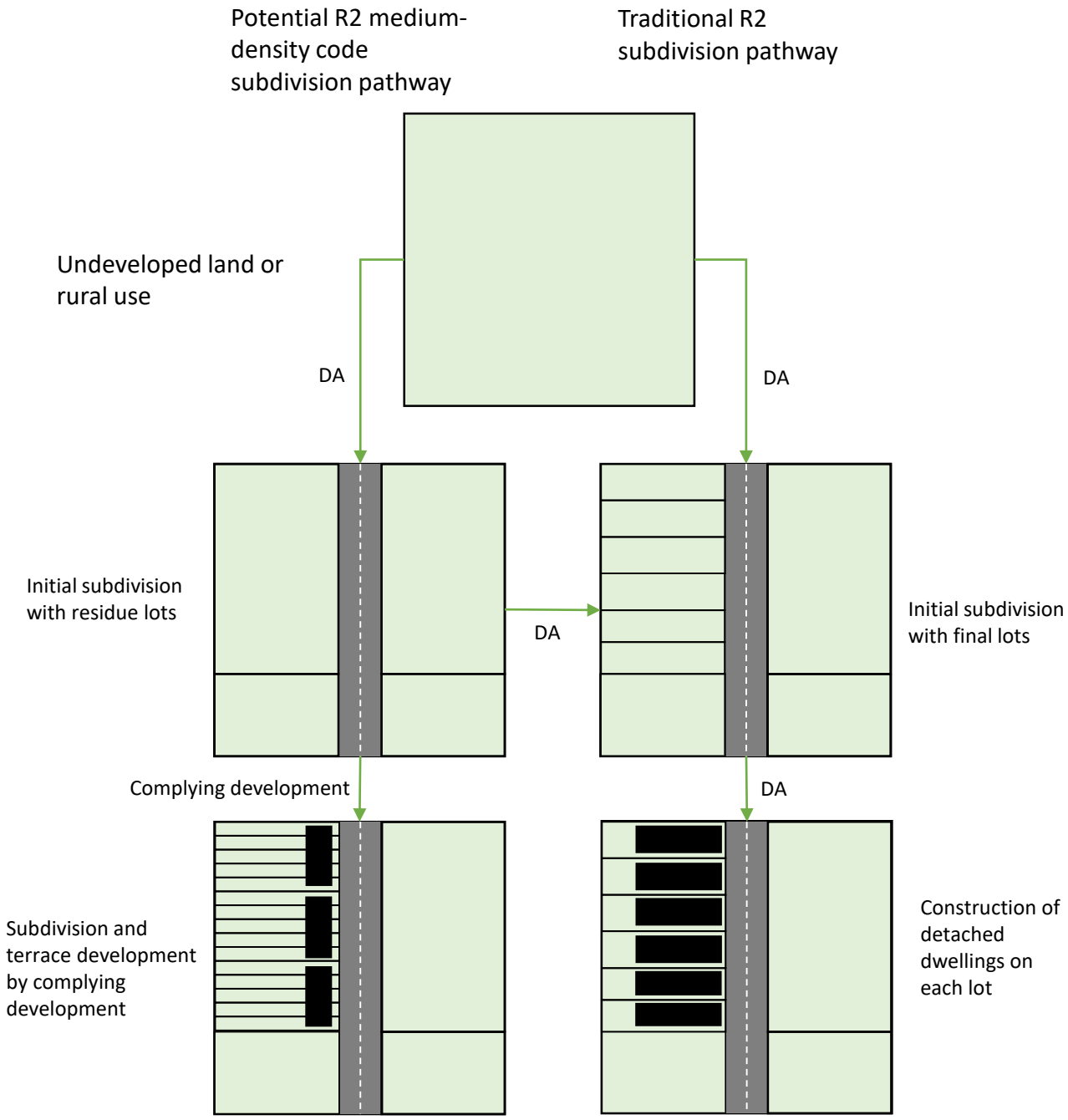
(2) This code applies to the exclusion of any other code for complying development

These provisions appear to mean that the Medium Density Code does not apply to greenfield development areas within the Liverpool LGA. However, if this were not the case and the Medium Density Code did apply, the medium density code could be used to circumvent dwelling density and subdivision design controls usually enforced through DA assessment.

Using the Code, a proponent could:

- Put roads and services on a site, but leave all or some of the land to be used for residential allotments as residue lots. There are a variety of reasons a proponent would do this besides seeking to use the Code.
- Obtain a complying development certificate for terrace or manor-house development on the residue lots, even if the zone is R2 and the intended density is 15-20 dwellings/ha.
- Obtain a complying development certificate to torrens-title subdivide the resulting terrace development, or strata-title subdivided manor house developments.

This would lead to development which is much more dense than what has been planned for in local infrastructure planning. However, it does have the potential to increase dwelling diversity.



Medium Density Housing Code

Greenfield development

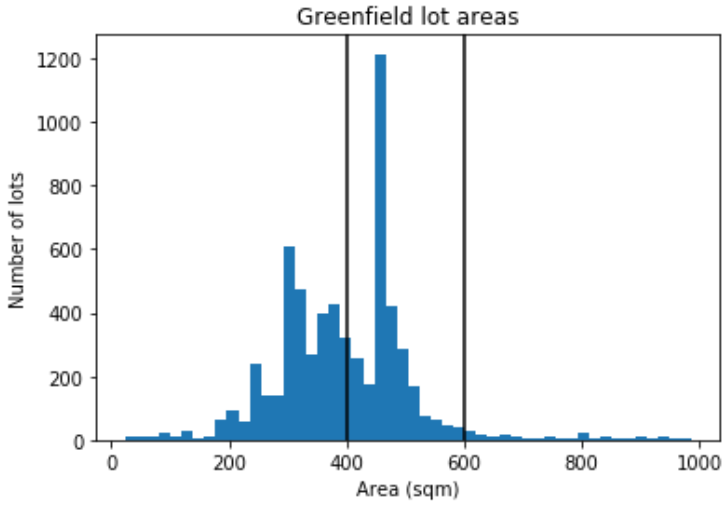
The Medium Density Code has the following minimum property size requirements:

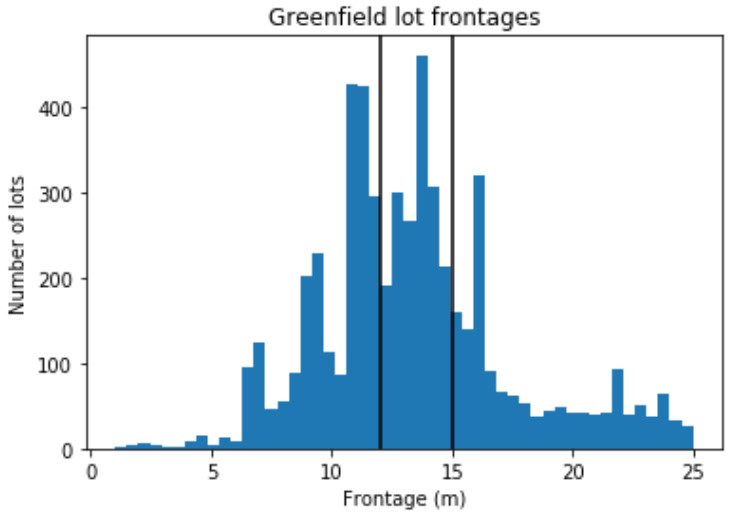
Development Type	Minimum lot size (sqm)	Minimum street frontage (m)
Dual occupancy	400	12
Manor house	600	15
Terraces	600	18

Existing detached dwellings would be unlikely to be redeveloped as they were built recently. However, if the dimensions of sites in the future is the same as the dimensions of sites developed recently, this gives an indication of what proportion of future greenfield sites the Code could apply to, presuming there were no covenants or other mechanisms to prevent multiple dwellings being constructed on a single site. This is shown to the right.

Current greenfield site dimensions show that a significant proportion fit the Code's minimum criteria for dual occupancies, but hardly any do for manor houses or terraces.

Note that only single residential allotments have been included in this analysis.





Development Type	Dual occupancy	Manor house	Terraces
Proportion of greenfield housing sites developable under the Code	43.4%	1.9%	1.7%

LIVERPOOL HOUSING STUDY

APPENDIX B

Additional housing character mapping

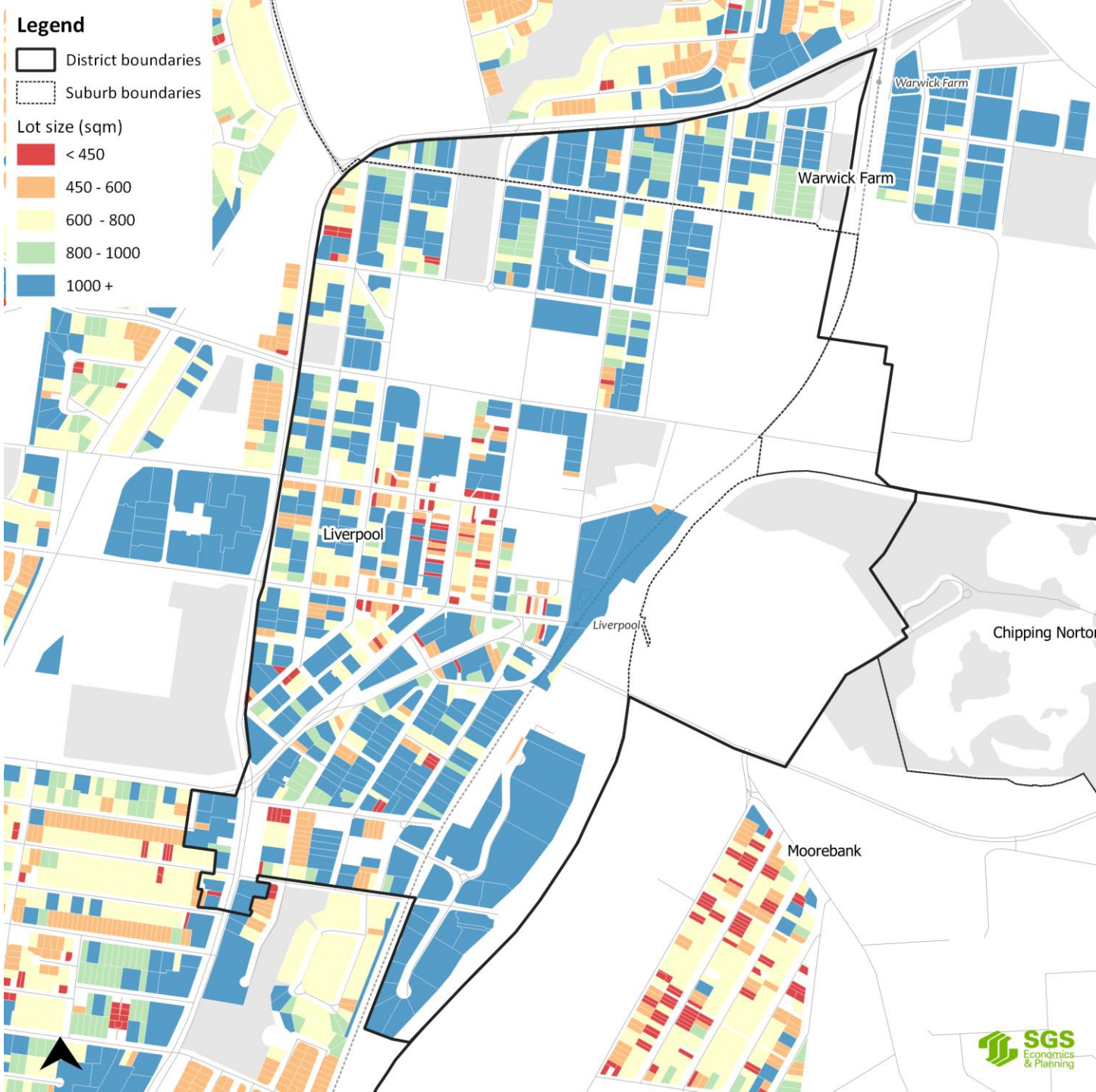
SGS Economics & Planning

Liverpool City Centre District

Lot Size

The City Centre District has a relatively high proportion of larger lots which is consistent with typologies that are usually found in commercial cores.

The lots in the traditional retail areas along Macquarie Street and George Street are smaller, while the commercially zoned lots in the south-western part of the City Centre are larger.

