SGS Economics & Planning

ST LEONARDS AND CROWS NEST ECONOMIC FEASIBILITY REVIEW

FINAL REPORT
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Prepared for
Department of Planning and Environment

Independent insight.

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EXECUTIVE SUMMARY

Strategic framework

Planning for growth and development of the St Leonards and Crows Nest Station Precinct ('the Precinct') is undertaken within a strategic framework. Under this framework, the Precinct and specifically St Leonards is an established Strategic Centre of the North District of Sydney and a Health and Education Precinct and collaboration area.

The Precinct possesses a range of infrastructure, economic and locational attributes, including the construction of a new Metro rail line with a station at Crows Nest. Collectively, these attributes are expected to drive significant future growth and development in this centre, with more jobs, housing and services.

The planning challenge then, is to ensure that the finite land supply in this location can provide sufficient and suitable employment floorspace and dwelling capacity to meet future demand and satisfy planning objectives.

Above all else, the primary planning and economic development agenda in this Precinct is to ensure that employment growth progresses towards the 63,500 'High' jobs target by 2036 set under the Greater Sydney Commission's North District Plan.

Market dynamics

A range of market and demographic issues have been explored which provide the context for development and planning in the Precinct.

Providing for housing diversity, tenure mix and affordable housing will be necessary as the market delivers more dwellings to meet demand in the Precinct.

Critically, there is also a 'crowding out' phenomenon in the current market whereby residential development, by virtue of its relatively strong financial returns, displaces existing and future employment floorspace. Planning intervention are therefore required to preserve and/or deliver employment floorspace within the Precinct to meet job targets, alongside additional housing to underpin an expansion of supply.

Development futures

SGS has undertaken accessibility modelling to understand land use impacts associated with Sydney Metro. Sydney Metro is likely to be a 'city shaping' infrastructure project that shifts projected employment and housing distribution across the metropolis, favouring urban centres positioned along the rail corridor.

SGS's accessibility model used researched trends in economic and transport relationships to determine how land use demand projections are changed by proposed transport infrastructure.

In terms of housing, by 2036 demand for up to an extra 6,800 new dwellings is expected in the Precinct. This has been derived from population projections as well as dwelling demand shifts modelled by the SGS accessibility model under the Sydney Metro scenario.

The table below summarises how Sydney Metro is expected to impact employment forecasts; particularly within the context of the North District Plan's 'High' jobs target for the Precinct.

EMPLOYMENT PROJECTIONS AND TARGETS

Increase	Level of Employment	Source	Description	Assessed Likelihood
-	47,000	TZP 2016[1]	Number of jobs in the Precinct in 2016	Certain - already within Precinct
7,000	54,000	TZP 2016	Number of jobs in 2036 under the Base Case	Very likely - based on historical trend growth
3,500	57,500	SGS Accessibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	Likely - so long as Sydney Metro is delivered as planned, along with associated population growth and no supply side constraints
1,500	59,000	SGS Analysis	Number of additional jobs which could be leveraged off Sydney Metro	Possible - requires supporting investment as well as targeted economic development initiatives
4,500	63,500	North District Plan 'High Job Target'	High end, aspirational target defined in the North District Plan.	Possible - dependent upon realisation of GSC's Health and Education vision and associated initiatives

Development feasibility

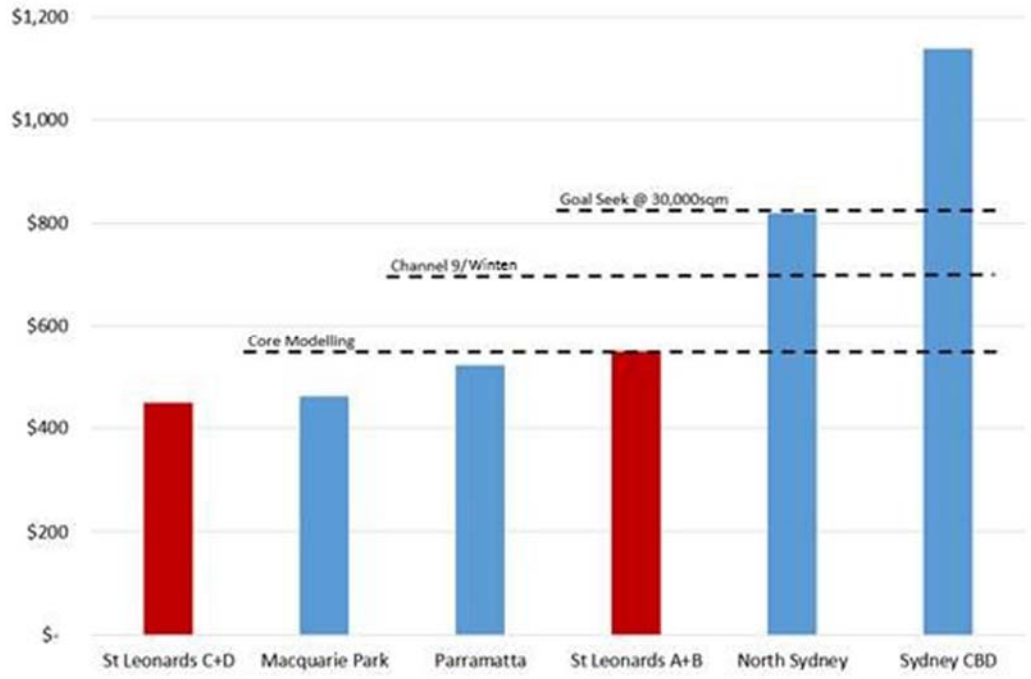
The market feasibility of developing pure commercial and mixed use buildings in the Precinct has been tested for specific sites under both current controls and alternative controls allowing for higher density development options.

Pure commercial office buildings in the current market are judged to be unfeasible given the land acquisition, construction and transaction costs associated with redevelopment, for marginal additions to current floorspace and revenues. This does not mean that current commercial uses are 'uneconomic', just that redevelopment may not be warranted, even though refurbishments are still possible and likely where the office market returns warrant the investment.

With Sydney Metro operational by 2023/24, the market could shift and the development feasibility may also change. As the chart below demonstrates, market rents in the Precinct would need to rise to North Sydney levels for pure commercial office buildings to become feasible. With general redevelopment, new public domain infrastructure and the increased accessibility that the Metro will bring it is conceivable that rents in the Precinct could move closer to the amount identified here as underpinning a feasible significant commercial only development.

[1] TZP 2016 is the TfNSW's base case employment forecast undertaken in 2016.

RENTAL YIELD COMPARISON – RENTS VS LOCATIONS[2]



Source: SGS

In this chart Core Modelling refers to existing commercial rents that the modelling is based upon. 'Channel 9/Winten' refers to the rent levels observed at a recent development in North Sydney CBD. 'Goal Seek @ 30,000sqm' refers to the level of rental yield that is required for a pure commercial development to go ahead.

A number of alternative, high density mixed use (residential and commercial) scenarios were tested. All were feasible, highlighting the potential for utilising dwellings as a means for stimulating redevelopment and new office stock even without on-site parking. Up to 10% affordable rental housing provision could also be provided in these development options[3].

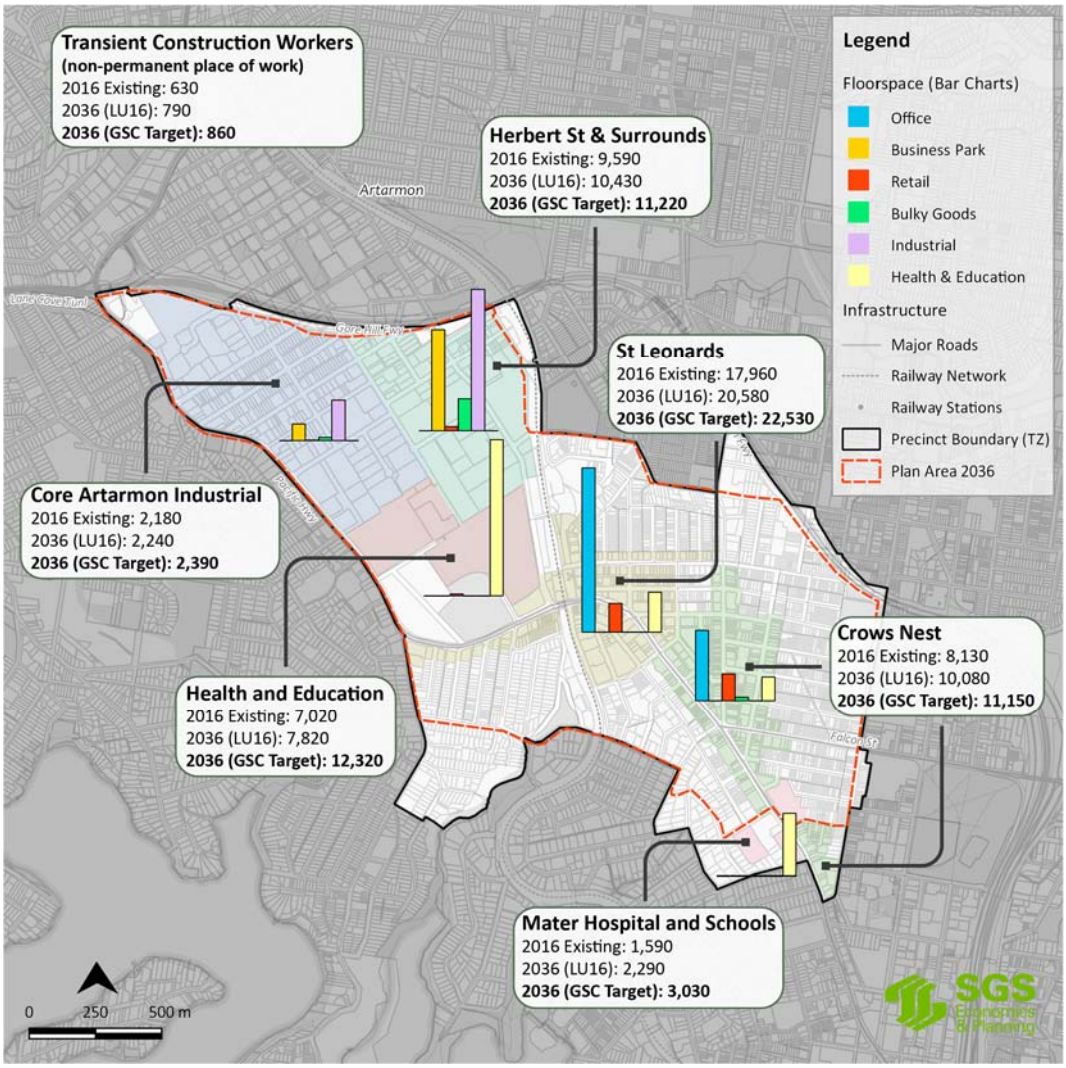
[2] St Leonards C+D refers to C and D grade office stock. St Leonards A+B refers to A and B grade office stock

[3] In this report a 10% affordable rental housing provision has been used as a conservative assumption in the feasibility modelling. The modelling assumes that developers essentially 'give-away' the stock. In reality there is the opportunity for DPE and Councils to negotiate more detailed arrangements through developer levies under SICs and s94.

Future jobs and floorspace across sub precincts

The figure below shows the broad distribution of jobs by different category by sub-precinct, to meet the GSC target for the Precinct.

DISTRIBUTION OF EMPLOYMENT WITIHN PRECINCT - 2016 EXISTING, 2036 BASE CASE GROWTH (TZP 2016) & 2036 NORTH DISTRICT PLAN HIGH EMPLOYMENT TARGET



Source: SGS Economics and Planning 2018; TPA 2017

The total demand for floorspace and its distribution throughout the Precinct has been derived from these job numbers, with some adjustments. A ratio of the typical amount of floorspace required per job in different industry categories was derived from current on-the-ground ratios observed during floorspace audits.

The exception is for new office floorspace in the St Leonards core and Crows Nest. In these locations the existing (audited) employment to floorspace ratio is estimated at 26 sqm of floorspace per job, which is utilised for floorspace which is constrained in its ability to be redeveloped, while 18 sqm is used for new floorspace. The latter is based on an upside, 'conservative' estimate to ensure there is a buffer to meet targets, notwithstanding that some new office floorspace is being provided at 11 to 14 sqm per job.

The estimated levels of floorspace demand are calculated by multiplying the projected employment demand by the relevant employment to floorspace ratios, including a 10% buffer to facilitate market turnover or churn.

For the purposes of demand and supply alignment, Crows Nest, the Mater and St Leonards core have all been condensed into one category, whilst Gore Hill, Herbert Street and the Artarmon Employment Area are combined as 'Artarmon'. As the Health and Education Precinct is not technically a market location, it has been excluded from this analysis pending future investigations led by State Government. It should be noted that the demand for health and education floorspace within the Precinct will in many cases occupy office or even retail type floorspace.

The tables below show, in turn, for these two broad markets the total estimated future floorspace demand by 2036, the estimate of floorspace supply and the net additional floorspace required by category to bridge the demand-supply 'gap' by 2036.

MARKET FLOORSPACE DEMAND WITHIN PRECINCT BY 2036 (CONDENSED)

Floorspace Category	Crows Nest & St Leonards	Artarmon	Total
Office, Health & Education[4]	698,000	-	698,000
Industrial Ancillary	-	273,000	273,000
Retail	128,000	12,000	140,000
Bulky Goods	9,000	82,000	91,000
Industrial	-	420,000	420,000
Total	835,000	787,000	1,782,000

Source: SGS

EMPLOYMENT FLOORSPACE SUPPLY ACROSS SUB-PRECINCTS

Floorspace Category	Crows Nest & St Leonards	Artarmon	Total
Office, Health & Education	511,000	-	511,000
Industrial Ancillary	-	261,000	261,000
Retail	109,000	11,000	120,000
Bulky Goods	10,000	75,000	85,000
Industrial	-	231,000	231,000
Total	629,000	578,000	1,208,000

Source: SGS

EMPLOYMENT FLOORSPACE REQUIRED (IN ADDITION TO EXISTING) ACROSS SUB-PRECINCTS TO MEET DEMAND WITHIN PRECINCT

Floorspace Category	Crows Nest & St Leonards	Artarmon	Total
Office, Health & Education	187,000	-	187,000
Industrial Ancillary	-	12,000	12,000
Retail	19,000	1,000	20,000
Bulky Goods	-	6,000	6,000
Industrial	-	189,000	189,000
Total	206,000	209,000	414,000

Source: SGS

[4] Health and education uses are likely to occupy office type floorspace in St Leonards and Crows Nest

Planning for growth

In terms of land use planning for various sub-precincts, a suitability assessment was undertaken to determine each area's future economic role.

Precinct directions

Based on the analysis in the report, including a 'suitability assessment' which aligned sub-precinct attributes with the general and typical requirements of candidate land uses, the following directions are provided for land use planning purposes, though recommendations for site specific planning and development controls is beyond the scope of this report.

Artarmon West

Key Directions

- Protect for industrial uses and service industry land uses.
- Limited net floorspace change is anticipated – conversions of industrial floorspace to office or retail floorspace should be discouraged.
- No residential development.

Implications for planning, land use and infrastructure strategy

- The growth of lower north shore service and light industry needs will need to be accommodated at Artarmon (with some 'overflow' potential in Gore Hill).
- The existing available capacity should be sufficient given options for re-use and redevelopment of existing floorspace.
- Intensification of industrial activities and site utilisation should therefore be expected for some sites – so no change to zoning but changes to FSR or other to facilitate continued industrial development and intensification should be facilitated on a site by site basis.

Gore Hill

Key Directions

- Support for industry/warehousing development, including smaller formats that support the growth of industrial activity not able to be accommodated in or which 'overflows' from Artarmon West, helping to meet the floorspace demand identified for this area.
- Recognise that there are some 'tech' developments already and continued prospects for a mix of industrial enterprises.
- No residential development.

Implications for planning, land use and infrastructure strategy

- Preserve for an industrial related, mixed employment only outcome.
- Pure office development should be directed away from this precinct towards the St Leonards core, where public transport access and amenity is more suitable (though there is a shuttle bus which is still appropriate for industrial and enterprise activities).

Herbert Street

Key Directions

- Support dynamic evolution for industrial, 'tech' and warehousing activity.
- Facilitate industrial/tech/warehouse floorspace in innovative formats in the bulky goods area.
- No residential development.

Implications for planning, land use and infrastructure strategy

- Existing zoning is delivering organic growth and evolution.
- No need to change zoning, but new, productive employment uses such as hospitals, medical facilities, technologically driven industry which require integrated facilities and larger floorplates than what can be delivered in the St Leonards core should be considered and encouraged in this location, including in the current 'bulky goods' area. This may require a review of numeric controls.

St Leonards Core

Key Directions

- Maintain potential for commercial and employment only sites, given the new Metro station and Metro rail investment is expected to catalyse higher value office development in the medium-short term.
- In the current mixed use zone, allow additional residential development but also require minimum commercial floorspace consistent with achieving employment target. Encourage mixed use with stand alone commercial office (horizontally separated) on larger sites.
- Consider major car parking reforms (reduced rates, shared solutions etc) to reduce development costs and imposition at street level.

Implications for planning, land use and infrastructure strategy

- Retain most or all of the existing B3 zoned sites, allow additional floorspace including mixed use with minimum commercial floorspace in the B4 zone.
- Ensure connection and access to new Metro Station is optimal, along with street amenity.
- Parking innovations should be pursued to enhance amenity and reduce costs. Investigate zero or greatly reduced parking in new developments combined with for example, an offsite parking facility(s), and establishing a 'market' for existing and new spaces.

Crows Nest

Key Directions

- This sub-precinct is where most change is expected around the Sydney Metro station – the opportunity exists to create a modern mixed business environment and a low traffic impact, 'green zone' with high amenity.
- The challenge is to ensure an employment outcome while facilitating redevelopment given costs of redevelopment and returns on office development compared to residential development. There is a need to monitor outcomes to ensure capacity for employment is provided.
- Minimum employment floorspace should be required to meet need – market testing has shown that mixed use (commercial office plus residential) will catalyse development, in forms acceptable to investors.

Implications for planning, land use and infrastructure strategy

- Catalyse employment floorspace with residential in genuine mixed use redevelopment.
- Require a minimum employment floorspace outcome in any redevelopment.
- High amenity area; protect the grain and scale along Willoughby Road.
- Enhance retail activity and create an 'urban heart' between Metro Station and Willoughby Road.

Pacific Highway corridor (St Leonards)

Key Directions

- Commercial employment including professional services and ancillary health.
- Limited net employment floorspace change anticipated though opportunities for renewal and refurbishment, and some minor extensions for additional office on some sites.
- Innovative redevelopment for employment encouraged.

Implications for planning, land use and infrastructure strategy

- Prioritise employment only with additional yield potential to catalyse investment.

Pacific Highway corridor (Crows Nest)

Key Directions

- Encourage showroom, large format retail on ground and first floor of commercial podiums.
- Podiums could also accommodate commercial or medical centres etc. for Mater Hospital related ancillary activity.
- Incentives for redevelopment including residential.

Implications for planning, land use and infrastructure strategy

- Some sites and blocks subject to heritage protections.
- Consider a boulevard treatment for the Pacific Highway, review on-street parking to encourage public transport priority.
- Pacific Highway 'boulevard' podiums, allow additional residential on upper floors to catalyse change.

Health & Education (Royal North Shore)

Key Directions

- Support development of a world class health and education precinct

Implications for planning, land use and infrastructure strategy

- Joint Health and Education site precinct planning process with economic development initiatives to encourage accelerated growth of health and education jobs. There is capacity for growth on both the Royal North Shore Hospital and TAFE sites, with the TAFE site potentially being able to accommodate a joint school development.
- Establish a coordination body to undertake joint master planning.
- Innovations to allow ancillary development 'on-site' in private and allied health should be further explored.

Health & Education (Mater)

Key Directions

- Explore opportunities for consolidating and expanding health and education activities.

Implications for planning, land use and infrastructure strategy

- Liaise with the Mater Hospital to find initiatives that facilitate expansion and co-location opportunities with allied health providers, including in the adjacent Pacific Highway strip and nearby sites.

1. INTRODUCTION

1.1 Project context

Improving employment and housing outcomes in Strategic and District Centres is a major priority for the New South Wales Government as stated in *The Greater Sydney Region Plan*. Strategic Centres in particular, have a significant role to play in leveraging growth off the back of significant infrastructure investments. Encouraging population and employment growth in and around major transport nodes contributes to economic agglomeration and accessibility; improving the collective wellbeing of the community.

The Department of Planning and Environment (DPE) is the agency tasked with advancing the land use planning dimensions of these objectives. DPE are currently working with Lane Cove, North Sydney and Willoughby Councils to prepare the St Leonards and Crows Nest Station Precinct Land Use and Infrastructure Implementation Plan (LUIIP). The LUIIP will provide a vision, growth projections and land use strategies to guide future development of the Precinct. The Plan is a three-stage process as summarised in Table 1.

TABLE 1 ST LEONARDS & CROWS NEST LUIIP PROJECT STAGES

Stage	SGS Contribution	Status
Stage 1 – Strategic Employment Review	Economic context and employment forecasts	Complete
Stage 2 – Land Use and Infrastructure Implementation Plan	Housing demand and economic feasibility	This report

1.2 Project Brief

The SGS brief for Stage 2 is to build on the Stage 1 Strategic Employment Review by undertaking an Economic Feasibility study. In this Economic Feasibility Study, SGS is to analyse:

- The economic impact of Sydney Metro on residential development and employment
- Produce employment and housing forecasts
- Assess market trends for residential and commercial development
- Model the feasibility of various development formats as determined by SJB's urban design work
- Determine the preferable arrangements for accommodating employment and dwelling growth both in terms of floorspace quantum and sub-precinct locations.