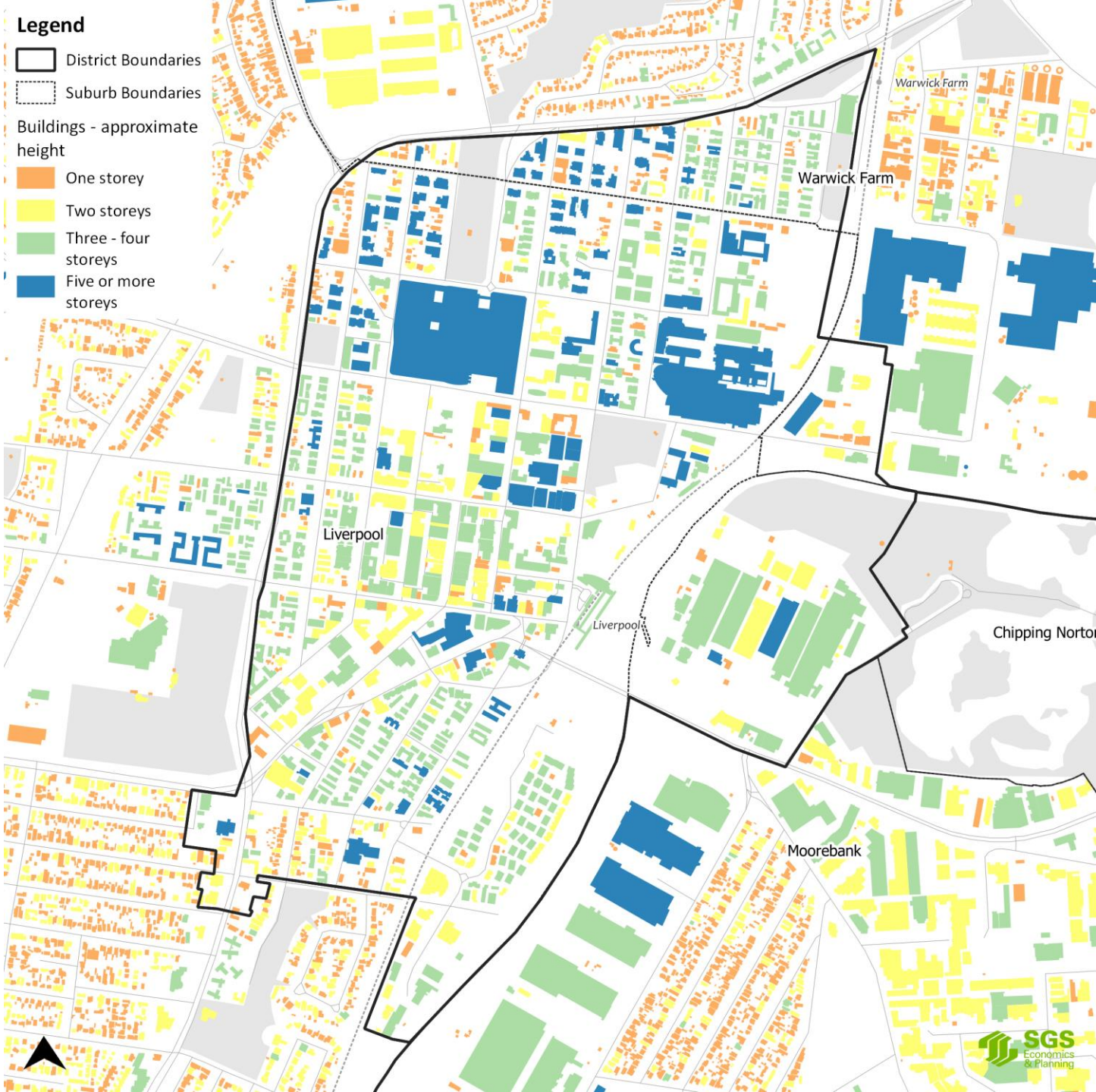


Liverpool City Centre District

Approximate building height

The building heights in the Liverpool City Centre are indicative of a high-density area and reflect the range of development typologies. The figure on the right shows approximate building height, although in some cases two storey commercial development is recorded as three storey development.

Three-four storey walk ups are the most common typology. The northern part of the City Centre contains larger apartment buildings. Heights are lower around the traditional retail strip along Macquarie Street north of Scott Street.



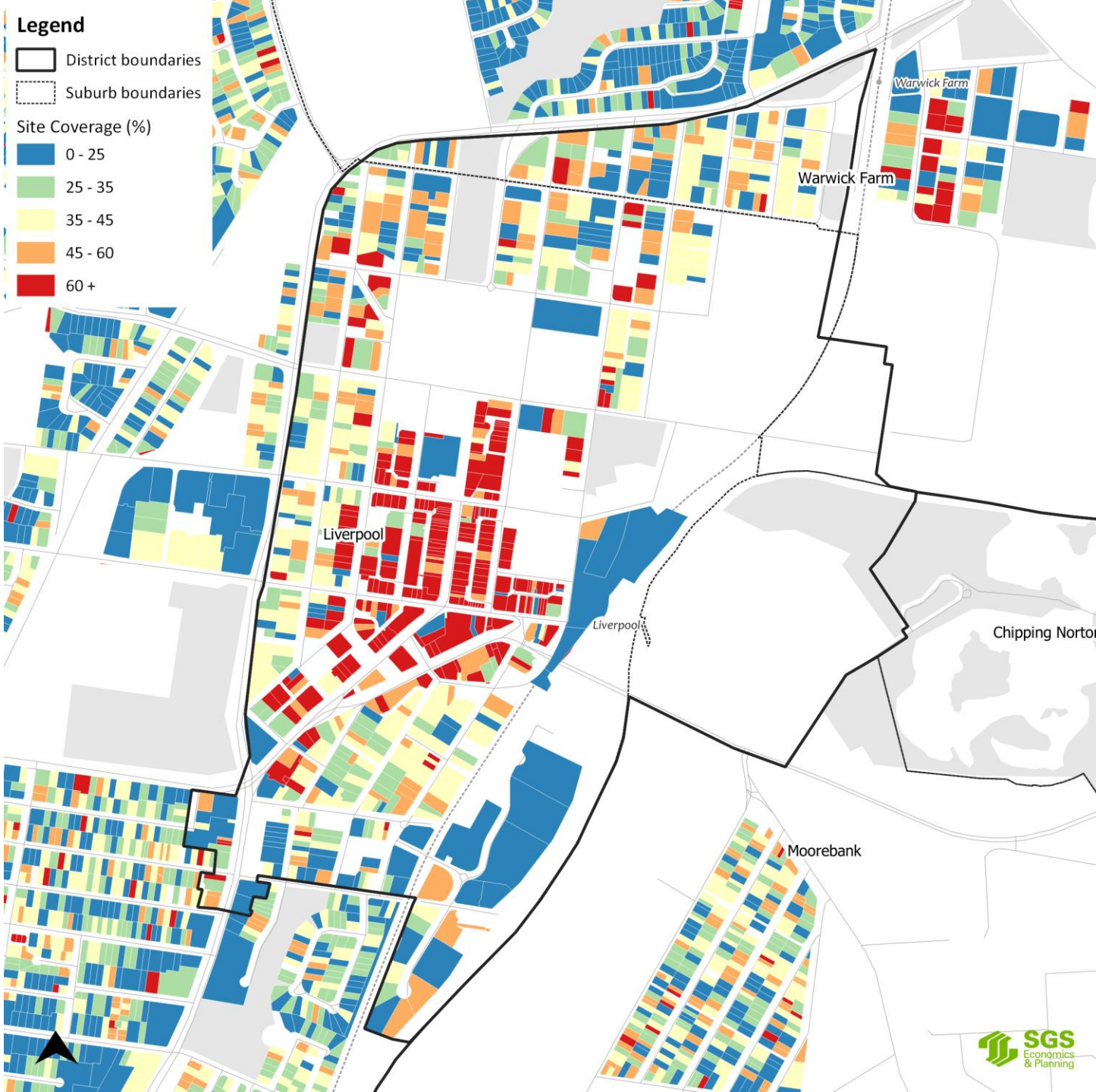
Liverpool City Centre District

Site coverage

The Liverpool City Centre District accommodates the highest density in the LGA.

There is very high site coverage on the large lots within the commercial part of the City Centre, reflecting the built up commercial and retail environment.

Walk-up flats on the periphery of the City Centre have lower site-coverage with some landscaped setbacks. Newer apartment developments generally have higher site coverages.

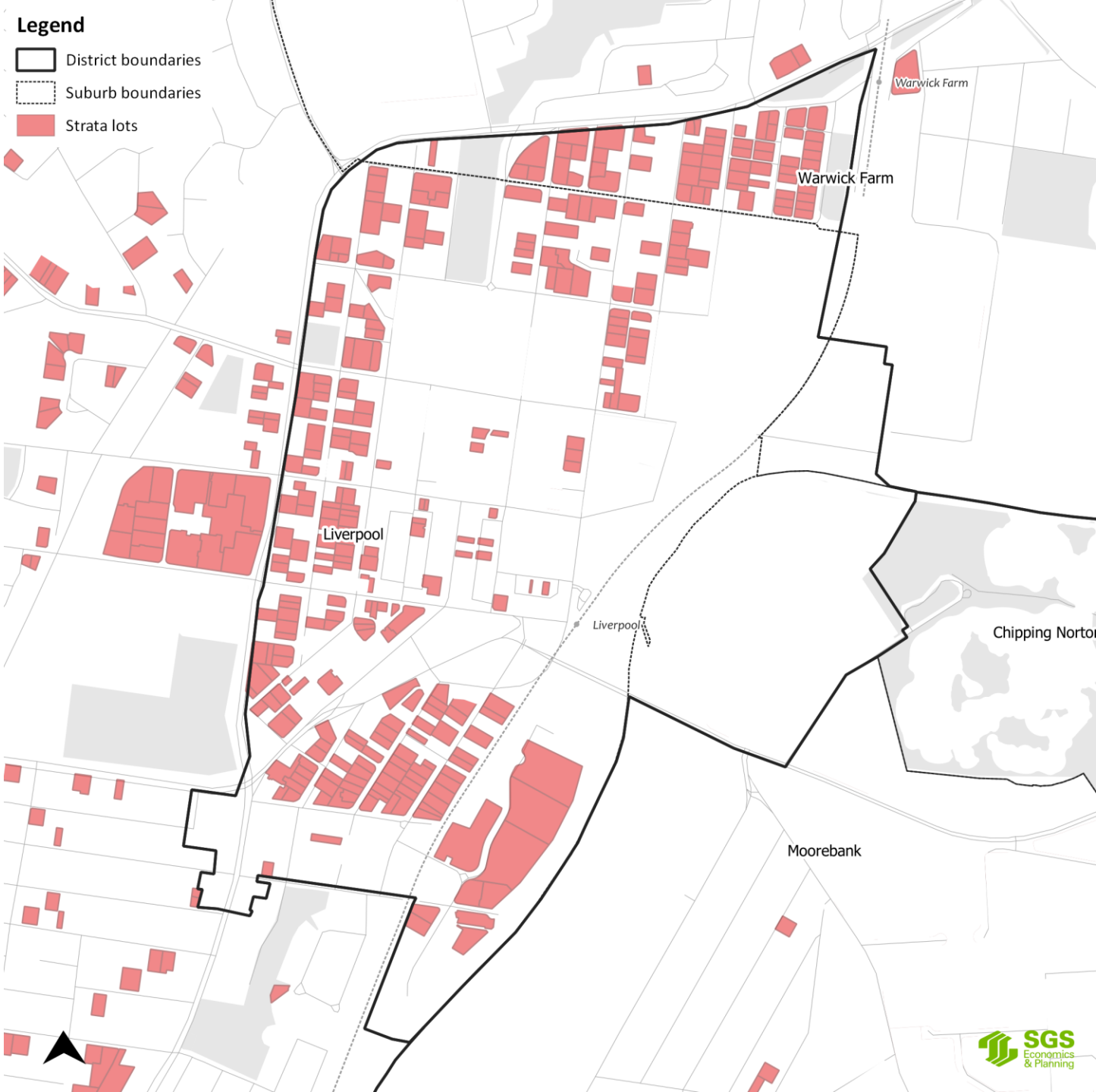


Liverpool City Centre District

Strata subdivision and road layout

Almost all residential flat buildings around the Liverpool City Centre are strata subdivided, while most of the commercial area is not strata-subdivided. This provides opportunities for potential redevelopment of the commercial land under the current B4 zoning. By contrast, the distributed ownership of strata-subdivided apartment blocks around the edge of the Liverpool City Centre is likely to constrain any redevelopment.

The Liverpool City Centre has a strong traditional grid layout.

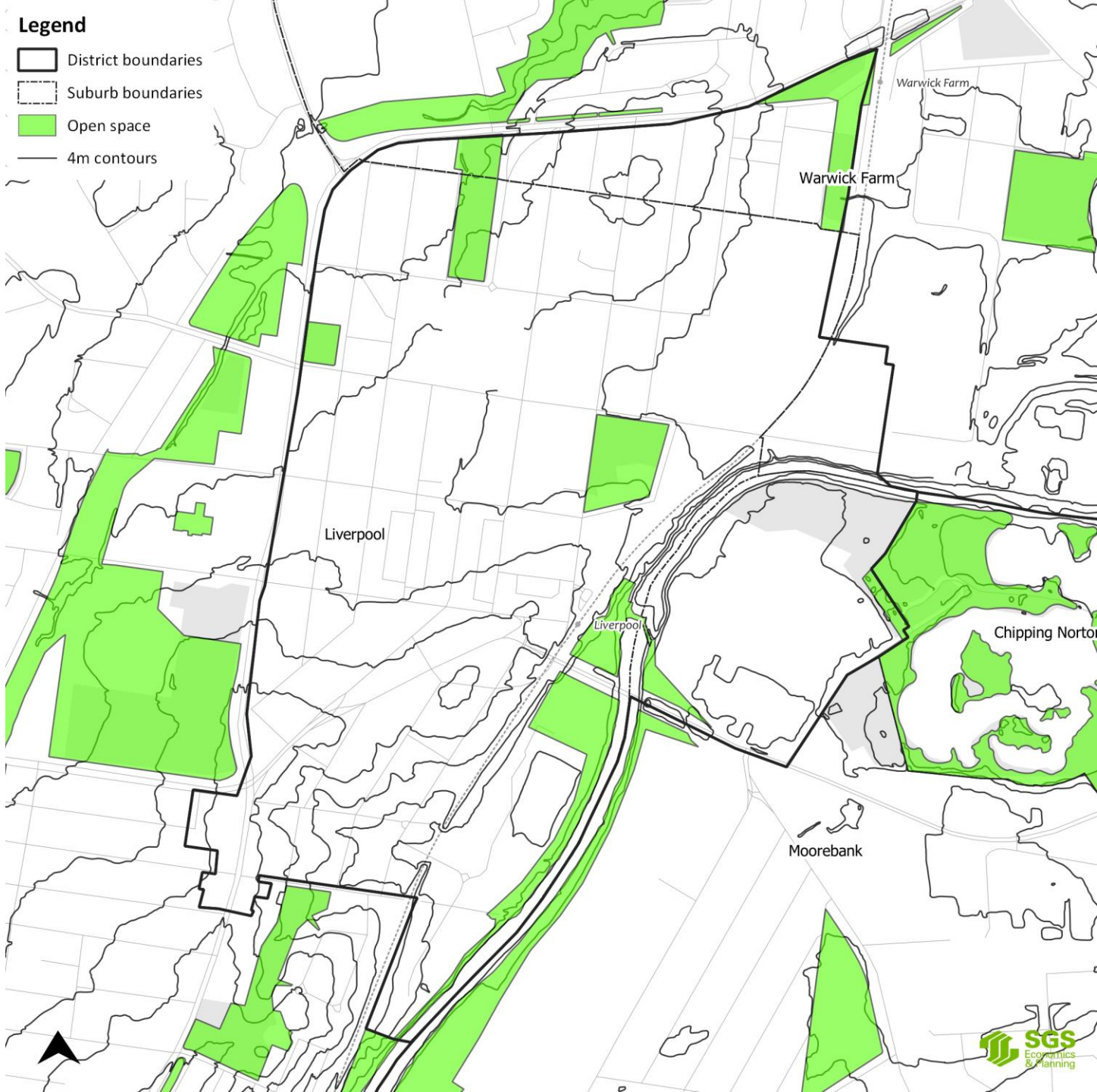


Liverpool City Centre District

Open space and elevation

The topography of the Liverpool City Centre is relatively flat, with a ridgeline running down Macquarie Street to the south-west.

Open space in the city centre is concentrated around the periphery of the District. There is little public open space in or near core areas of the City Centre.

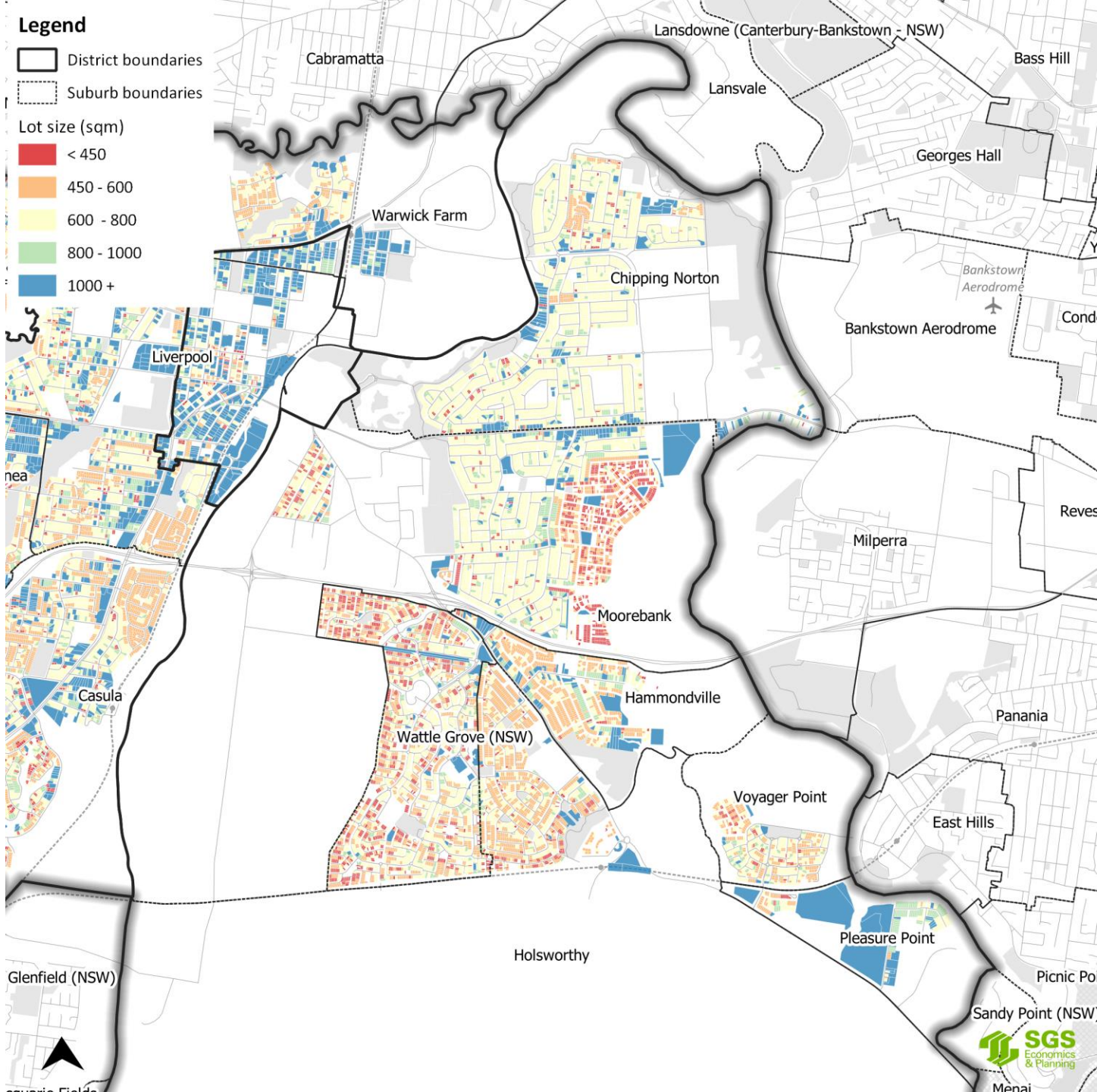


Eastern District

Lot Size

The established parts of Eastern District in older suburbs such as Moorebank have relatively large lots. In Moorebank and Chipping Norton, most lots are between 600-800m^2. Holsworthy and Hammondville have smaller lots of predominately 450-600sqm.

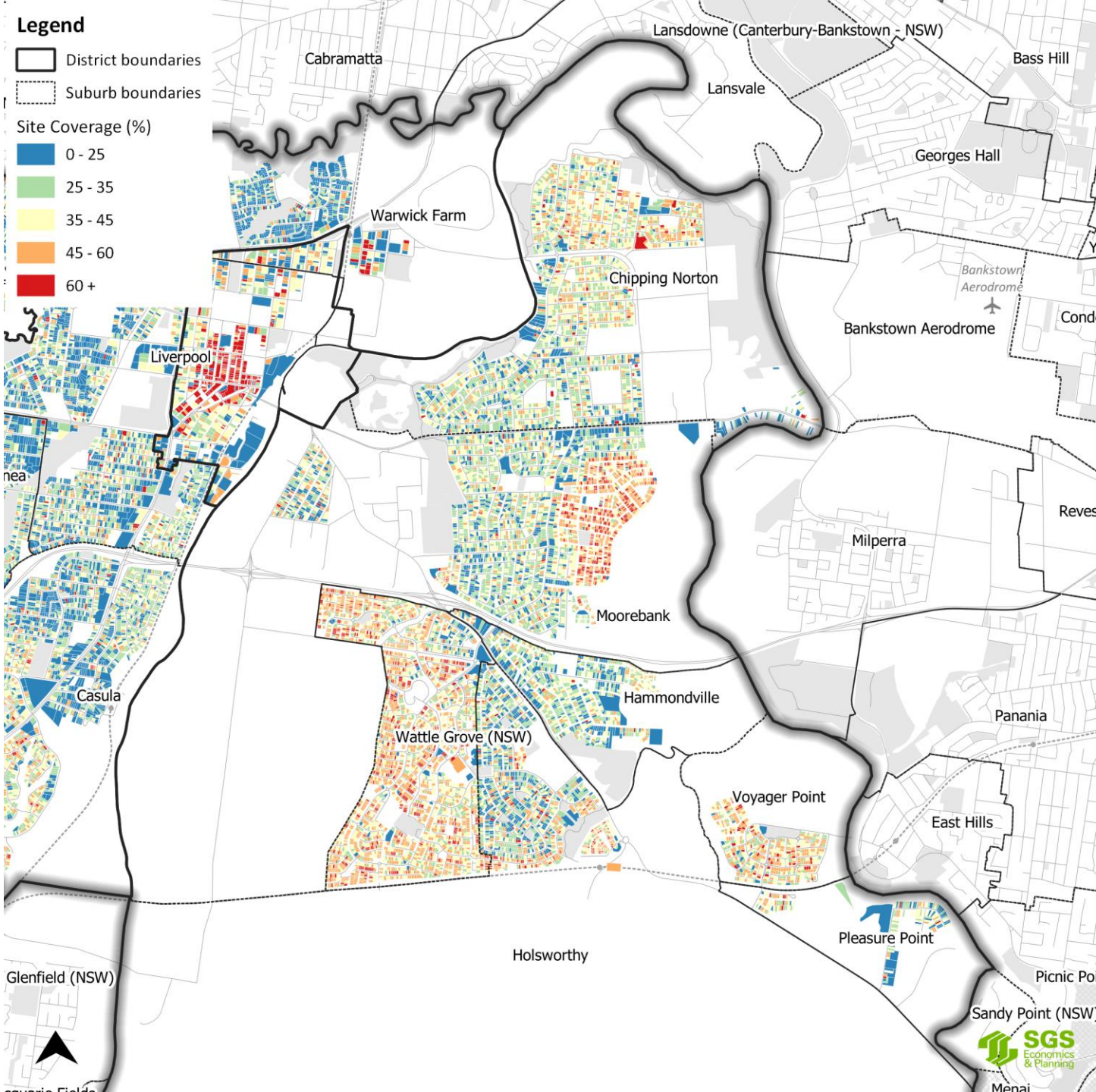
Site coverage and lot sizes are significantly smaller in the new release areas in the Eastern District, and in more recently developed areas such as Wattle Grove.



Eastern District

Site coverage

The smaller lot sizes of the newer release areas and Wattle Grove translate into high site coverages. By contrast, Moorebank, Chipping Norton and Hammondville have low site coverages speaking to a suburban character with large lots and houses with relatively small footprints.