Throughout this assignment, SGS has worked closely with other consultants, government agencies and key stakeholders in the area, attending and presenting at a range of workshops.

1.3 This report

The objective of this report is to provide housing demand forecasts and economic feasibility analysis for different land use combinations within the Precinct. In combination with the employment forecasts from Stage 1, the analysis is required by DPE to inform the land use mix that could be supported in the Precinct.

In delivering this analysis, SGS has employed a range of methods, including:

- Reviewing background materials
- Reviewing demographic and housing data
- Consultation with the property industry
- Population and employment accessibility modelling
- Housing demand forecasts
- Property market analysis
- Residual land value modelling
- Sensitivity tests

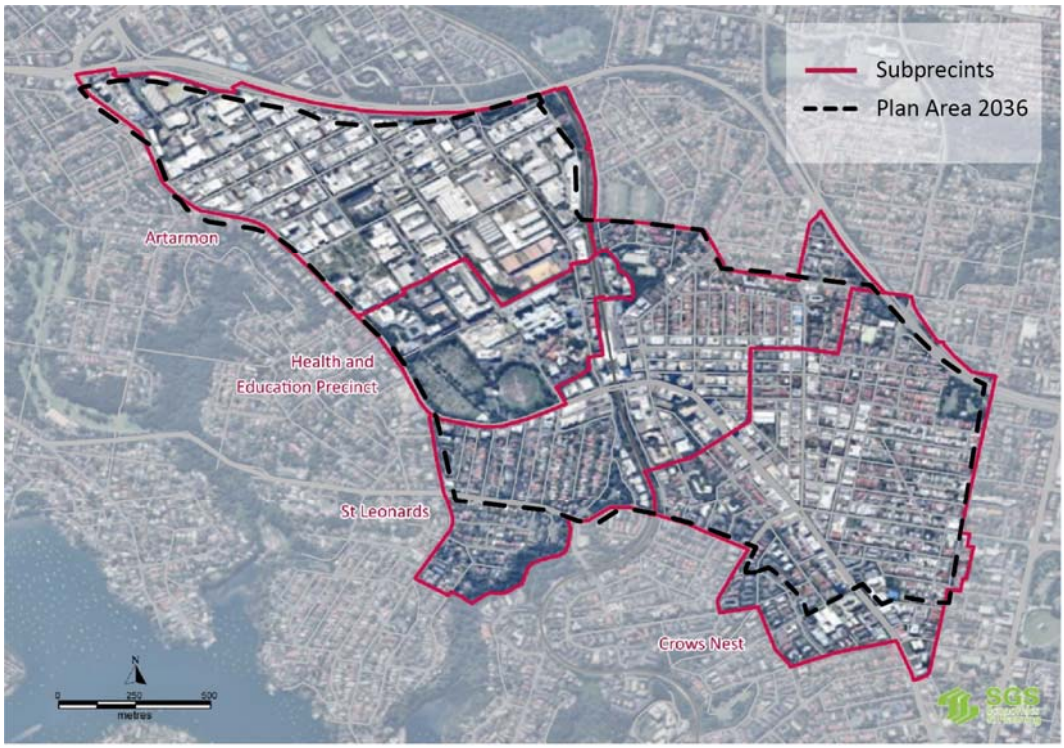
The work builds on the employment forecasts of the Stage 1 report, and has been developed in concert with advice from other specialist consultants, namely SJB (urban design), Cardno (transport) and ARUP (social infrastructure).

Findings are subsequently used to make an integrated set of recommendations for all types of land use in the Precinct.

The Precinct has been divided into four sub-precincts as shown in Figure 1. Two can be classified as Centres. These are St Leonards with a rail station, retail and significant office space and surrounding residential development and Crows Nest with local retail, lower scale office and residential uses.

The remaining areas comprise one health and education sub-precinct (focussed on the Royal North Shore Hospital), and an industrial sub-precinct (Artarmon); albeit that it is gradually evolving into an industrial mixed business and tech enterprise sub-precinct.

FIGURE 1 PRECINCT AND SUB-PRECINCTS



2. STRATEGIC FRAMEWORK

The Precinct continues to develop as a strategic urban centre of significance. Over the next 20 years this centre shapes essential components to both the housing and employment solutions in the region. The alignment of this centre's development to state and local policy is explored in this chapter, along with a strategic assessment of how the LUIIP can address key issues outlined under existing policy platforms.

2.1 Policy context

A review of key studies, strategies and plans relevant to the Precinct was undertaken in the Stage 1 SGS report to evaluate its current and future role. The following policy documents were reviewed in relation to the future growth of the Precinct.

1) A Plan for Growing Sydney, 2014 and its successors (including the Greater Sydney Region Plan)
2) North District Plan, 2016
3) St Leonards/Crows Nest Planning Study 2011-2015
4) St Leonards Strategy, 2006
5) Willoughby Economic Development Strategy, 2014
6) North Sydney Economic Development Strategy, 2016
7) North Sydney LEP, 2013
8) Willoughby LEP 2012
9) Lane Cove LEP 2009

A full summary of those documents can be found in the Stage 1 report. The discussion in this section builds on that background document review by considering the broader implications for future policy.

In broad terms, there are three issues of most significance:

- Definition of the Precinct's economic and housing role within the broader district context
- The relative success of past initiatives and strategies in the Precinct, and key learnings that can inform the upcoming LUIIP
- Initiatives, investments and projects that are of relevance to the future development of the Precinct.

2.2 Definition of the Precinct's role in the District

The Precinct is located within a well-established part of Metropolitan Sydney. Along with Chatswood, Macquarie Park and North Sydney, it is positioned within a formidable economic cluster in the lower North District.

Due to their prime location, significant volumes of past and future infrastructure investment and existing mass of activity, all four centres will be expected to drive significant economic and employment growth over the next 20 years. While collectively they are part of an economic corridor, there are significant opportunities for each centre to develop its own specialties, whilst leveraging off the economic success of neighbouring centres.

Within this context, the Precinct has been earmarked as a centre which will expand on three fronts:

- accommodate growth in knowledge and professional services,
- health care - spearheaded by expansion at the Royal North Shore and Mater Hospitals and
- residential intensification.

In addition to these growth opportunities there are a number of existing roles which will remain significant in the long term for a variety of reasons, including:

- service industry including a significant 'urban services' role[5]
- retailing and
- motor vehicle sales/showrooms[6].

In essence, the Precinct is a centre which plays most if not all major land use functions. The key question is therefore how such a multi-faceted centre is to be planned. The existing policy platforms provide the following points of guidance.

1. Jobs target

There is a high end jobs target of 63,500 by 2036 in the North District Plan, which is a significant uplift from the 54,000 jobs projected under a 'Business as Usual' scenario whereby existing trends are extrapolated into a forecast.

It is important to understand that employment is not ubiquitous and different types of employment will require different approaches. Table 2 provides a summary of how this employment target can be reached. Employment is discussed further in Section 4.6.

TABLE 2 EMPLOYMENT PROJECTIONS AND TARGETS

Progressive Increase	Level of employment	Source	Description	Assessed Likelihood
-	47,000	TZP 2016[7]	Number of jobs in the Precinct in 2016	Certain - already within precinct
7,000	54,000	TZP 2016	Number of jobs in 2036 under the Base Case	Very likely - based on historical trend growth
3,500	57,500	SGS Accessibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	Likely - so long as Sydney Metro is delivered as planned, along with associated population growth and no supply side constraints
1,500	59,000	SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	Possible - requires supporting investment as well as targeted economic development initiatives plus available supply side capacity
4,500	63,500	North District Plan 'High Target'	High end, aspirational target defined in the North District Plan.	Possible - dependent upon realisation of GSC's Health and Education vision and associated initiatives

[5] A definition of urban services can be found in Appendix F – Urban Services

[6] Whilst these uses are well established in Artarmon, this sector could be ripe for disruption in the near future given technological progress in the automotive sector. Nonetheless for planning purposes we assume that these uses will remain in Artarmon for the foreseeable future as there is no concrete evidence (yet) to suggest that such uses will be transformed soon.

[7] TZP 2016 is TfNSW's employment forecasts, undertaken in 2016 which was the most available data when the analysis was completed

2. Balancing employment and residential growth

The North District Plan is clear in its direction for St Leonards within the Precinct to **'grow jobs in the centre… and leverage the new Sydney Metro Station at Crows Nest to deliver additional employment capacity'**.

In terms of accommodating dwelling growth, the direction is '**retain and manage adjoining industrial zoned land for a range of urban services'**.

To that end, the focus and intent of the LUIIP should:

a) ensure that the St Leonards centre is given its best chance to attract employment and commercial investment and
b) accommodate residential development, so long as it doesn't undermine capacity for planned jobs growth.

At face value, there is enough land in the Precinct to achieve both outcomes. However, ensuring that land is translated into sufficient volumes of commercial floorspace and residential dwellings can be a challenge, given subdivision, existing built form and tenure patterns, unequal market competition for sites (residential development currently provides a greater return than commercial) and the need to preserve some sites or sub-precincts for particular and vital urban activities such as service industry (i.e. Artarmon employment area).

Potential strategic approaches to the challenge of providing sufficient floorspace for employment uses, consistent with achieving the high end of the job range target and the strategic economic potential of the Precinct, are tabulated in Table 3, alongside some drawbacks to each. These solutions are not mutually exclusive – indeed, the 'ultimate solution' is likely to be a combination of these. The most obvious solutions are canvassed here for contextual consideration – more expansive detail is provided in Section 6.3 where the Precinct plan is discussed.

TABLE 3 OVERCOMING A LACK OF DEMAND IN COMMERCIAL FLOORSPACE DEVELOPMENT

Potential Solution	Advantages	Potential pitfalls
Utilise Artarmon, Gore Hill, Herbert Street areas for employment	These areas are all established employment locations, with their own marketable identity. There is also a general lack of industrial land in the North District, so they are critical places for a continuation of employment uses – particularly industrial employment uses.	None have significant, established knowledge clusters which can be leveraged for major office development (although Herbert Street potentially comes close). Industrial uses should be the preferred and predominant land use. If some of them were to evolve into a pure office area (e.g. Artarmon and Herbert Street playing a similar role to Macquarie Park) critical industrial and urban service uses are likely to be displaced without an obvious substitute location in the North District.
Expand the health and education functions at the Royal North Shore and Mater Hospitals	Health and education is one of the major expanding sectors in the domestic and international economy. There is significant land available at the Royal North Shore Hospital site for a variety of expanded employment functions. There is also scope to leverage growth in Allied Health in adjacent sub-precincts.	Growth in Allied Health in adjacent sub precincts will still require office floorspace provision. More integrated expansion of a health and education cluster transcends beyond planning for floorspace supply through zoning and development controls. To some extent, it requires partnerships, a cross-agency approach, targeted site development and an informed economic

Potential Solution	Advantages	Potential pitfalls
		development strategy that can influence demand side drivers.
Use residential demand/development as a stimulus for revitalising ageing employment floorspace in the Precinct (either through lower floor commercial floorspace podiums or in separate buildings on the one lot).	Accelerates the process of replacing C and D grade office stock with Premium, A grade stock. Theoretically the most efficient means of delivering employment and housing outcomes given limited land available for achieving both objectives on separate lots/sub-precincts.	Would require stringent standards to be established as building design, entrances and general character would all need to favour employment for this to truly succeed. There is the risk that even if commercial floorspace was provided and is not retained in the medium to long term, any conversions to residential could erode capacity for employment. It is also theoretically possible that once Sydney Metro is operational, demand for pure commercial office buildings with more employment floorspace may emerge. If land has already been turned over to mixed use buildings these opportunities for employment would be lost. (See below).
Preserve the existing B3 area as an employment floorspace only location in the hope that Sydney Metro creates demand for pure commercial floorspace developments.	Reasonable to the extent that there is value in preserving the future option – particularly given the substantial public investment that is Sydney Metro. If demand does not increase, there is always the option to then allow mixed use development if demand for pure commercial floorspace simply does not eventuate. Ultimately, pure commercial floorspace (if possible) is still the preferred floorspace for commercial tenants to work in – particularly major anchors.	It is possible that land owners in the area may expect that B3 zoned land will eventually 'turn over' to residential or mixed use at a later date. Land banking is a genuine possibility if such a market expectation cannot be avoided.