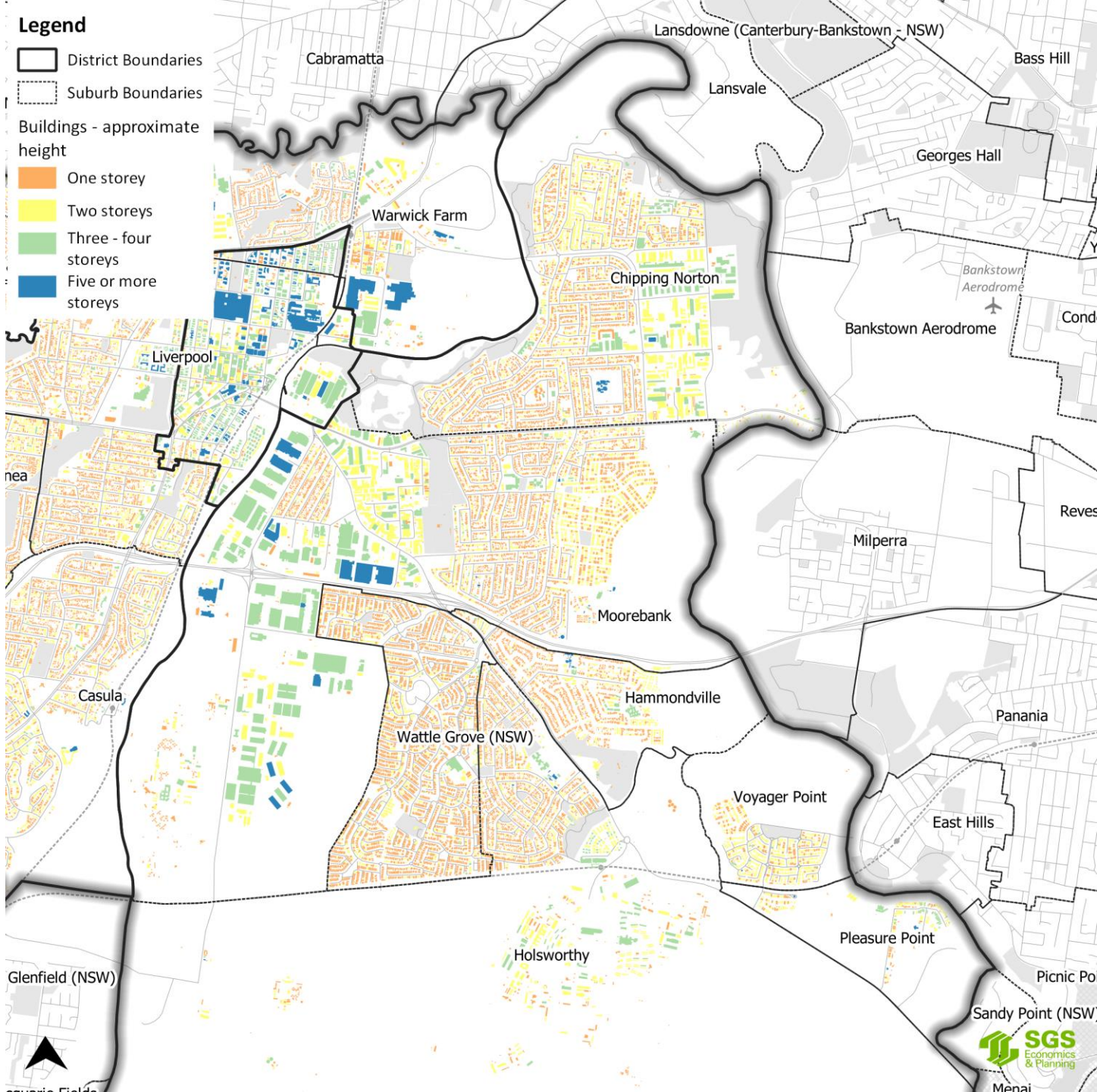


Eastern District

Approximate building height

Most dwellings in the older parts of the Eastern District, including Moorebank, Hammondville, Holsworthy and the southern part of Chipping Norton, are one storey.

Most dwellings in Wattle Grove are one storey despite its more recent development, while Georges Fair and the northern part of Chipping Norton contain predominately two-storey houses and have relatively high site coverages.

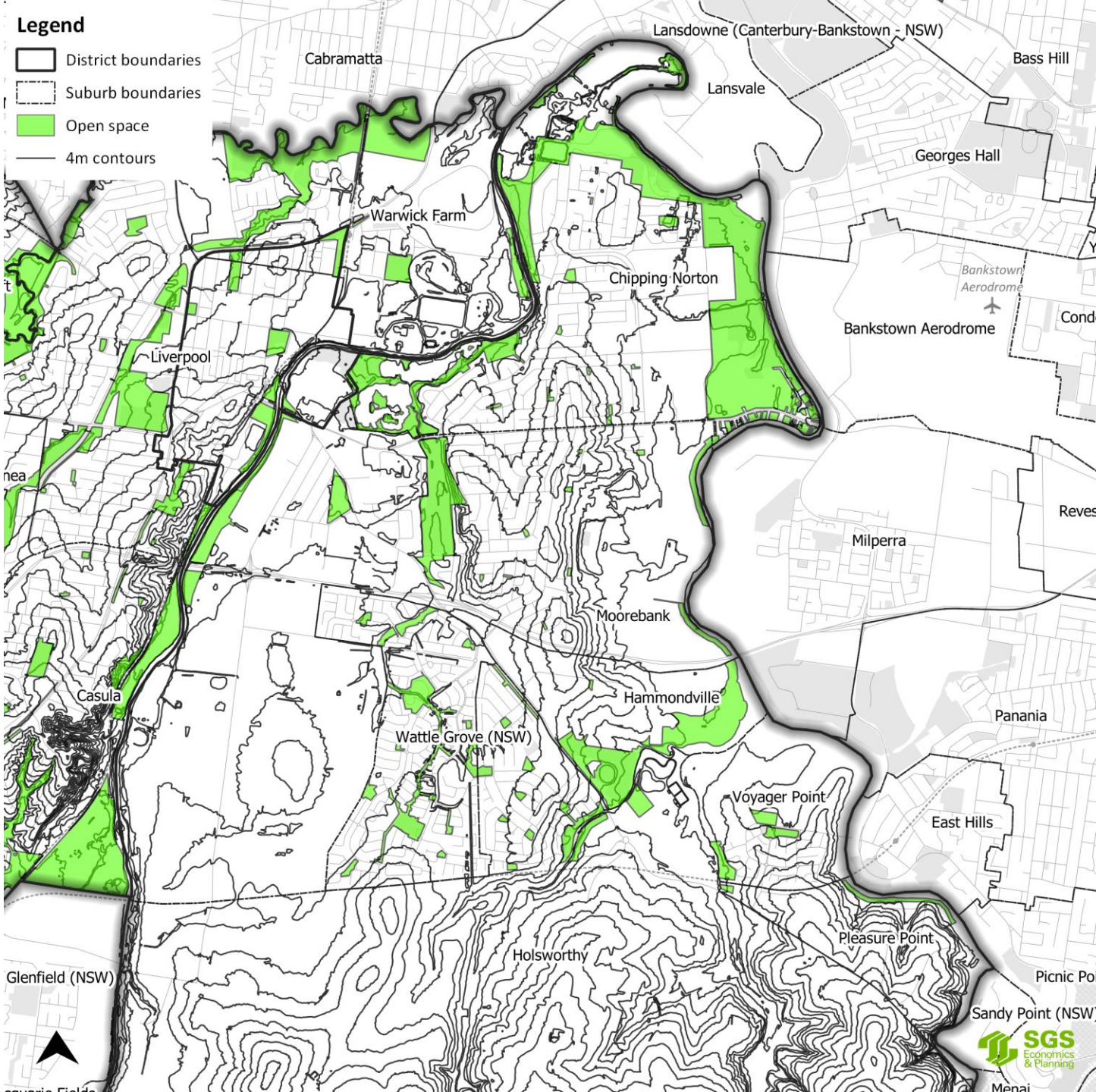


Eastern District

Open space and elevation

There are large open space corridors through the Eastern District along the Georges River, Anzac Creek and Harris Creek.

The Moorebank industrial area and Wattle Grove are relatively flat, while a ridgeline along Nuwarra Road slopes down into the suburbs on either side and towards the Georges River, providing views along east-west streets. The land around the Georges River in the eastern part of the District is relatively flat, forming a large floodplain.

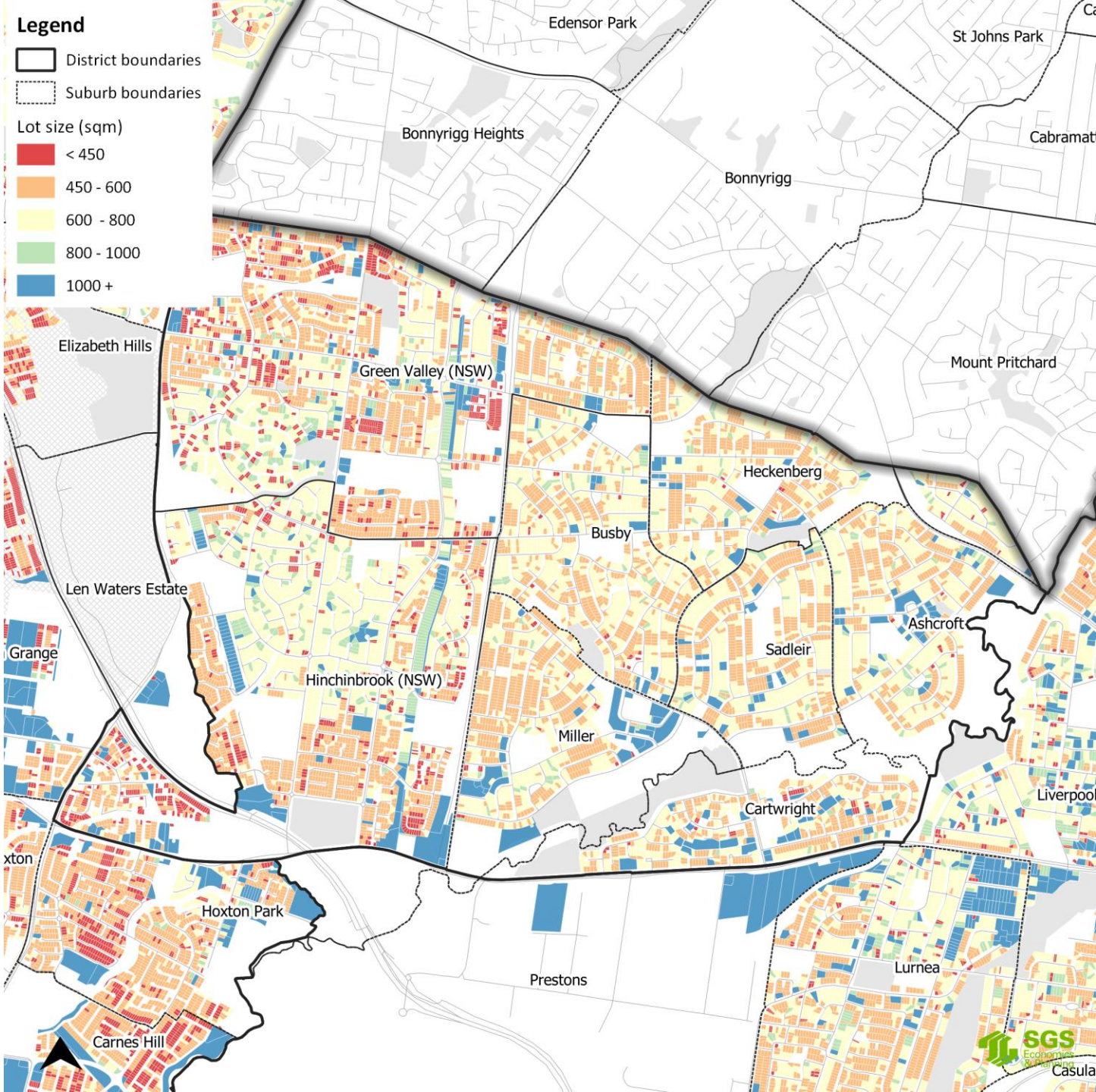


2168 District

Lot Size

There are broadly similar lot sizes in the eastern and western halves of the 2168 District. The western half has a large cluster of lots with areas greater than 600sqm positioned around courts, as well as some smaller sites. The eastern half has a mix of lots sizes between 550-750sqm.

Lots are much smaller in the north-western and south-western corners of the District, which were more recently developed.



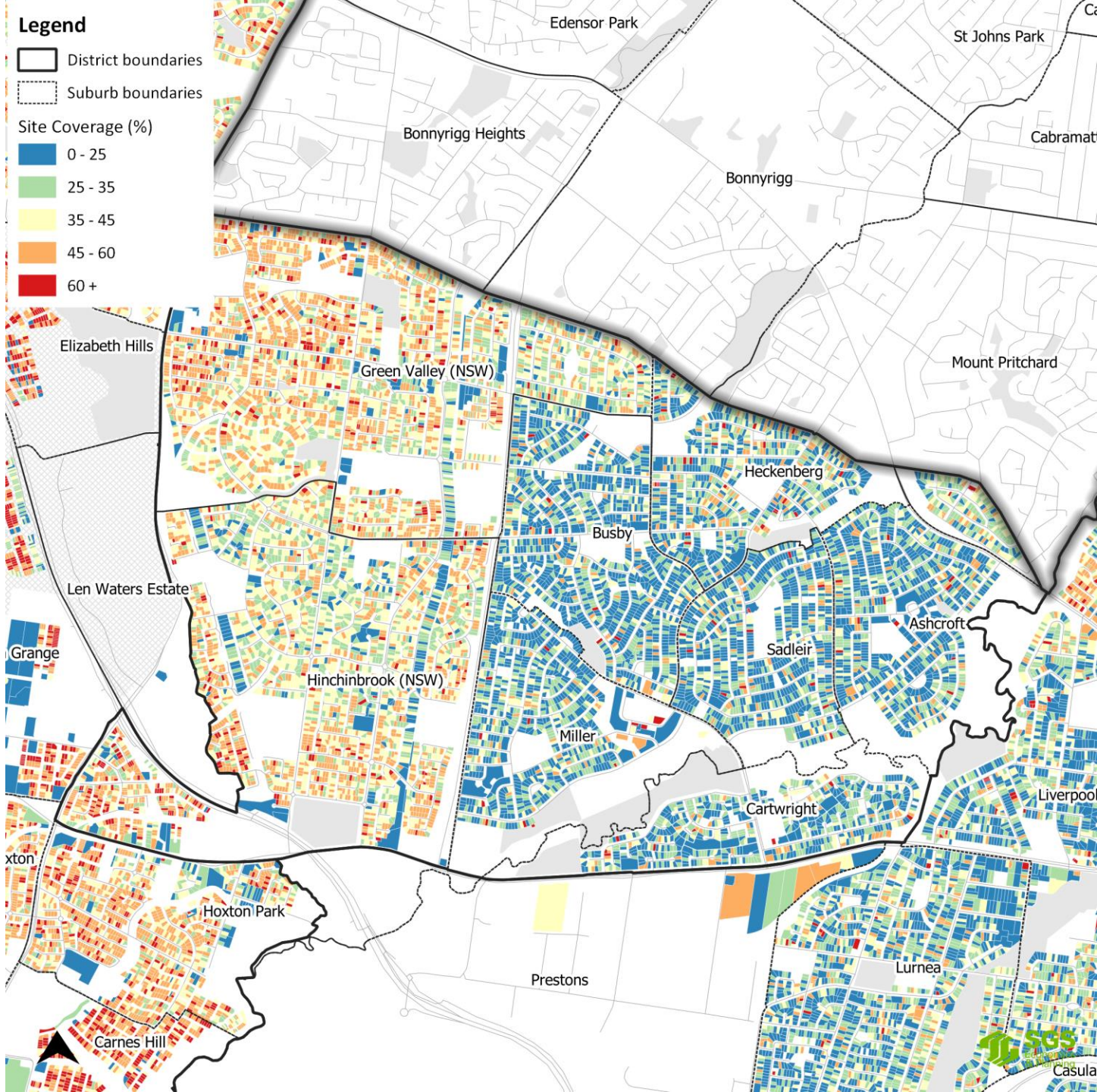
2168 District

Site coverage

Despite the similarities in lot sizes between the western and eastern halves of the 2168 District, there are stark differences in site coverage.

The eastern half of the District has very low site coverage and is populated by small detached dwellings originally built by the Housing Commission when the area was developed, some of which have been redeveloped.

The eastern half of the District has much higher site coverages, particularly in the North-Western corner. This reflects the presence of larger detached houses with smaller setbacks in this area.

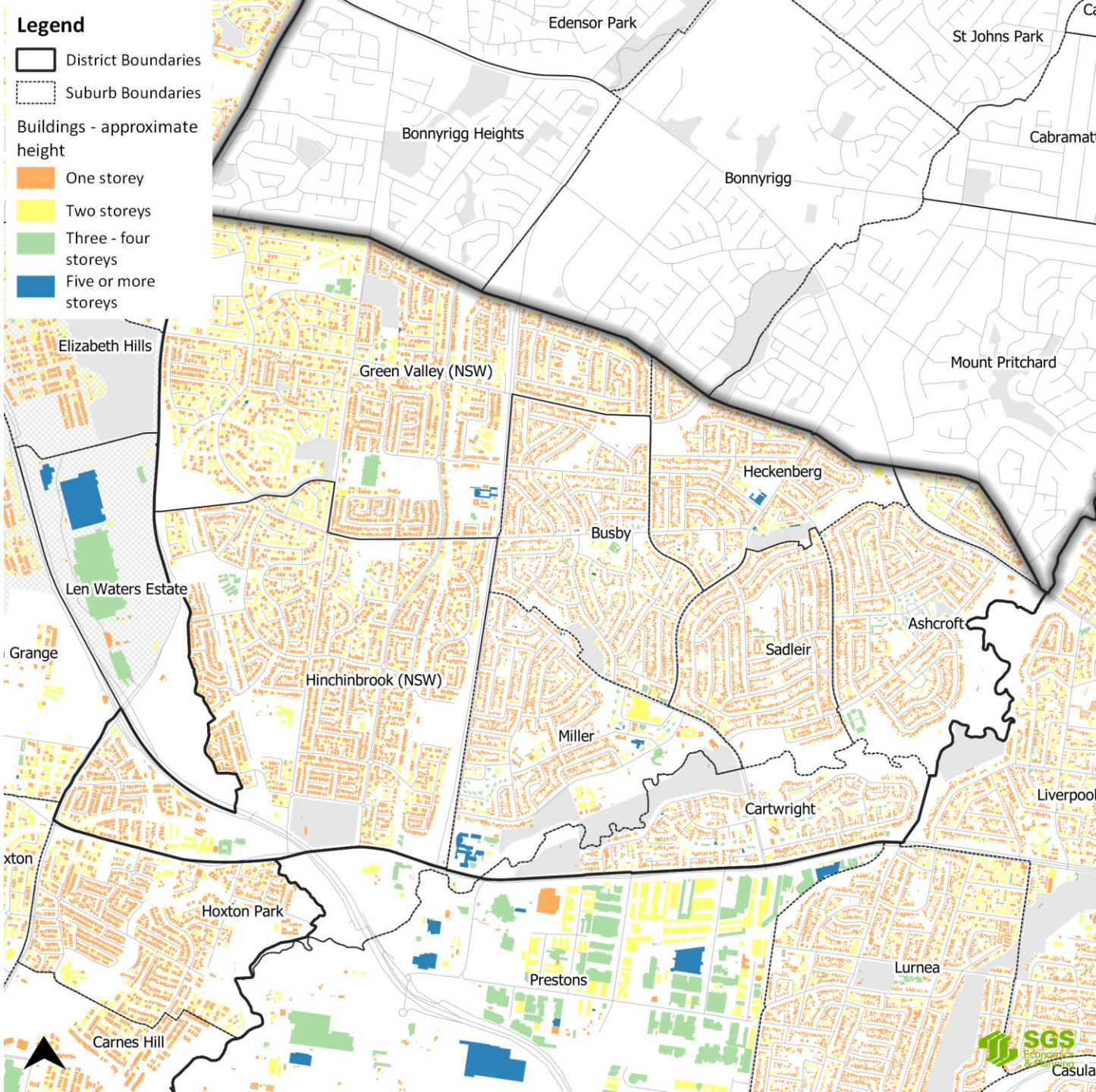


2168 District

Approximate building height

Building heights in the eastern half of the District are predominantly one storey, with small building footprints. Small pockets of 5 or more storeys show the public housing apartments co-located with local centres.

By contrast, the western half of the District has larger building footprints. Most of the housing is predominately one storey, although there is a greater mix of building heights. The north-western part of the District has mostly two-storey dwellings.

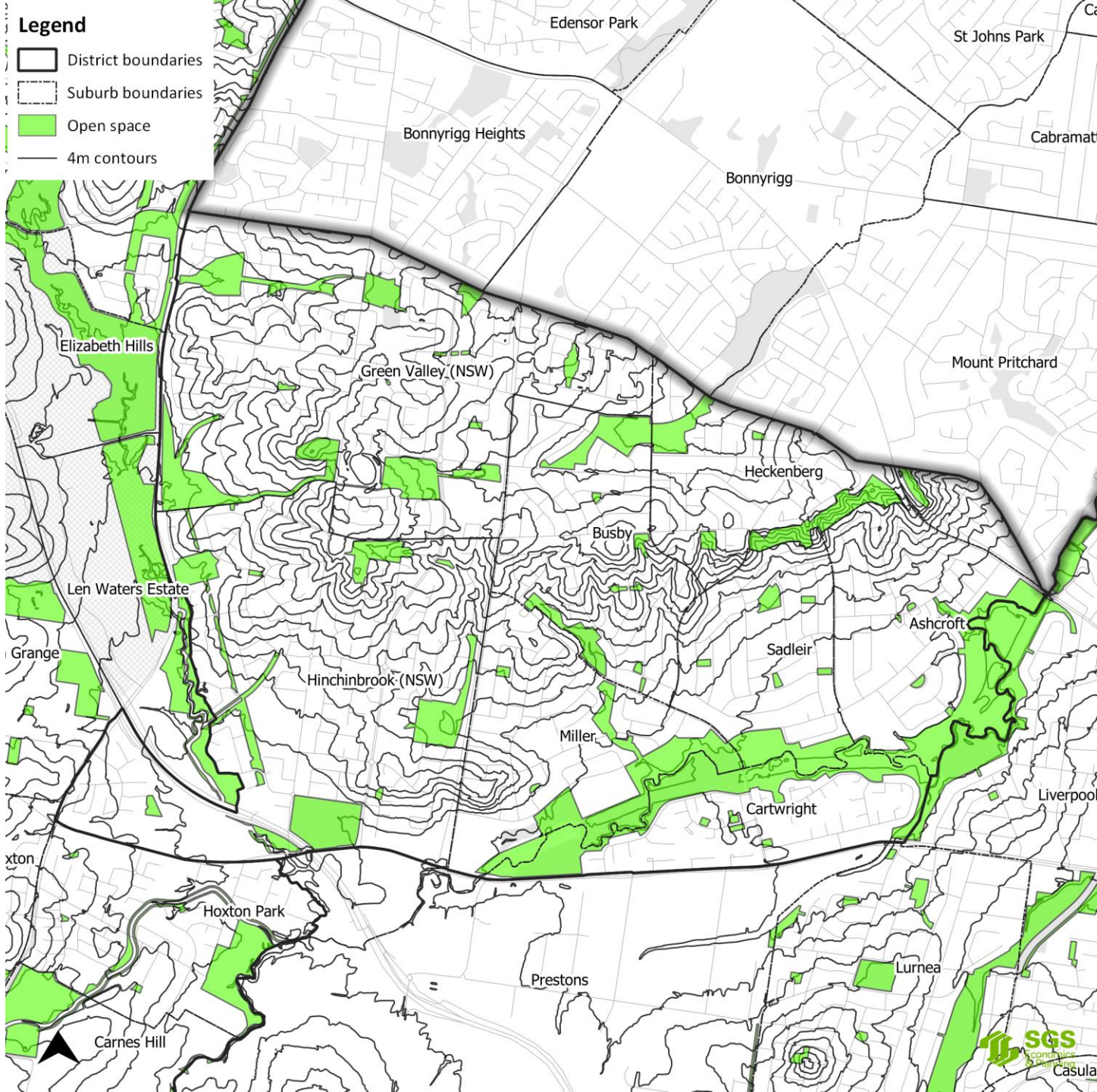


2168 District

Open space and elevation

There is a large amount of open space in the 2168 District, and almost all houses would be within an easy walk of a local park. There are also substantial open space corridors along the Cabramatta Creek and Hinchinbook Creek.

The district is relatively hilly and slopes away from the Cabramatta Creek and Hinchinbrook Creek. A ridge line runs near South Liverpool Road and the land slopes away steeply to the south, providing sweeping views of Liverpool where roads run perpendicular to the ridge.