2.3 Learnings from past initiatives and strategies

The Precinct has been the subject of a range of planning initiatives in the past. In undertaking new analysis, it is important to be cognisant of how past policy initiatives have delivered or failed to deliver planning outcomes.

Table 4 lists the four key policies which have been implemented across the Precinct with reasonable levels of success, with a focus on impacts to employment and development outcomes.

TABLE 4 KEY PREVIOUS EMPLOYMENT STRATEGIES

Past initiative	What worked/failed	Implications for LUIIP
1. Maintain requirement for commercial floorspace at lower levels in the eastern Mixed Use Transition Area (North Sydney part of the Precinct). *[St Leonards Strategy 2007]*	To some extent this has preserved the employment function of this area	In order to achieve the employment target of 63,500 jobs, this policy may need to be maintained.

Past initiative	What worked/failed	Implications for LUIIP
		As discussed in Section 2.2, this remains a viable option given Sydney Metro development.
2. Allow mixed use development between Marshall Lane and Marshall Avenue. *[St Leonards Strategy 2007]*	Redevelopment of the site started in 2013. It is almost entirely residential (approximately 110 apartments) with 105sqm of retail/commercial floorspace on the ground floor.	Mixed use development is effective if properly implemented and viable, but in practice does require a high degree of specificity in planning controls to ensure that certain employment outcomes are guaranteed.
3. Rezone land along the eastern side of Herbert Street south of Cleg Street and the western side of Herbert Street south of Frederick Street to a zone that allows office uses and the continuation of industrial activities. Provide a 3-4 storey limit for development. *[Willoughby Industrial Areas Study 2004].* The following changes were made to planning controls: – rezoned land in Herbert St and on the corner of Campbell Parade and Pacific Highway (next to the ABC site) from Industrial 4(a) to 4(c); – permitted **high technology industry** in the 4(c) zone, originally introduced for the Gore Hill site at Artarmon. – amended FSRs from 1:1 to 1.5:1 for sites greater than 1,000 sqm – deleted the restrictions on the amount of ancillary office and showrooms permitted for all industrial areas except for area bounded by Campbell Street, Clegg St, Herbert St, the Gore Hill Freeway and Pacific Highway which was increased from 20% to 30% maximum for ancillary office and showrooms.	A successful change with significant intensification of employment occurring. Partially attributable to St Leonards Railway Station. Most new uses which have emerged specialise in the technology/IT space and make use of both office and warehousing/ industrial floorspace.	There are two distinct implications. 1. There is a clear and emerging trend of innovation in the IT sector which requires a combination of commercial and industrial floorspace. The consultation with businesses in this sub-precinct would indicate that there is a shortage of this type of zoned land in well-connected parts of Metropolitan Sydney. Where more of this land should be provided in Artarmon or elsewhere is the strategic question. 2. The other issue is what the next step for the Herbert Street area should be. The existing zoning and allowance for high tech industry has clearly worked, but there may be a temptation to take this one step further and increase the commercial floorspace presence – potentially at the expense of any remaining industrial character. Both options have their strategic merits. This is a complex issue which is discussed in more detail in Section 6.
4. Provide a shuttle bus between St Leonards and Artarmon railway stations. *[Willoughby Industrial Areas Study 2004]*	A valued service, which may have facilitated the activation of Herbert Street and the continued success of Artarmon as an intense employment location, building on the proximity of St Leonards station.	To fully capitalise upon the development of Sydney Metro (and to achieve the higher end employment target), ancillary public and active transport services/infrastructure will be required. More shuttle bus routes should be considered..

2.4 Strategic development and growth of the precinct

Whilst the 'High' GSC 63,500 jobs target should be interpreted as an aspiration and not a matter of economic fact, there is still great value in setting ambitious targets to help drive the best possible outcome for the community, particularly given the scale of investment in rail infrastructure and the new metro station at Crows Nest. It should be understood that a number of factors will contribute to and determine whether this target is met, including:

- Varying economic conditions. Recessions/booms, unforeseen industry shifts and unusual trade patterns are examples of the broad suite of economic 'shocks' that are difficult to predict over a long timeframe, and are even more difficult to prevent or mitigate at the local level. Not only do they undermine market depth for land uses, they can also prevent developers from gaining important access to capital.

- Infrastructure investments. Projects such as Sydney Metro will of course generate greater economic activity. But what should not be underestimated is the role of more incremental types of investment which can support the broad objectives of the big catalytic projects. Bus connections to surrounding suburbs, active transport works in and around centres and a compelling public domain experience will accentuate the impacts of headline projects.

- Government policy. This report assumes that the NSW Government will continue to commit to the Precinct for at least the next 20 years. However other policies across all three tiers of government can have an influence. Health policy for instance, could drive the establishment of a new research facility in the Precinct. At the local level, planning regulations can restrict or encourage various types of development and land use.

Whilst this report is primarily concerned with the economics of land use and development in the Precinct, there is a need to be cognisant of the range of other factors that may have a profound impact on its success. These are more or less difficult to influence.

It is therefore logical for State and Local Government to maximise the outcomes which are within their control, whilst managing the other issues as well as possible.

Acknowledgement must be given to the fact that the Precinct, Westmead, and Macquarie Park are the only centres outside of Central Sydney which will combine a Health and Education precinct, including the Mater Hospital and North Sydney Girls High School, as well as the Royal North Shore Hospital and TAFE at Gore Hill, with such significant transport infrastructure including both the existing St Leonards heavy rail and new Crows Nest Metro stations. Furthermore, Willoughby Road is one of the best 'eat streets' in Sydney. This combination of assets should be the subject of targeted economic development initiatives to maximise the significant potential.

Overall, the focus for the Precinct should be on (a) public benefit investments and works which can unlock the full potential of Metro, (b) opportunities for new public sector facilities in health and education and (c) appropriate planning controls.

3. MARKET DYNAMICS

This section provides an overview of the current context for housing and employment floorspace development in the Precinct and its surrounding catchment. It includes broad market trends, demographic analysis and sales data.

The focus of this section is on informing housing forecasts and development feasibility analysis later in the report. A comprehensive analysis of employment trends and issues can be found in the Stage 1 report.

3.1 Analysing the market

The successful development of the Precinct requires a strong contextual understanding of the market. Whilst demand and supply may operate at a broad, quantitative level, there are a number of nuances which inform the finer details of a plan – digging deeper than simple counts of dwelling numbers or whether a certain development mix is outright feasible or not. Table 5 highlights many of these elements and provides an indication for how the remainder of this section addresses each issue.

TABLE 5 ISSUES FOR FUTURE DEVELOPMENT IN THE PRECINCT

Issue	Significance	Analysis
Housing affordability	The most topical issue. Whilst moderating price pressures through facilitating high rates of market based residential development may be part of the solution, there is also a need to ensure that the most disadvantaged people in the community (including key workers) have access to affordable subsidised stock, which implies a specific affordable housing intervention.	Section 3.2 discusses this issue. The proportion of local residents which are under housing stress is quantified in Section 3.3.
Types of housing demand	Demand is a generic economic term. In relation to the provision of housing, it is important to understand and be clear on what demand actually means, across different household types for example.	Delineation of underlying and effective demand is provided in Section 3.2 (stated and revealed preferences are also discussed).
Household mix	As household size gradually decrease, there is opportunity to provide smaller households in apartments and other dwelling stock.	This is something which is significant but also should not be overstated. The numbers are presented in Section 3.3 and are a key input in the SGS Housing Demand Modelling (Section 4).
Crowding out effect	A major emerging issue in urban management, is development interest drives residential demand at the expense of commercial floorspace	Discussed briefly in Section 3.2 and quantified in Section 3.3. Section 5 provides more detail about what can be done to minimise this issue/these impacts?.

Issue	Significance	Analysis
	development – which is often less profitable and consistent.	
Market catchment	Whilst housing demand is somewhat fluid across the metropolis, there are observable patterns for the definition of residential submarkets. This is significant in the sense that this defines the geography for which demographic and market trends need to be analysed.	Informed by market consultation, presented in Section 3.2.
Parking	Perennially difficult to resolve amongst multiple stakeholders (particularly with retailers that often resist removal of parking spaces or introduction of parking meters), parking is an issue which has broader economic implications beyond whether tenants or workers are able to park.	Basic statistics are presented in Section 3.3, with feasibility tests applied in Section 5.
Development pipeline	In between broad demand and supply is the volume of development which is in the pipeline. In the Precinct, this appears significant. Planning for future development should not be overly influenced by this statistic, but nonetheless it is important to keep in mind what the market may do in the near future.	Data sourced from Cordell is presented in Section 3.3. This captures proposals which are under construction or advanced in planning and in the public domain (i.e. in the 'pipeline'). It should be noted that development interest (subject to approval) however, is well in excess of what is in the pipeline.
Commercial rents	Commercial rents and prospects for future growth are significant because they tend to be more spatially variable than dwelling prices, and more cyclical. This intersects with the likelihood of residential development 'crowding out' commercial.	Commercial rents are discussed in detail in Section 3.3.
Valuation of land	Land values are an important baseline consideration because they have a significant impact on the feasibility of development.	Section 3.3 summarises the various land valuation methods and why SGS utilised the cash flow method.

3.2 Key housing and development issues

This section summarises the key issues and trends surrounding the provision of housing and urban development. The purpose of this discussion is to provide a contextual understanding within which housing demand and feasibility modelling is undertaken, and why certain assumptions can often have a profound impact on the way in which housing is delivered in Sydney.

Population growth and housing affordability

As Sydney's population continues to grow, there is a need to ensure that an adequate supply of housing is provided. At face value, this is interpreted as a problem of volume: zone for more residential land and facilitate the market to construct more dwellings. However, the issue is more nuanced in terms of typology, spatiality and affordability.