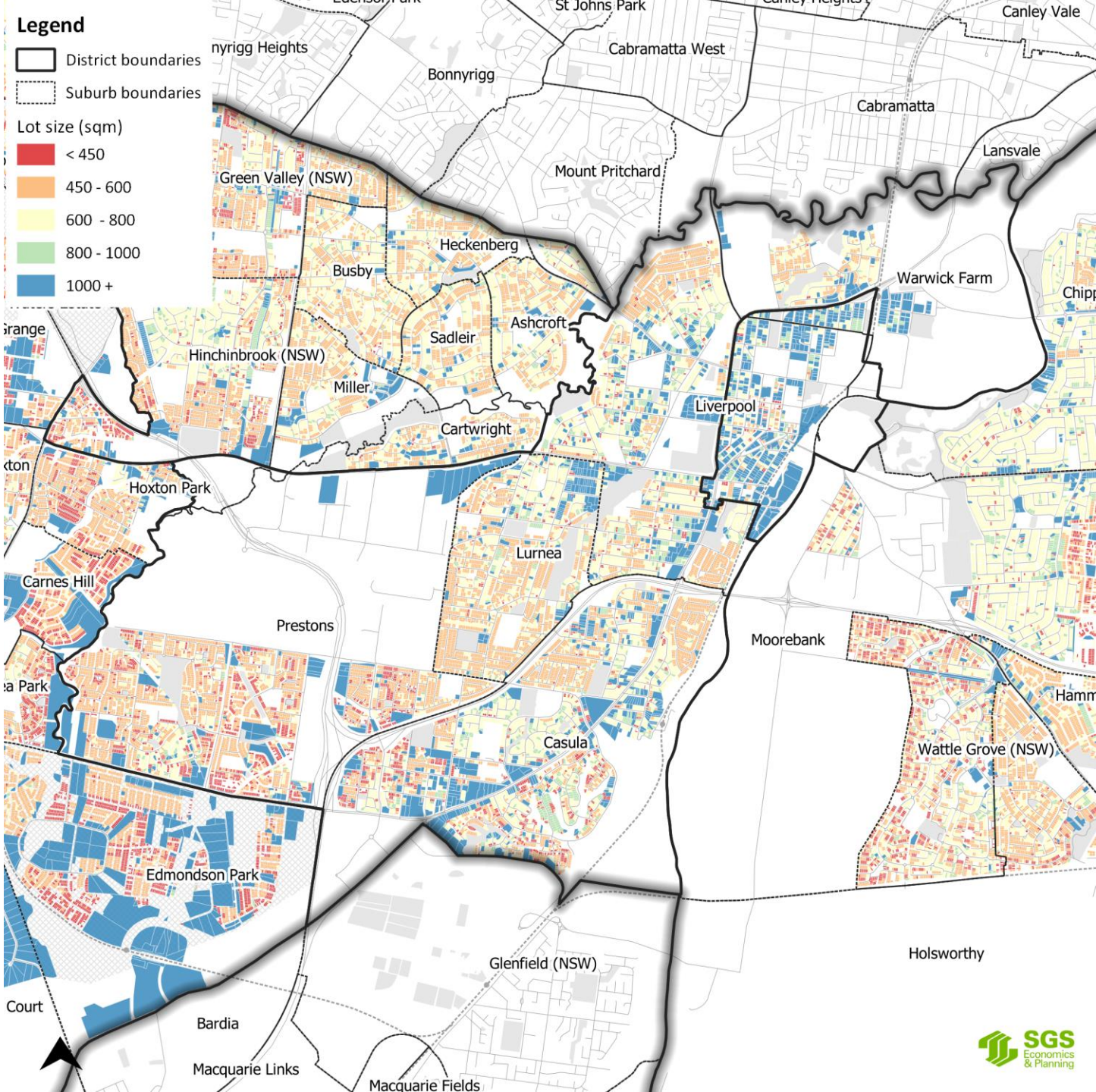
Established District

Lot Size

Lot sizes are much larger in the suburbs of Liverpool and Warwick Farm than the rest of the District. There is also a cluster of larger lots in Casula.

Lurnea has a consistent subdivision pattern of lots with areas between 450-600sqm.

Consistent with its more recent development, Prestons has much smaller lot sizes.



Established District

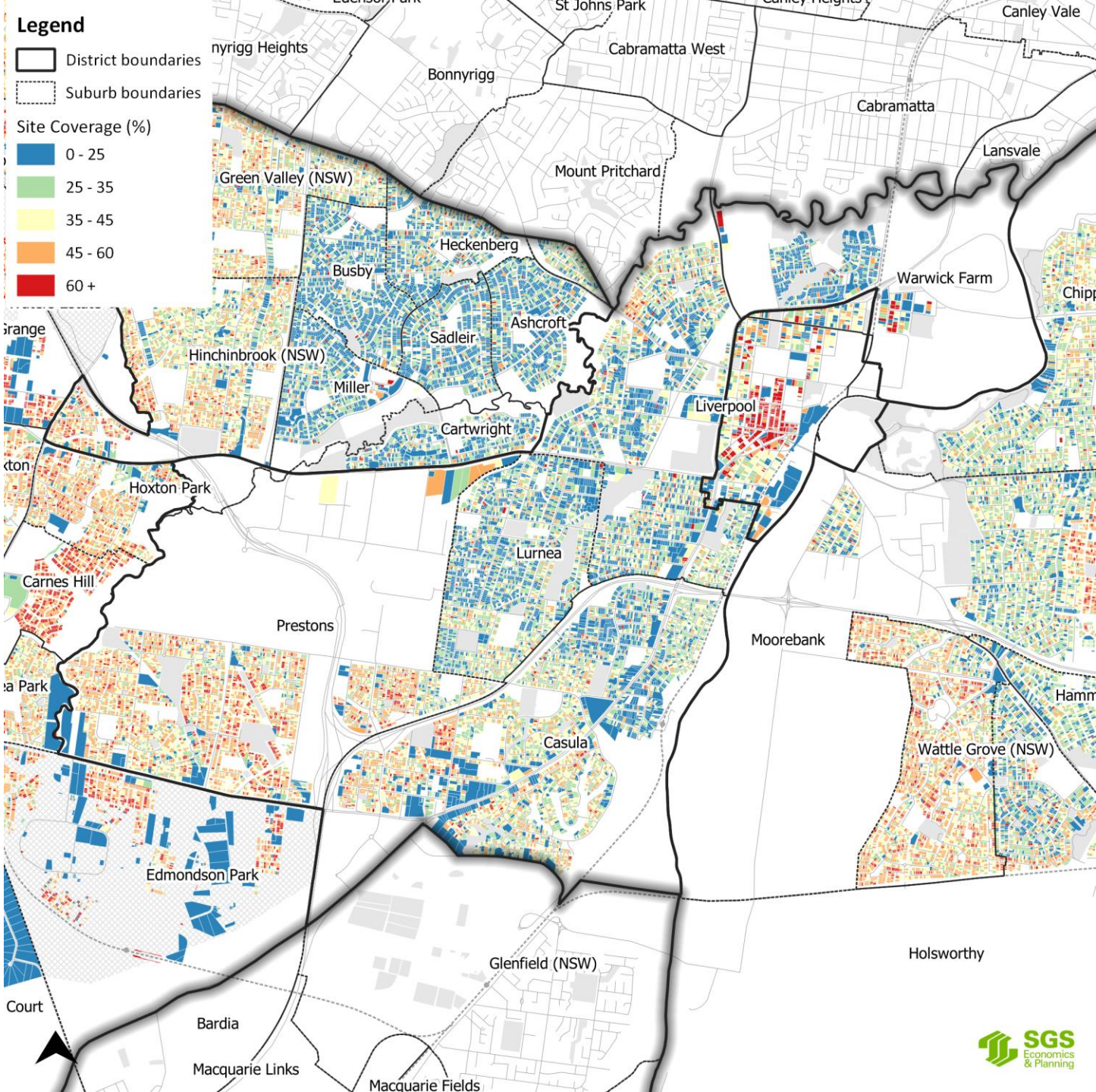
Site coverage

Site coverage varies significantly across the District in line with the changing time period of development.

The suburbs of Liverpool, Warwick Farm, Lurnea and the north-western part of Casula have low site coverages and small dwellings similar to the eastern part of the 2168 District, creating a suburban character with smaller houses.

The south-western part of the District has higher site coverages and larger dwellings on smaller lots.

Some redevelopment has occurred in the parts of the suburb of Liverpool outside of the City Centre, resulting in a mix of site coverages.

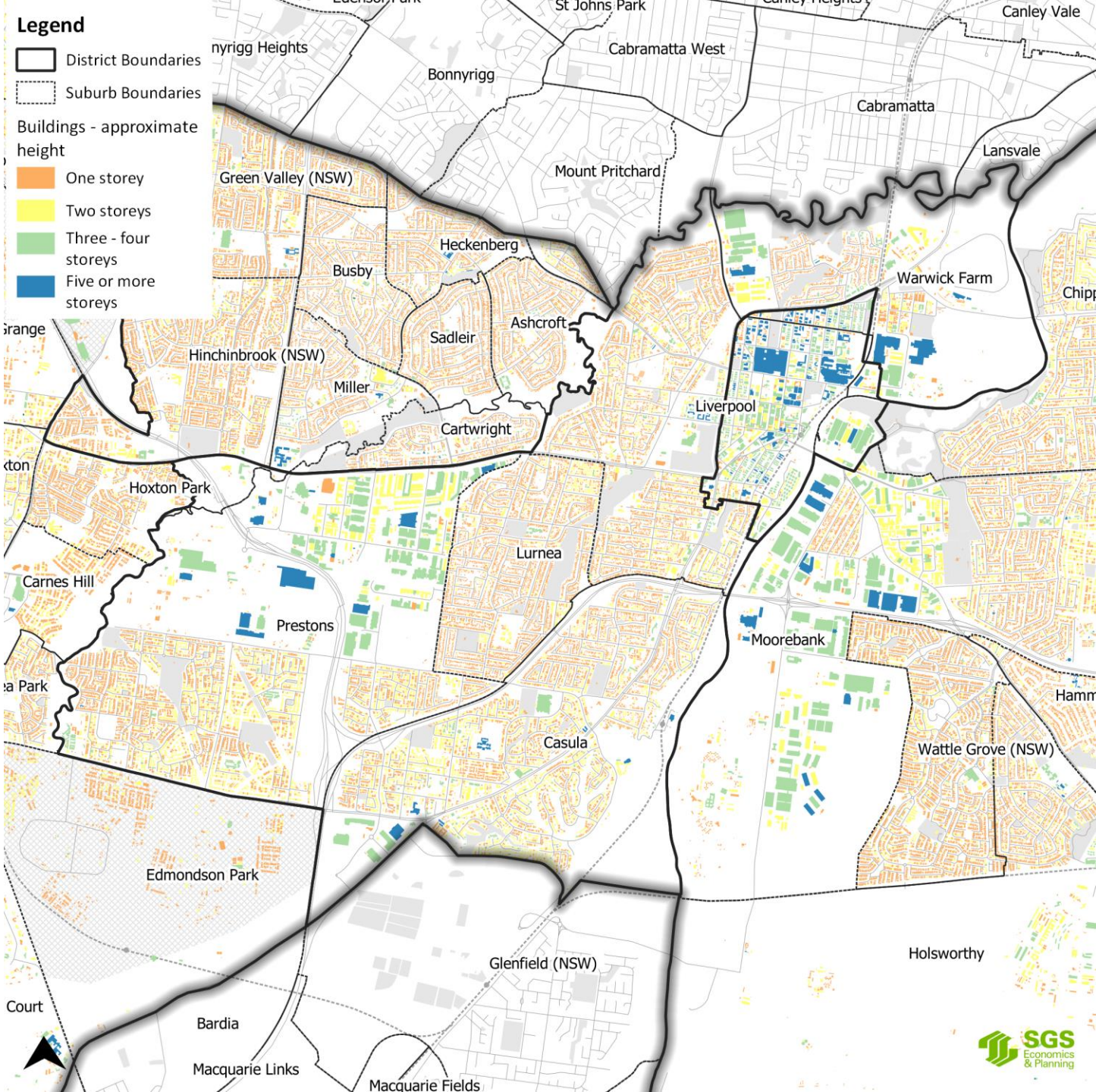


Established District

Approximate building height

The northern parts of the District which have lower site coverages contain predominately single storey dwellings, although the redevelopment which has occurred in the suburb of Liverpool has led to some two-storey dwellings scattered through this area.

The south-western part of the District and the southern parts of Casula have more two-storey dwellings and substantial houses.