In terms of **typology**, it is important to ensure that 'dwellings' does not become a generalised term. Different household types have different housing needs, and the overall supply of dwellings across the city should therefore reflect that broader diversity of demand which is prevalent in a large metropolis, subject to income and other trade-offs that households need to make. Townhouses, apartments, detached dwellings and so forth all have their role to play.

Spatiality matters because housing is desirable in locations with good accessibility to services and jobs. In Australia which has a limited number of major employment centres in the capital cities, coupled with the decline of regional and suburban manufacturing employment, a lack of access to a deep pool of jobs has compounded the impacts of the housing affordability crisis. Typically there are three approaches to address this problem, and the LUIIP seeks to address the first two whilst investment associated with Sydney Metro focuses on the third:

1. Residential intensification in accessible locations
2. Creating the conditions or attracting more employment in suburban centres
3. Investment in road and rail infrastructure to increase accessibility.

Finally there is also the issue of **affordability**. This specifically relates to parts of the community which cannot afford housing in accessible locations and require relief. The relief is justified on the premise that (a) all members of the community deserve to reside in decent shelter and (b) many play an important role in the economy (e.g. as key workers such as nurses, paramedics, police, teachers etc).

Understanding housing demand

Housing demand theory identifies two types of housing demand: underlying demand and effective demand. *Underlying demand* is the 'need' for housing based on the number of households in the population. The level of underlying demand is driven predominantly by migration and demographic factors. *Effective demand* is the number, size, type and location of dwellings that owner-occupiers and investors are willing and able to buy in the housing market. This is affected by the full range of market forces including: the number of households, incomes, prices, the availability of finance and the current supply of dwellings (National Housing Supply Council, 2008).

Housing demand projections are an example of *underlying demand* as these are based on population projections and an assumption of related demand for various housing types by family type, without taking into consideration the ability of housing markets to deliver these housing types.

Studies of housing preferences are generally concerned with either stated preferences or revealed preferences. S*tated preferences* are concerned with the types of housing people say they would like, perhaps unconstrained by income or other factors, which can be obtained from a survey, whilst *revealed preferences* are concerned with the types of housing people actually choose.

Other important considerations that influence housing demand and preferences (that are typically given much less prominence in the literature) are what might be termed 'external factors'. These include cultural norms (for example, favouring detached housing), macro-economic drivers (for example, interest rate trends) and taxation policy (for example, in Australia these policies have traditionally favoured the consumption of detached, family and owner-occupied housing though more recently investor housing has also been favoured). There are also some emerging external factors which may influence choices, in particular the current planning orthodoxy that advocates for higher density housing in and around centres that can be better served by public transport and is more suited to walking and cycling.

Smaller household sizes

Couple and single person households are the household types projected to experience significant increases into the future. The growth in couples without children is partially due to the increasing propensity for couples to remain childless, but is also due to the ageing of the population.

The growth in the number of older people who are couples without children can be mostly attributed to the growing number of post-child couples or 'empty nesters'. Australia wide there is projected to be 1.6 million more people in couple families without children in 2031 than in 2006 (from 58 percent to 60 percent of all households).

The proportion of younger people (20 to 39 years) in couple families without children is projected to increase from 18 percent to 20 percent (ABS 2010). Smaller household sizes are also driven by more fractured family arrangements. For this household type affordability may drive their choice for smaller dwellings.

The 'crowding out' effect

A core issue for accommodating new dwellings is the need for planners to juggle competing needs within the same precinct and often, the same site. The challenge for the Precinct and many other Strategic and District Centres around Sydney is to protect (and create new) employment opportunities and still accommodate the high levels of dwelling growth needed to prevent a deepening of the affordability crisis.

This is difficult to achieve because residential development will generally offer superior financial returns for landowners and developers. So when land use plans offer the market the opportunity to deliver either employment or housing, the ultimate result is often quite unbalanced in favour of residential development. Long term, businesses are 'crowded out'.

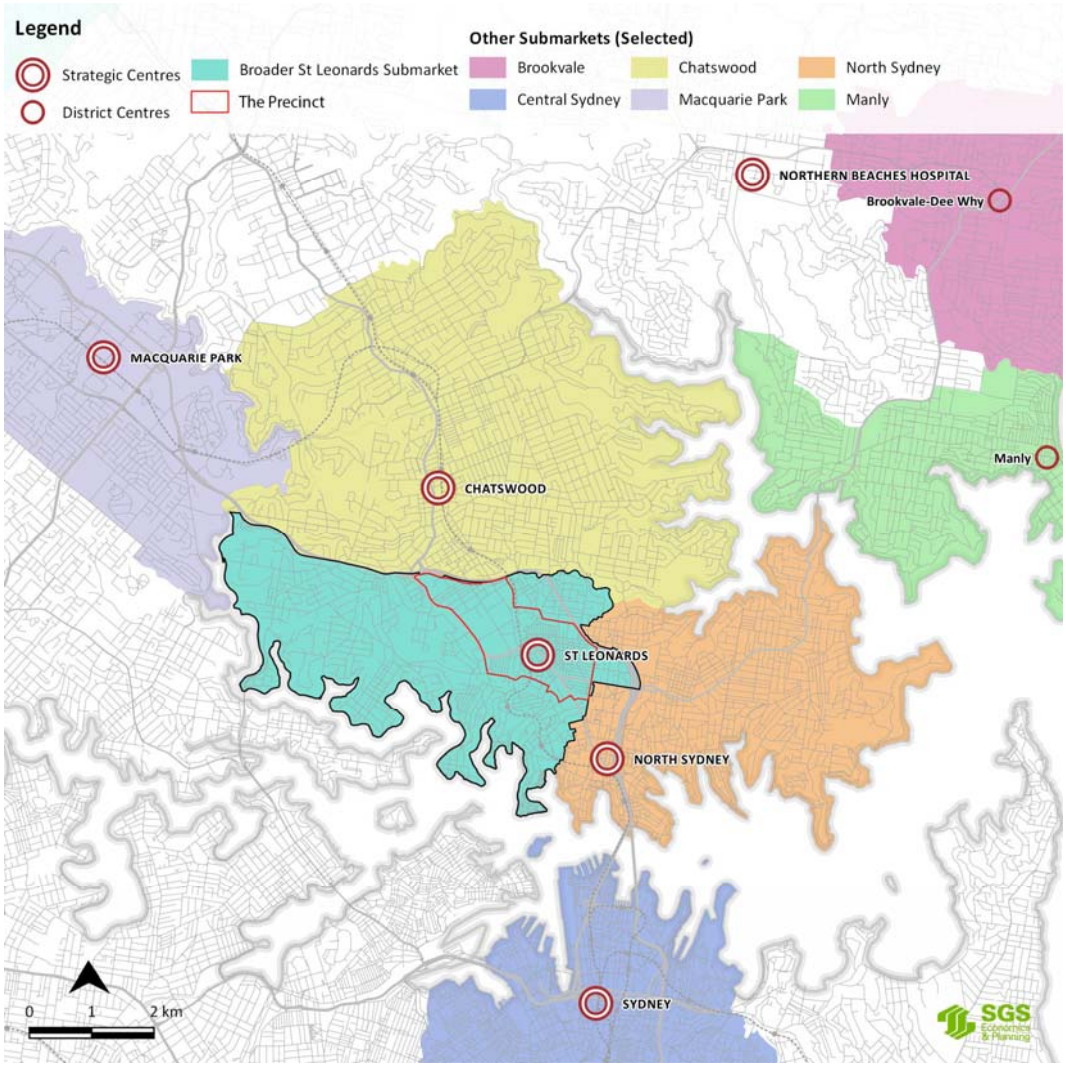
If a centre gains housing but loses employment, then one of the main attractions of that location for housing is greatly diminished. The ideal outcome is therefore to grow the level of employment in the local economy at a rate in line with dwelling/population growth. That ensures that new residents can be afforded similar levels of employment opportunity that existing and past residents enjoyed.

3.3 Local demographics

Consultation with local property market experts was used to understand the extent of the local submarket (Figure 2) and this section discusses recent residential trends. The importance of demographics is that it sheds light on resident preferences for a number of key housing related issues including dwelling type, parking and affordability.

It should be noted that many future residents of the Precinct may currently reside elsewhere in Sydney or Australia or overseas. This data is therefore indicative and not intended to be a perfect representation of future residents in the Precinct at full development.

FIGURE 2 PRECINCT AND BROADER HOUSING SUBMARKET



Source: SGS 2017

Dwelling structure

Table 6 shows the change in proportional share of dwellings by dwelling type from 2006 to 2016, with values for the Precinct displayed along that of the broader submarket. Other dwelling types collected in the Census and non-applicable responses were excluded.

As expected, the presence of apartments within the Precinct (along with many other Strategic Centres) has increased over the past decade. This is expected to continue in future given potential development projects in the pipeline and with delivery of Sydney Metro by 2023/2024. There is limited potential for growth in detached dwellings (it may even fall slightly), whilst the number of new semi-detached dwellings is likely to be modest given small lots and the extent of heritage conservation controls.

TABLE 6 DWELLING STRUCTURE – PROPORTION OF TOTAL DWELLINGS

Geography	Census Year	Detached	Semi-detached	Apartments
Precinct Market	2006	15.9%	15.9%	68.2%
	2016	10.9%	12.7%	76.4%
Broader Housing Submarket	2006	29.0%	12.7%	58.3%
	2016	29.2%	12.3%	58.5%

Source: ABS Census TableBuilder

Tenure mix

Table 7 shows how tenure mix has evolved over the past ten years. The number of dwellings owned outright is substantially lower within the Precinct (19.7%) compared to the broader submarket (29.3%), with the number of rented dwellings being higher in the Precinct (+14.1%) at 56%. The proportion of dwellings that are rented across both markets is also substantially higher than the rate for metropolitan Sydney, which was at 35.3% across the GCCSA[8]. A small intensification of this existing pattern was observed in the ten years to 2016.

This is common with apartment stock which tends to be more of an investment class for purchasers – leading to more renters. The trend is likely to continue into the future with more apartments expected to be constructed in the centre.

TABLE 7 TENURE MIX – PROPORTION OF TOTAL OCCUPIED DWELLINGS

Geography	Census Year	Owned outright	Mortgaged	Rented
Precinct Market	2006	20.1%	25.6%	54.2%
	2016	19.7%	24.3%	56.0%
Broader Housing Submarket	2006	31.2%	28.9%	39.9%
	2016	29.3%	28.9%	41.9%

Source: ABS Census TableBuilder

Family composition

Table 8 focuses on household composition. The proportional composition is largely similar between the Precinct and the broader housing submarket, however, the Precinct has a slightly higher proportion of lone person households, group households and couples without children. The type of tenure mix is also something that is commonly associated with apartment stock. Interestingly 'group households' (at 7.8% in the Precinct) is a relatively significant share. Students and key workers such as nurses are likely to be in this category, though affordability is a major issue for these groups as mentioned below. This would be consistent with the higher share of renters observed here, compared to the surrounding sub-market.