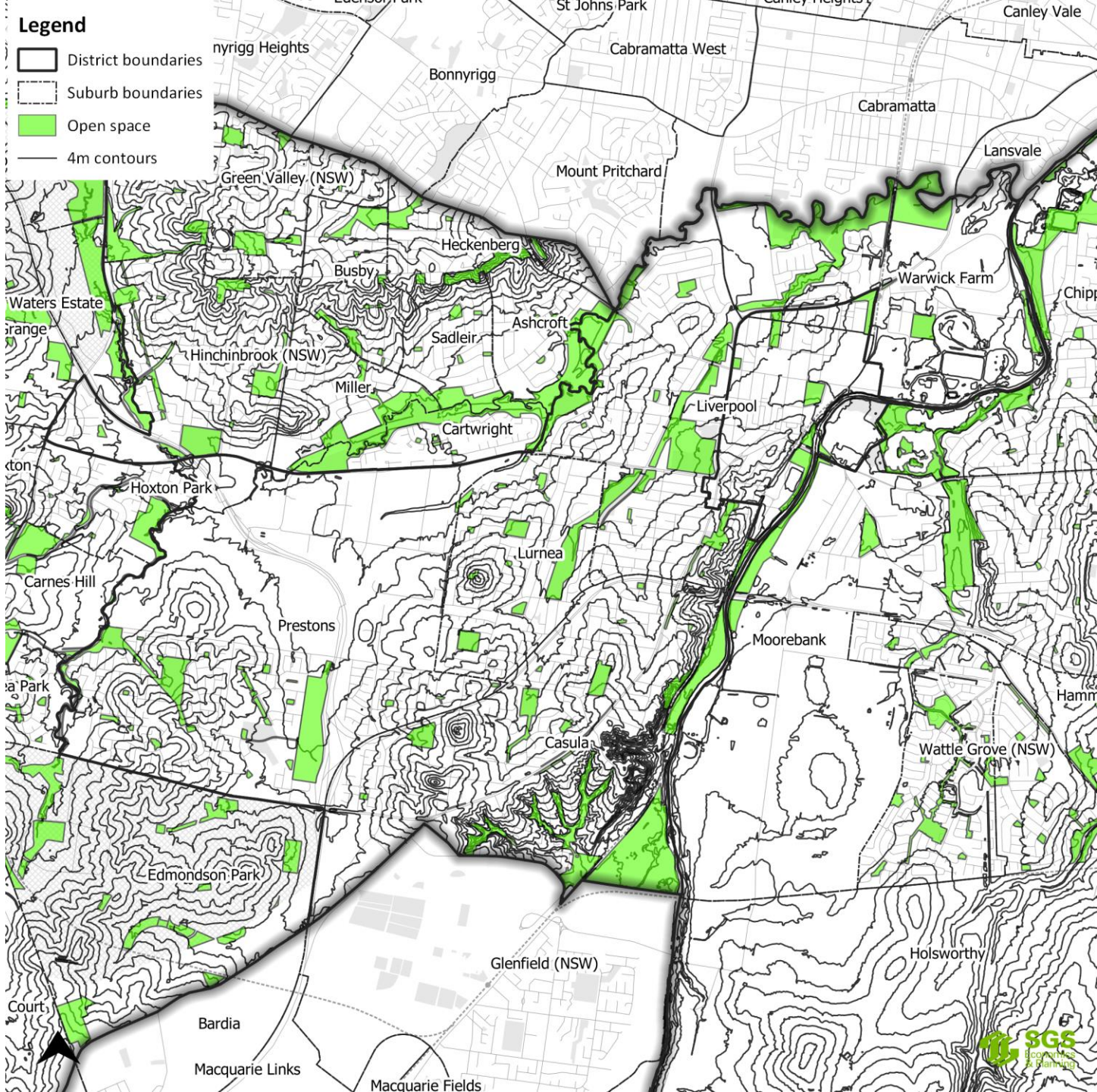
Established District

Open space and elevation

Open space in the District is concentrated in creek corridors, with some large parks distributed through Lurnea , Casula and Prestons.

The land in the District is relatively hilly. There are several hills in Lurnea and Casula which provide views of the surrounds.

The land slopes steeply away east of the Princes Highway to the Georges River. This is particularly notable in the Leacocks Lane Estate, and contributes to its distinctive character.

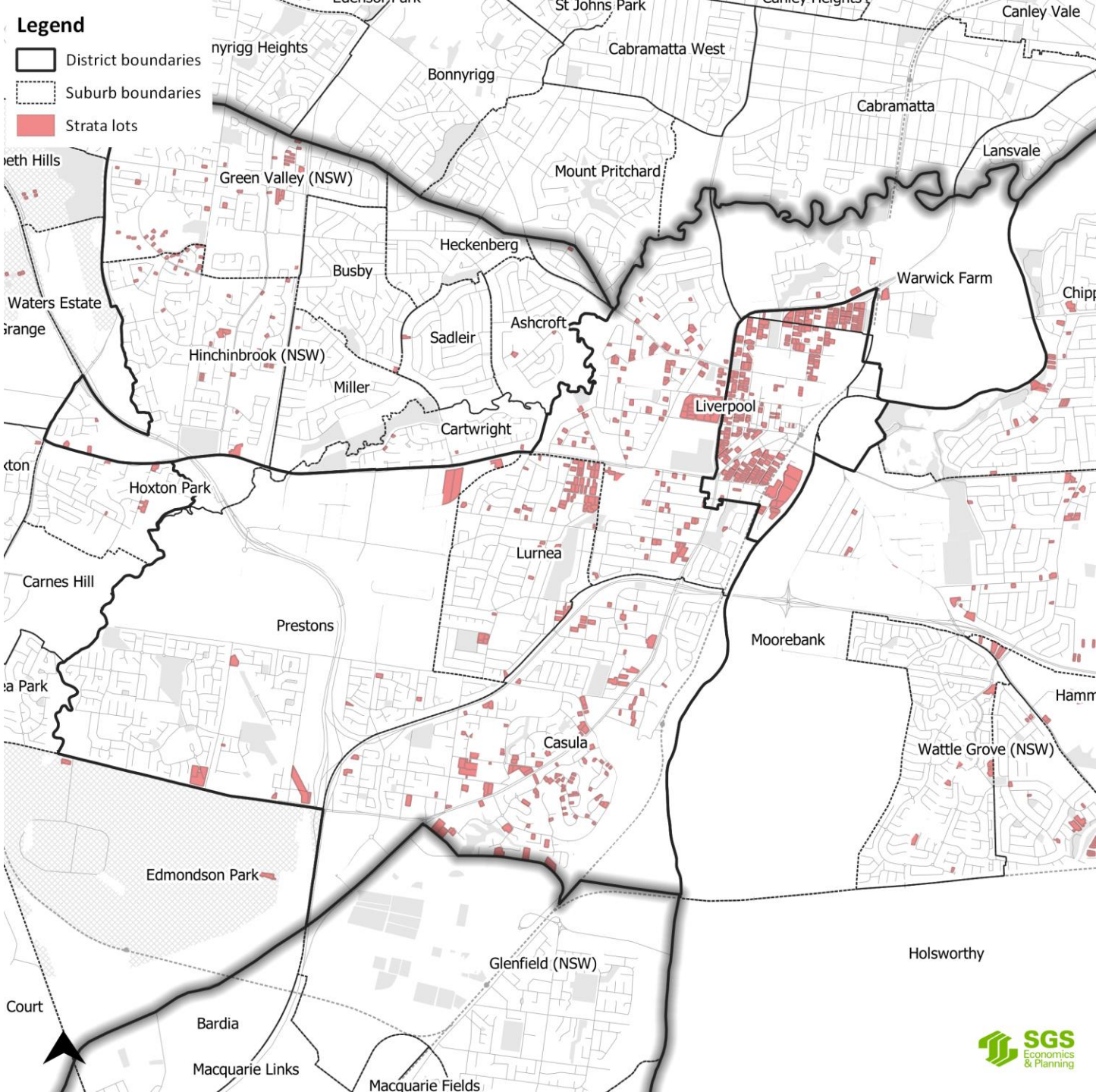


Established District

Strata subdivision

There is a scattering of stata-subdivided lots in the Established District in the suburbs of Liverpool and Casula. This indicates lots which contain two or more dwellings and on which infill housing redevelopment has occurred. In places there are clusters of these lots, the housing character is in transition from predominately older, smaller dwellings to predominately dual occupancy and villa-style developments with a greater apparent density from the street.

There is a large cluster of multi-dwelling housing strata lots in the north-eastern corner of Lurnea. These are mostly older villa-style developments, a satellite image of which is shown below.

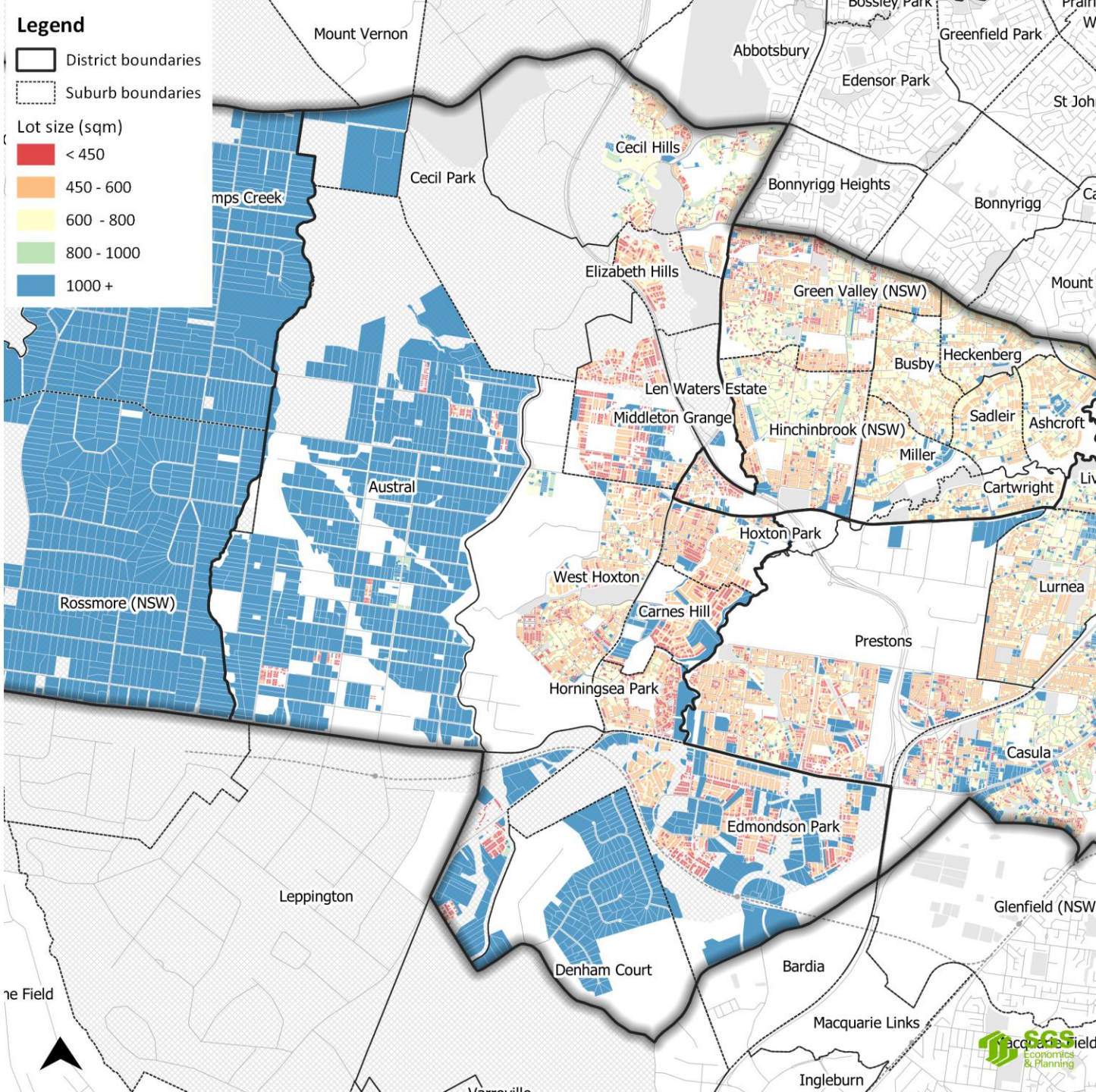


New Release District

Lot Size

Lot sizes for detached housing in the New Release District are substantially smaller than lots anywhere else in the Liverpool LGA. Lots are particularly small in the newest developments, visible in parts of Edmondson Park, Middleton Grange, Austral and Leppington.