[8] Greater Capital City Statistical Area (ABS Definition)

TABLE 8 FAMILY COMPOSITION - PROPORTION OF TOTAL FAMILIES/HOUSEHOLDS

Geography	Census Year	Couple family without children	Couple family with children	One parent family	Other family	Lone person household	Group household
Precinct Market	2006	31.0%	17.0%	6.3%	2.6%	34.3%	8.9%
	2016	31.9%	20.2%	5.3%	1.4%	33.4%	7.8%
Broader Housing Submarket	2006	29.2%	24.1%	6.8%	2.0%	30.7%	7.1%
	2016	29.2%	29.0%	6.6%	1.2%	28.3%	5.7%

Source: ABS Census TableBuilder

The tenure mix and family composition statistics have implications for housing affordability, parking and social infrastructure. Social infrastructure is addressed in a separate study, but housing affordability and parking are discussed below.

Housing affordability

In light of the pervasive challenge of housing affordability across metropolitan Sydney, the Greater Sydney Commission's (GSC) North District Plan has identified the need to provide affordable rental housing for households on 'low' and 'very low incomes'. This has been defined in the Environmental Planning and Assessment (EP&A) Act as households earning less than 80% of the median Sydney income, quantified as a household income of $72,800 per annum or less in 2016-17 (see Table 9).

Table 10 shows the results for both rental and mortgage stress within the Precinct's housing market. Twelve per cent of households that rent are identified as being under housing stress, whilst 4.4% of households with a mortgage are identified as stressed under the GSC parameters. This level of housing stress amongst renters does not tell the 'full story' because the high prices will almost certainly have already forced key workers and other low to moderate income groups out of the area. Table 11 displays the proportion of households which fall into the low or very low income brackets as defined above (less than 80% of median Sydney income).

These statistics have implications for the provision of affordable housing. A minimum of 10% affordable housing provision could be mandated for all residential and mixed use developments in the Precinct. Key workers in the health and education sectors on low to moderate incomes would be an important target group for the affordable housing.

TABLE 9 HOUSING STRESS PARAMETERS

Parameter	Condition
Low and very low income households	Household income less than $72,800p/a (80% of Sydney median)
Proportion of income spent on housing	Greater than 30% of total household income

Source: GSC, EP&A

TABLE 10: RATES OF HOUSING STRESS

Proportion of households which are:	Renting (Precinct)	Mortgage (Precinct)	Renting (Greater Sydney)	Mortgage (Greater Sydney)
Under housing stress	12.0%	4.4%	30.8%	10%
Not stressed	88.0%	95.6%	69.2%	90%

Source: SGS using ABS Census data with GSC parameters

TABLE 11 LOW AND VERY LOW INCOME HOUSEHOLDS

Proportion of households which are:	Renting (Precinct)	Mortgage (Precinct)	Renting (Greater Sydney)	Mortgage (Greater Sydney)
Below threshold (< 80% of median Sydney income)	17%	8%	39%	14%
Above threshold (> 80 of median Sydney income)	83%	92%	61%	86%

Source: SGS using ABS Census data with GSC parameters

Vehicle ownership

Car parking demand is an issue which requires careful, evidence based management in major centres. Table 12 shows the number of motor vehicles per dwelling owned by residents across the Precinct and broader housing submarket. Whilst the proportional split has remained largely the same across all categories between 2006 and 2016, there is a recognisable increase in the number of households without a motor vehicle in the Precinct.

TABLE 12 VEHICLE OWNERSHIP – PROPORTION OF TOTAL OCCUPIED DWELLINGS

Geography	Census Year	No motor vehicles	1 motor vehicle	2 motor vehicles	3 motor vehicles	4+ motor vehicles	Average (per dwel.)
Precinct Market	2006	21.7%	56.0%	19.1%	2.9%	0.3%	1.04
	2016	23.2%	55.8%	17.5%	2.5%	1.0%	1.02
Broader Housing Submarket	2006	15.3%	49.8%	28.2%	4.9%	1.8%	1.28
	2016	13.7%	50.6%	27.9%	5.6%	2.2%	1.32

Source: ABS Census TableBuilder

The proximity to St Leonards railway station, as well as bus routes servicing the region, plays a part in reducing the need for on-site parking. This is anticipated to intensify with the operation of Sydney Metro and the accessibility to Crows Nest metro station, overlaid with broader trends impacting on car use and ownership such as congestion, prospects for car sharing, the cost of owning and operating a car and modest recent wage growth. Further transition to high-density residential development as a result of increased accessibility is expected. This also highlights the importance of providing dwelling stock which does not include the cost of car parking spaces.

3.4 Market data

In order to understand how these broader housing and development trends are currently affecting the Precinct, an assessment of market trends has been completed. This work combines an analysis of development proposals in the pipeline with consultation of real estate experts in the local and metropolitan region. More specific sales data relating to development feasibility can found in Section 5 and Appendix B.

Residential development pipeline

An analysis of projects currently in the development pipeline was conducted using the Cordell Connect database. This database provides information regarding construction projects over $1million, with information regarding their location and various characteristics. Table 13 shows a substantial number of dwellings in the development pipeline in the Precinct.

Table 14 focuses on the type of developments in the pipeline. A significant number of projects are mixed use developments and all have a significant residential component (all of which are apartments).

Those numbers have the potential to be significantly higher, given that there are a range of potential projects identified under the St Leonards South Masterplan for which the planning proposal has been exhibited but not determined, which are not included in this dataset.

TABLE 13 RESIDENTIAL DWELLINGS WITHIN THE DEVELOPMENT PIPELINE

Sub Precinct	Commenced & Firm Projects		Possible, Deferred, Early stage & Limited information available		Abandoned, Refused or Withdrawn	
	No. Units	No. Projects	No. Units	No. Projects	No. Units	No. Projects
Crows Nest	122	3	300	7	85	2
Naremburn	27	2	56	1	24	2
St Leonards	1,787	11	1,940	10	693	5

Source: Cordell Connect Database (2017)

TABLE 14 MIXED USE PROJECTS WITHIN THE DEVELOPMENT PIPELINE

Mix of uses	Commenced & Firm Projects		Possible, Deferred, Early stage & Limited information available		Abandoned, Refused or Withdrawn	
	No. Units	No. Projects	No. Units	No. Projects	No. Units	No. Projects
Commercial/ Residential	0	0	88	2	2	1
Retail/ Residential	485	7	158	10	220	5
Commercial/ Residential/ Retail	1170	4	2020	7	0	0

Source: Cordell Connect Database (2017)

Commercial rents

The median rent of different types of commercial floorspace was collected via an analysis of properties within the precinct listed as being on the market as of June 13, 2017. The results are displayed below in Table 15. A substantial proportion of the properties were cross-checked against other online real estate listings where possible in order to improve accuracy, however it should be noted that the figures below do not distinguish between properties which may be of higher or lower quality, and a tendency for the asking price for larger and higher quality listings to be withheld publicly may skew these results.

TABLE 15 MEDIAN COMMERCIAL RENTS IN THE PRECINCT (STOCK LISTED ON THE MARKET IN JUNE 2017)

	Office	Industrial
Median Annual Rent (per sqm)	$400	$208
Count	55	23

Source: CoreLogic RPData (2017); various online real estate listings

The dataset from Table 15 was expanded from consultation with property market experts that operate within the area, who provided information about typical rents available for prime commercial real estate, which the CoreLogic dataset was not capturing.

It was found that prime office rents (premium and A grade stock) within the Precinct are worth approximately $540-$565 per sqm per year (Colliers 2017; Knight Frank 2017), whereas the $400 per sqm from current listings was more indicative of C and D grade stock.

These rents have been increasing over the past five years, primarily because of existing office space being converted to residential uses. Approximately 17,000 sqm of office floorspace was permanently withdrawn between July 2016 and January 2017, with the total reduction across the whole of 2016 being 30,000sqm – a decline of 8.6% on the total office stock (Knight Frank 2017).

The consultation with property experts also indicated that annual retail rents within new developments in the St Leonards central commercial core will typically be priced at $800-$900 per sqm. Consultation has also identified that a significant premium is associated with location, with small tenancies in locations such as The Forum (immediately above St Leonards railway station) ranging up to $2,000 per sqm annually.

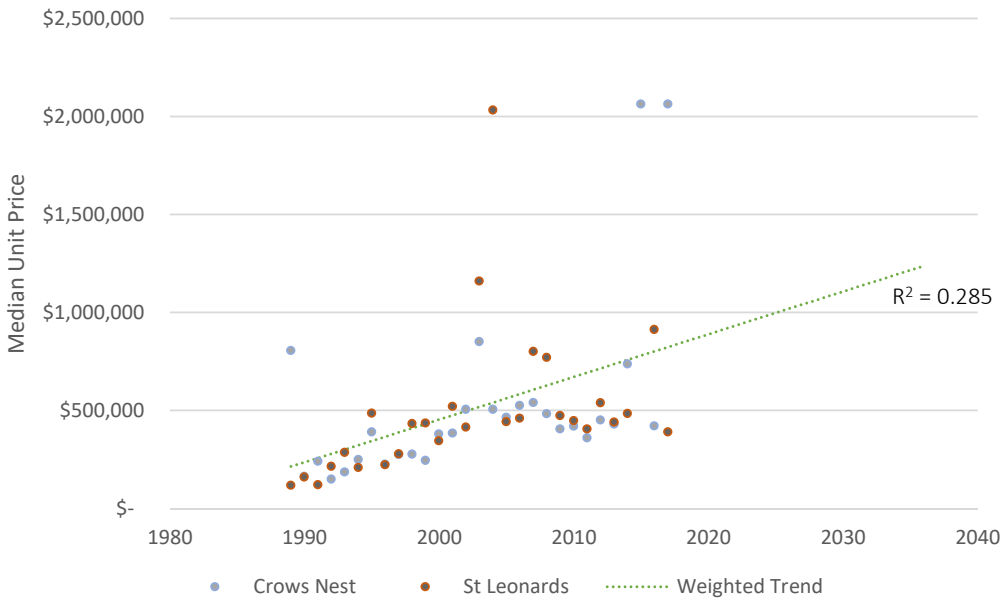
Typical rents for showroom-style tenancies along the Pacific Highway are understood to be approximately $400 per sqm.

Commercial sales

In order to determine long term trends in commercial property values, the median sale price of commercial strata units within the suburbs of Crows Nest and St Leonards between 1989 and 2017 has been analysed. Whilst the values have been more erratic than that of the sale of residential units over the same period, they have also displayed a notably upward trend.

As shown with the trend line, this linear pattern of growth is expected to continue in future. Sydney Metro is also likely to boost this growth although the extent of that uplift is difficult to quantify at this stage.

FIGURE 3 SALE PRICE OF COMMERCIAL STRATA UNITS



Source: CoreLogic RPData (2017)

Land Values

In broad terms, there are three commonly applied methods to determine the value of potential redevelopment sites. They are:

(1) observed market transactions – which represent recent reported sales,
(2) underlying land value – which is the Valuer General's hypothetical estimate of what the land is worth without improvements, and
(3) amortised financial return on assets – a discounted cash flow of expected returns based on what is currently on site – typically over a 30 year timeframe or in perpetuity.

Method	Source	Advantages	Disadvantages
Market transactions	Market data	Represents current willingness to pay *in situ*; the most direct measure of highest and best use of the site	May include additional value resulting from development speculation. The speculation may include unrealistic expectations of future yields.
Underlying land values	Valuer General of NSW	Consistently available on a site by site basis; good for comparative purposes across broad geographies	Does not take into account existing improvements on the land, and is therefore almost always an underestimate in dense, well developed urban locations
Financial return on assets	Evaluation of existing site plus improvements; market data	Ignores the effects of any potential up zoning and reflects realistic value of existing uses.	Does not take into account underlying value; dependant on estimation of current rental yield for existing uses

Upon evaluating the strengths and weaknesses of each method outlined above, it was concluded that the third method (return on assets) is the most accurate estimate of land value which ignores the effects of market speculation whilst still taking into account the value of existing improvements on site.

Both those points are important in the context of the Precinct because many potential redevelopment sites have been the subject of speculation, and most sites have substantial income generating improvements (commonly medium density office towers).

The results are discussed in Section 5.

3.5 Implications

A review of demographic and market trends has identified a number of issues which inform the future of development in the Precinct. In particular, the analysis uncovers some of the complexities and nuances involved in accommodating residential demand.

Whilst constructing significant volumes of multi-unit dwellings will certainly go some way to solving the metropolitan-wide housing affordability problem, it should be recognised that this is only part of the solution. Some households will still require larger dwelling types whilst key workers and disadvantaged households may need to be catered for through the provision of affordable rental housing.

In providing floorspace for residential development, there is also the risk that commercial office tenants are 'crowded out' – in turn, profoundly reducing one of the prime attractors for living in the Precinct: local employment opportunity. There is therefore a strong case for ensuring that planning controls preserve adequate room in the market for employment floorspace. Section 4 articulates just how much housing and employment floorspace is required in the Precinct and Section 5 tests a number of building scenarios for delivering that floorspace. Section 6 provides a spatial sub-precinct strategy for where housing and employment should be located within the Precinct.

4. DEVELOPMENT FUTURES

The previous sections of this report provided a contextual understanding of the policy and economic context for development in the Precinct. A number of issues for future growth were canvassed. This section builds on that understanding by quantifying the volume of demand for land uses across the Precinct, with a focus on employment floorspace and residential dwellings.

4.1 Method

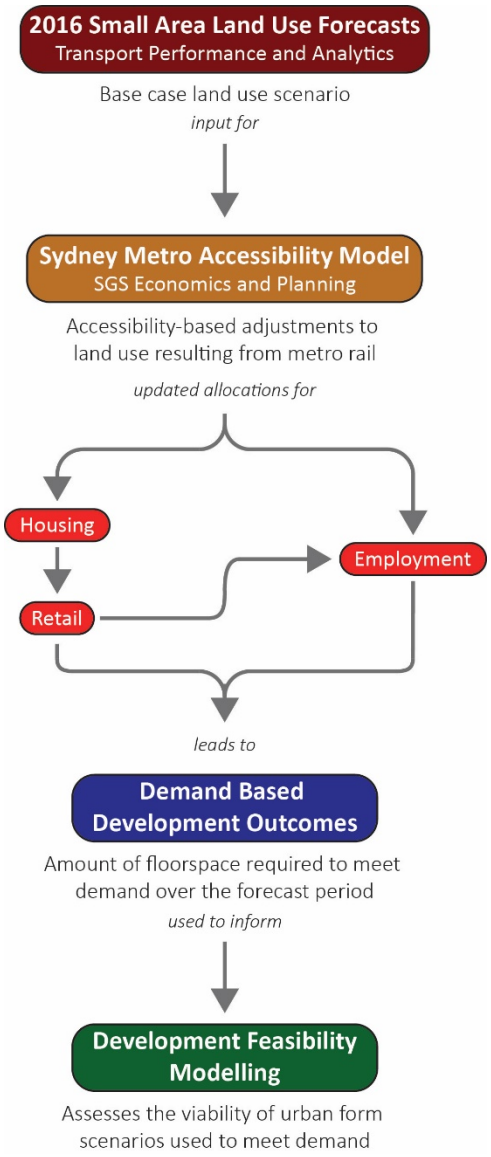
The main purpose of this section is to analyse demand to understand market depth and take up rates for commercial floorspace, retail floorspace and residential dwellings. Figure 4 outlines this process.

The base case is defined by the 2016 Small Area Land Use Forecasts, sourced from NSW State Government (see Section 4.2). The SGS Accessibility Model was then applied to measure the impacts of Sydney Metro (Section 4.3).

Land use forecasts are produced for housing (Section 4.4), retail (Section 4.5) and employment (Section 4.6).

Section 4.7 summarises the aggregate floorspace implications for the Precinct. Development feasibility modelling is undertaken in Section 5.

FIGURE 4 LAND USE FORECASTING AND DEVELOPMENT FEASIBILITY METHOD



4.2 Base Case

The NSW Transport Performance Analytics (TPA) team published the TZP 2016 employment forecasts across Metropolitan Sydney in 2016, which was the data available at the time the analysis was completed. Concurrently, the NSW Department of Planning and Environment (DPE) released its 2016 NSW population and household projections.

Those two datasets form the 'base case'– a foundation for the consideration of future land use scenarios across the state. These datasets generally take trend growth and can conservatively account for a limited number of confirmed, fully funded projects.

Under this base case, the Precinct is predicted to grow from 47,000 jobs in 2016 to 54,000 jobs by 2036.

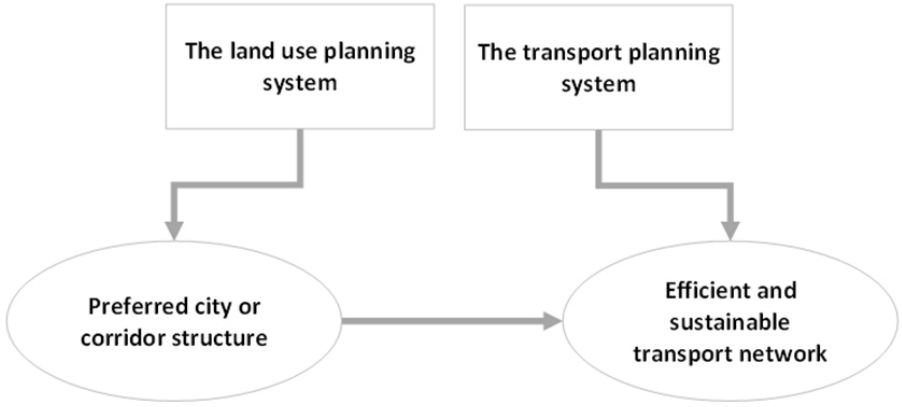
4.3 Impacts of Sydney Metro

City-shaping infrastructure

With accessibility at the core of determining commercial feasibility, changes to the transport network have the ability to shape and re-shape the land use development pattern and density of a city; indeed, transport investments can be used to facilitate and encourage a desired urban form.

This 'city-shaping' ability of transport infrastructure underscores the highly interdependent nature of land use and transport planning, which expands upon the traditional 'cluster and connect' model of integrated transport and land use planning where a city's structure is exogenously set and the transport network serves the sole purpose of facilitating access to different regions within the city (see Figure 5).

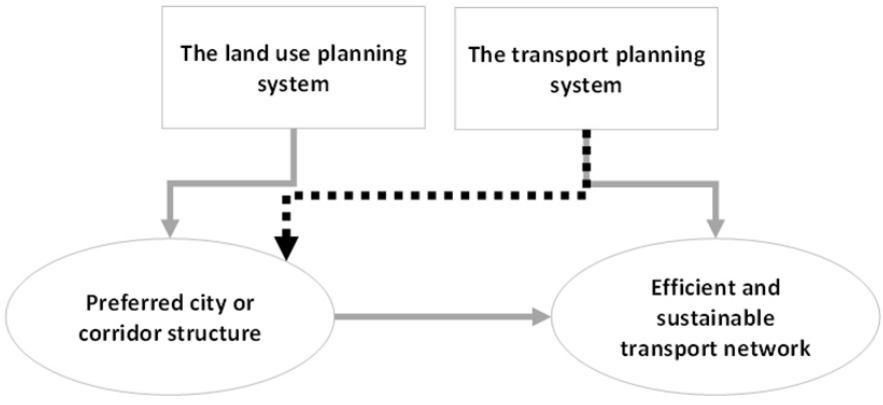
FIGURE 5 'TRADITIONAL' TRANSPORT & LAND USE PLANNING INTEGRATION



Source: SGS Economics & Planning Pty Ltd

Rather, the highly interdependent nature of land use and transport enables the transport system to impact upon the shape of the city itself as well as serving its original purpose of facilitating access (see Figure 6).

FIGURE 6 CONTEMPORARY TRANSPORT AND LAND USE PLANNING INTEGRATION



Source: SGS Economics & Planning Pty Ltd

Transport Project Categories

Transport projects are classified into different categories based on the significance of their impact across the context of the city. Major or Strategic Transport Projects significantly shift and improve accessibility to different regions across a city, and hence, are the only class of transport projects that have a 'city-shaping' ability. Sydney Metro should be considered in this class.

Other classes of transport projects (i.e. Structural and Follower Transport Projects) have the potential to shift land uses within a corridor or localised area in the short-term, however, these shifts will not have a long-term city-shaping impact.

Figure 7 provides a description of each Transport Project Classification.

FIGURE 7 TRANSPORT PROJECT CATEGORIES

Strategic or 'City Shaping' Infrastructure Strategic infrastructure comprises a relatively limited number of investments, almost exclusively in the transport domain (Sydney Harbour Bridge, Melbourne Underground Rail Loop, M7 etc.), which have the power to shift relative accessibility across the metropolis. These investments drive the location decisions of households and firms and can create new agglomeration economies thereby boosting productivity and taxation revenues.	
Structural Infrastructure Structural infrastructure represents the higher order or 'trunk' facilities and networks that provide the skeletal framework for the urban region in question. These include arterial roads, sub-regional sewers and water mains, major water storages, full service and research hospitals, principal university campuses and the like. These items are distinguished by their sub regional service catchments and their cost.	
Follower Infrastructure The third category of infrastructure – 'follower' services and facilities – comprises assets whose service catchments tend to be more localised. These items are vital to community wellbeing and business efficiency, but they neither shape the pattern of development nor provide an overarching structure for settlement and industry development. Rather they provide services into a suburb or neighbourhood once the development of these areas has been enabled by investment in higher order infrastructure initiatives.	