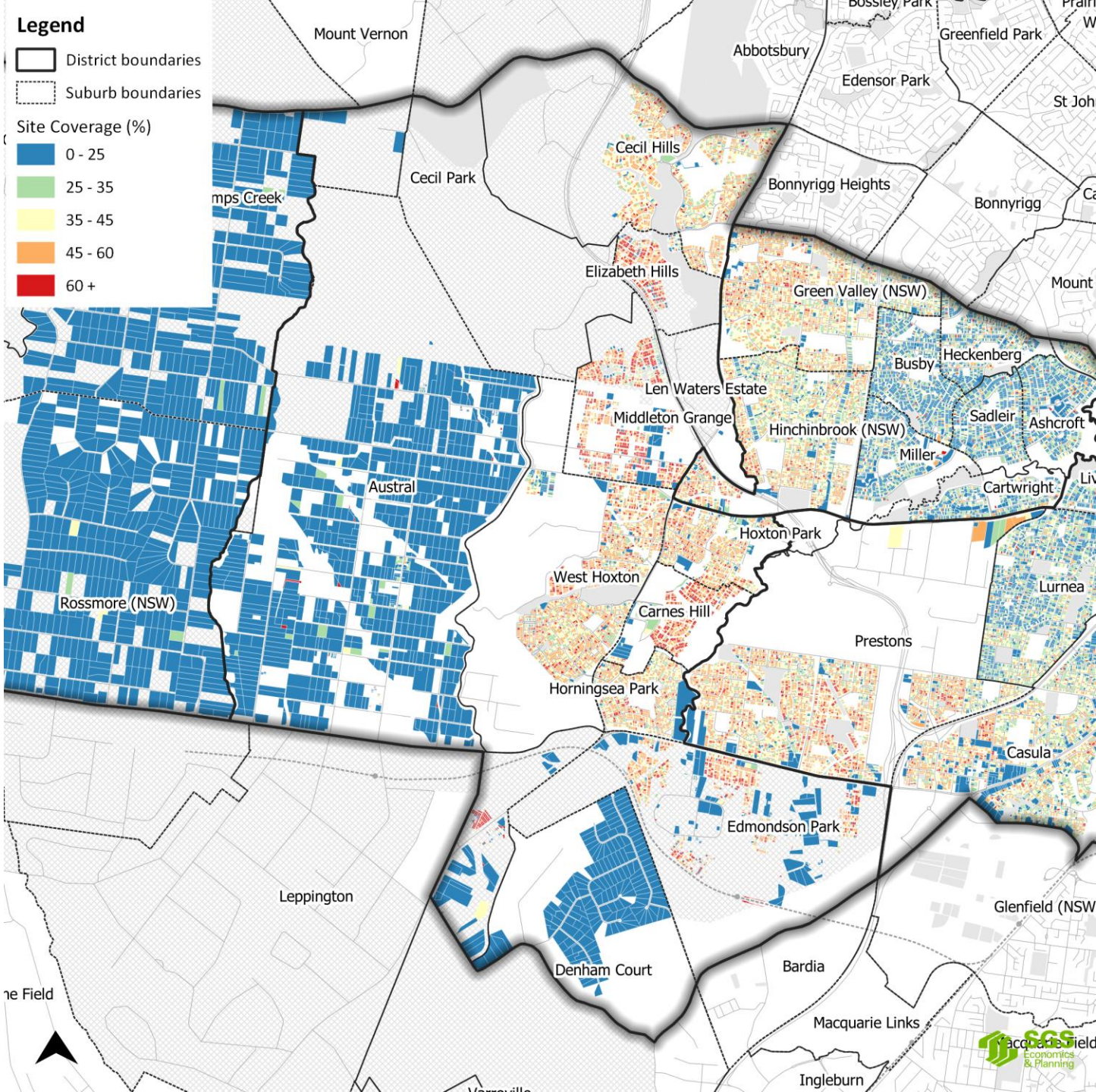
The remaining large lots in Austral and Leppington are awaiting subdivision for suburban development, while Denham Court is zoned to retain its large-lot residential character.



New Release District

Site coverage

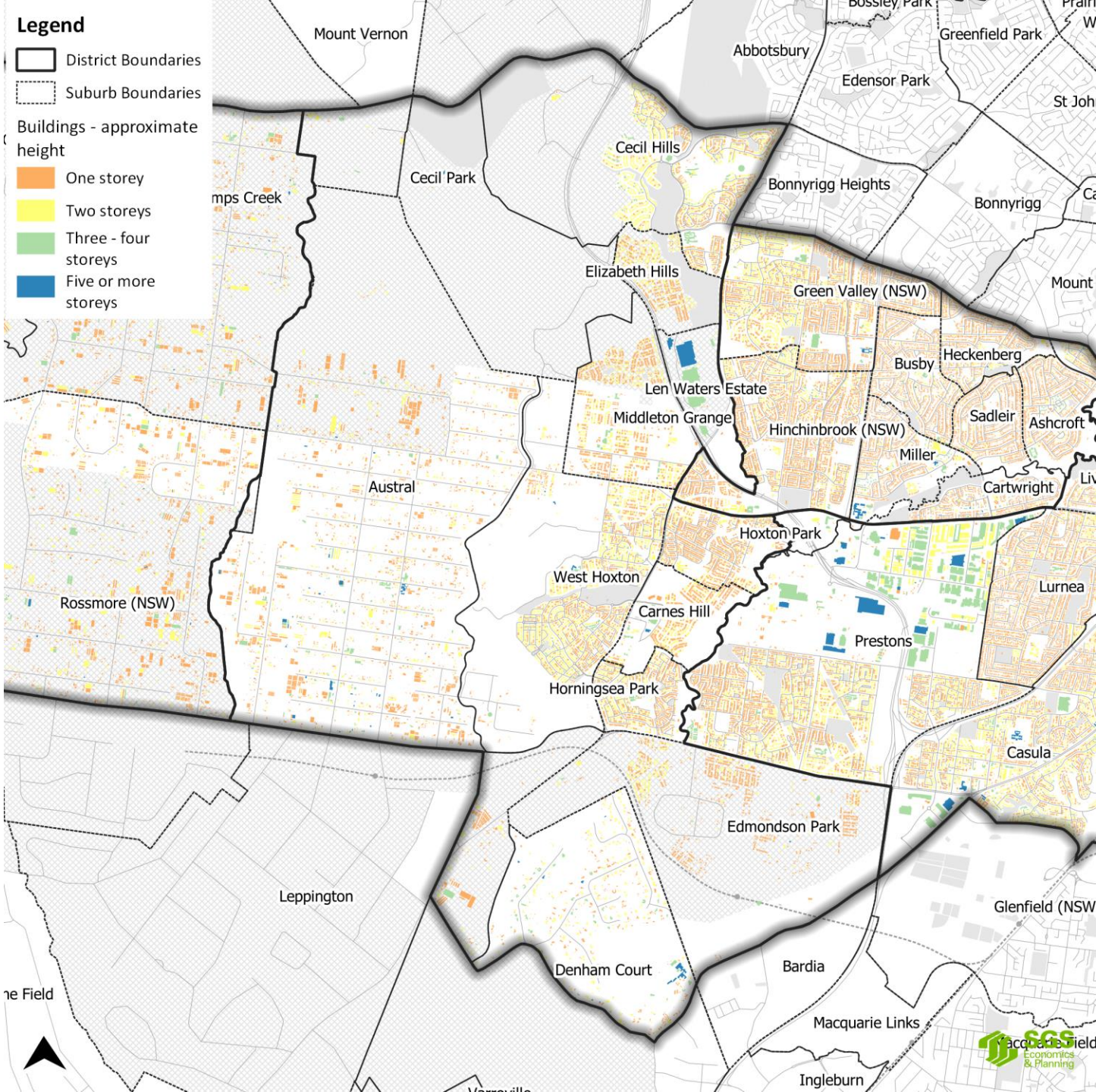
Site coverage is generally very high in the New Release District, particularly in the parts of the District which were recently developed. This creates a characteristic streetscape with very small side setbacks and very few opportunities for vegetation.



New Release District

Approximate building height

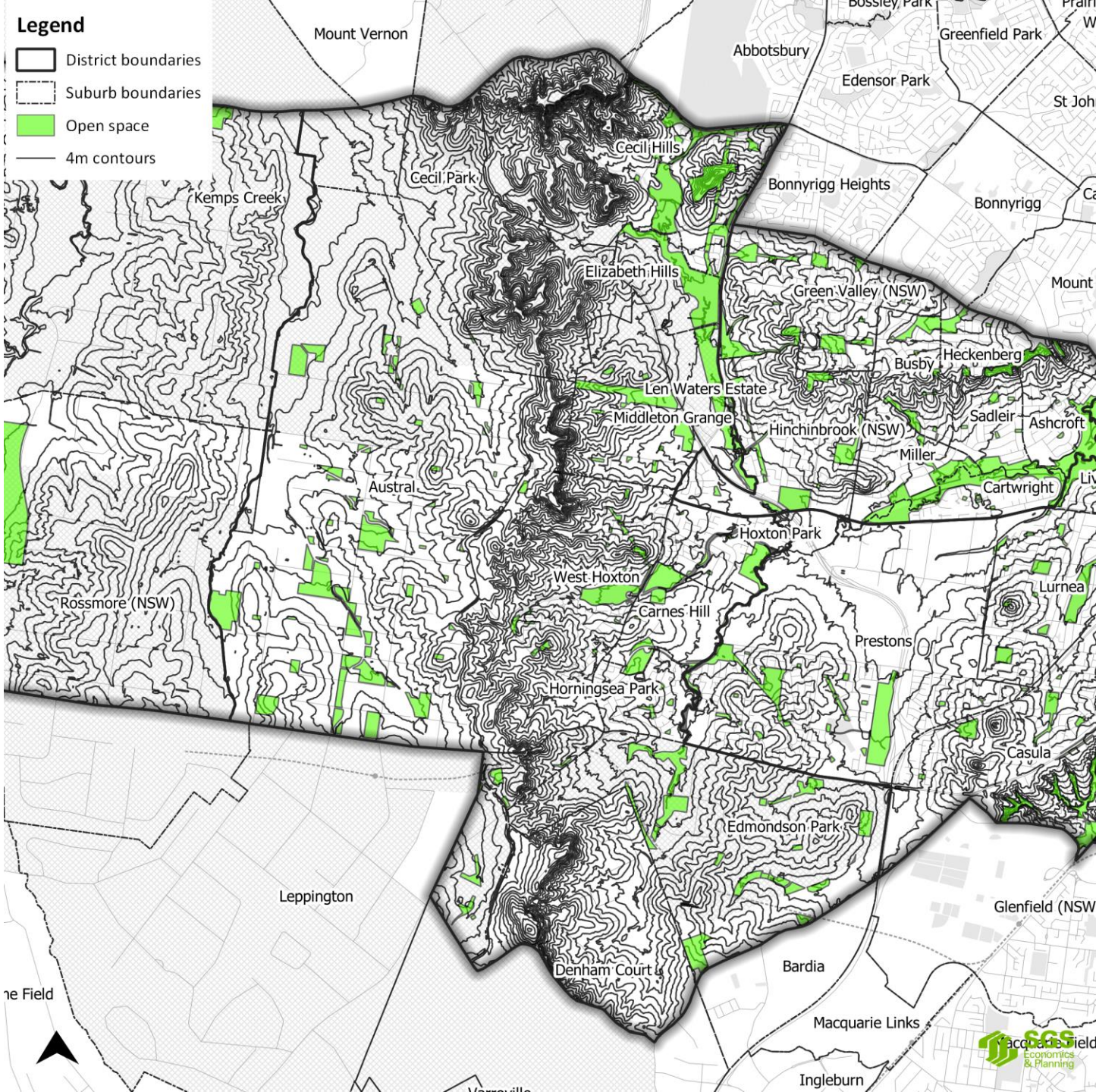
Building height varies across the New Release District. In West Hoxton there is a mix of one and two storey buildings, while Elizabeth Hills contains mostly two storey buildings. Much of the rest of the District, in particular current and recent greenfield developments, contain mostly single storey dwellings, despite high site coverage and limited amounts of private open space.



New Release District

Open space and elevation

A prominent ridgeline runs from the Scenic Hills south of the Liverpool LGA, through the New Release District along the Western Sydney Parklands and north towards the Prospect Reservoir. This gives a landscape character to the Western parts of the District, with views to and from the ridgeline. The land further east in the District is less steep and gently slopes towards the Cabramatta Creek and Hinchinbrook Creek.



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