Source: SGS

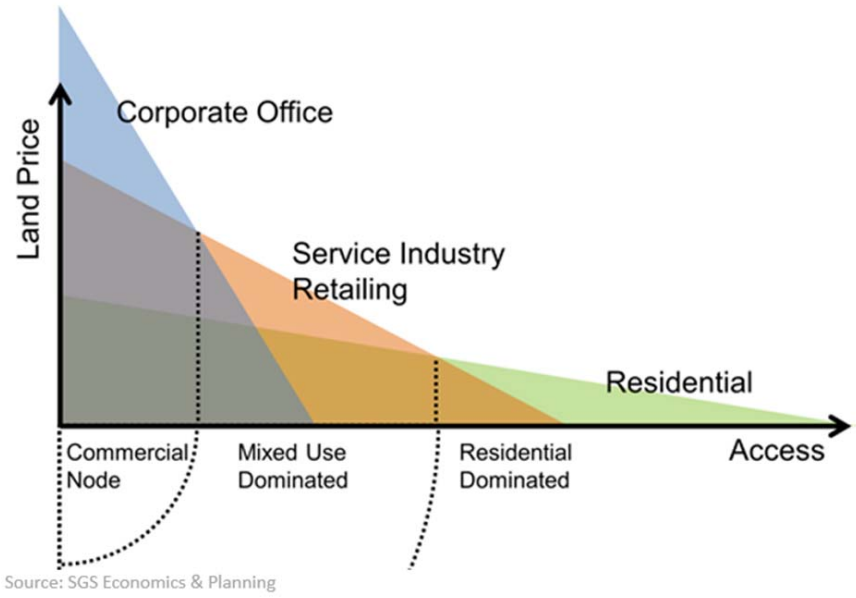
Estimating the Impact of Transport Projects

Land Use Shifts

Changing the accessibility of particular areas or corridors will ultimately result in changes in the land uses of those areas. Initially, a change in accessibility creates travel time saving benefits for those living or working in the affected corridor. People and firms then look to capitalise on this benefit and as a result these affected areas tend to see an increase in terms of employment and housing density post-project. This shift will also vary by type of firm, with those that gain the greatest advantage from increased accessibility increasing the most.

The additional demand created by increased accessibility also increases the price of the land, indicating that land prices are a function of accessibility (see Figure 8).

FIGURE 8 DEMAND FOR DIFFERENT LAND USE AS A FUNCTION OF ACCESSIBILITY



Source: SGS Economics & Planning

Productivity Improvements

In addition to travel time savings, benefits will flow to businesses and consumers who can now more easily interact with each other. These benefits, otherwise known as economies of agglomeration or Wider Economic Benefits (WEBs), will not be captured by traditional time savings analysis, but can be a crucial benefit of a major transport project.

Additional WEBs are also created by improved accessibility produced by Strategic Transport Projects, though they are more difficult to quantify than the standard WEBs.

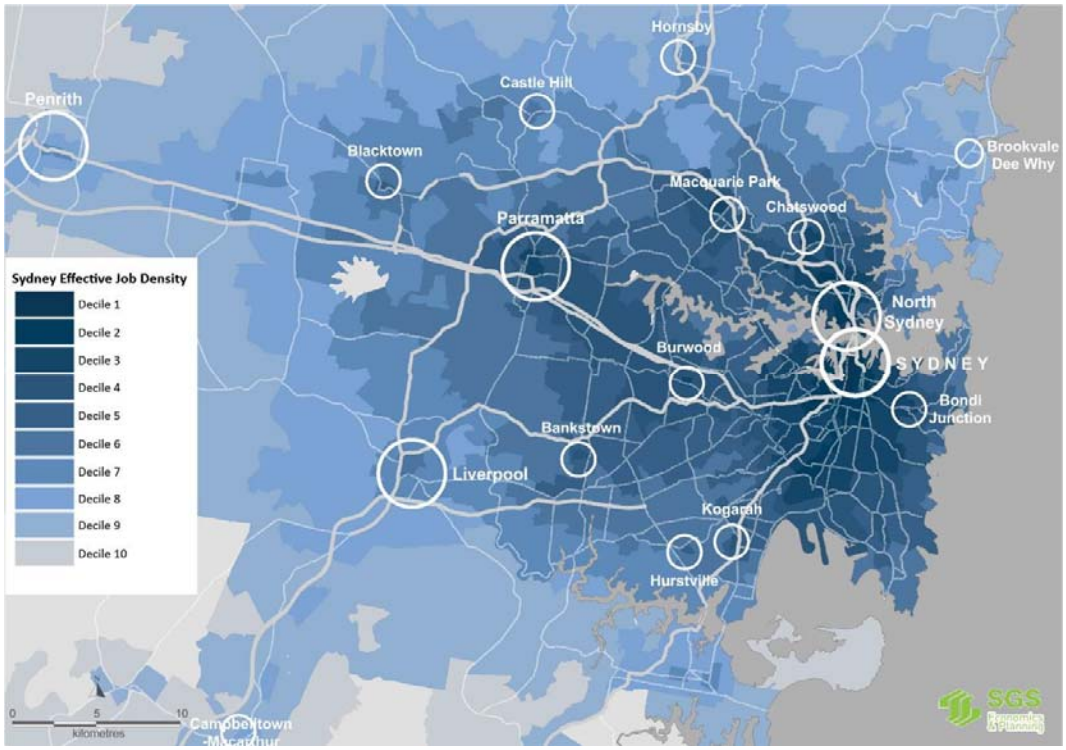
Measurement

Estimates of agglomeration economies help to measure these WEBs by estimating an agglomeration index and comparing it to labour productivity. One such measure developed by SGS is Effective Job Density (EJD), which essentially measures the accessibility of economic activity (i.e. jobs) from different regions within a city. Figure 9 illustrates the general finding that the further away from the city centre, which is typically a hub of economic activity, the lower the EJD of a region.

Measuring the change in EJD for all regions due to a transport project shows how the transport project will affect the land use within those regions. The higher the uplift in EJD, the greater the agglomeration, and hence, the greater the uplift in employment and housing. The uplift in employment and housing within each area can be quantified by using the respective EJD values in SGS' Accessibility Model.

Similarly to changes in land use, WEBs can be quantified after estimating EJD. These benefits estimate how labour productivity will change through more of the workforce moving towards more productive jobs and firms creating business synergies by locating close to each other. The estimates, which place an economic value on the benefits of a major transport project, can be obtained by inputting the respective EJD values of each area within SGS' Labour Productivity Model. *The labour productivity impacts (improvements) from Sydney Metro is beyond the scope of this study and has not been quantified for this report.*

FIGURE 9 EJD FROM DIFFERENT REGIONS IN A CITY[9]



Source: SGS

Estimating the land use impacts of Sydney Metro - Accessibility Modelling results

Method

In order to measure the land use impacts of Sydney Metro, SGS carried out Accessibility Modelling. This quantified how forecast employment and dwelling distribution across Metropolitan Sydney will change by 2036 from the base case.

This model is a closed-system – it only redirects employment and housing into Metro affected centres. It does not generate new employment which would not have otherwise been in Sydney under the base case.

The specific inputs behind the Accessibility Model can be found in Appendix A.

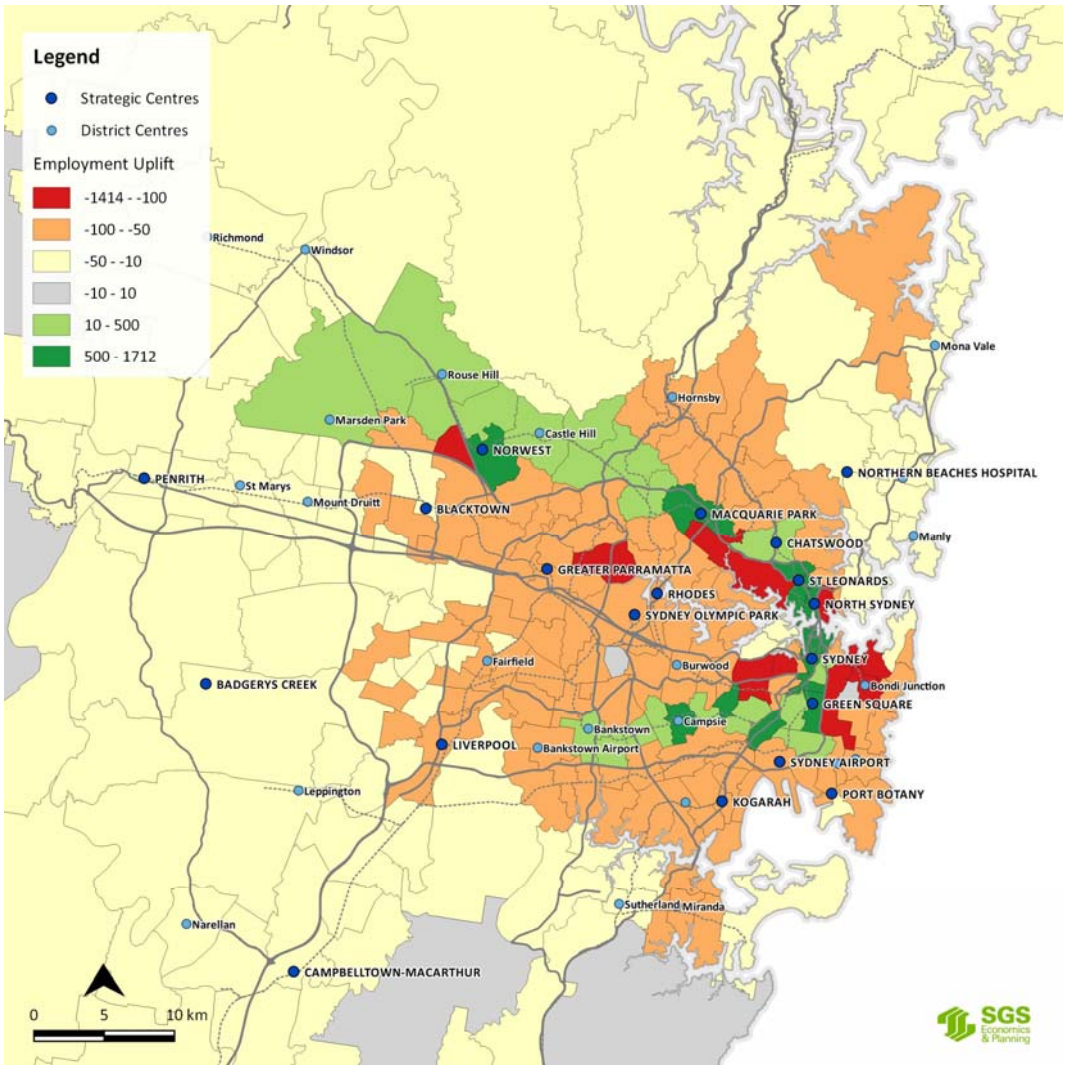
Results

Figure 10 and Figure 11 map out the spatial impacts of Sydney Metro across Metropolitan Sydney for employment and dwellings respectively. The green shaded areas near the Metro Stations stand to gain significant volumes of employment and dwellings at the expense of other locations (orange and red), which stand to lose employment and housing growth.

Growth is the key word here, as the model's redistribution is only for growth (projected from the base case), with all established employment and housing expected to remain in their existing locations no matter how great the proposed infrastructure project is. Note that this relates to the impacts of Sydney Metro in isolation from other planned heavy and light rail projects.

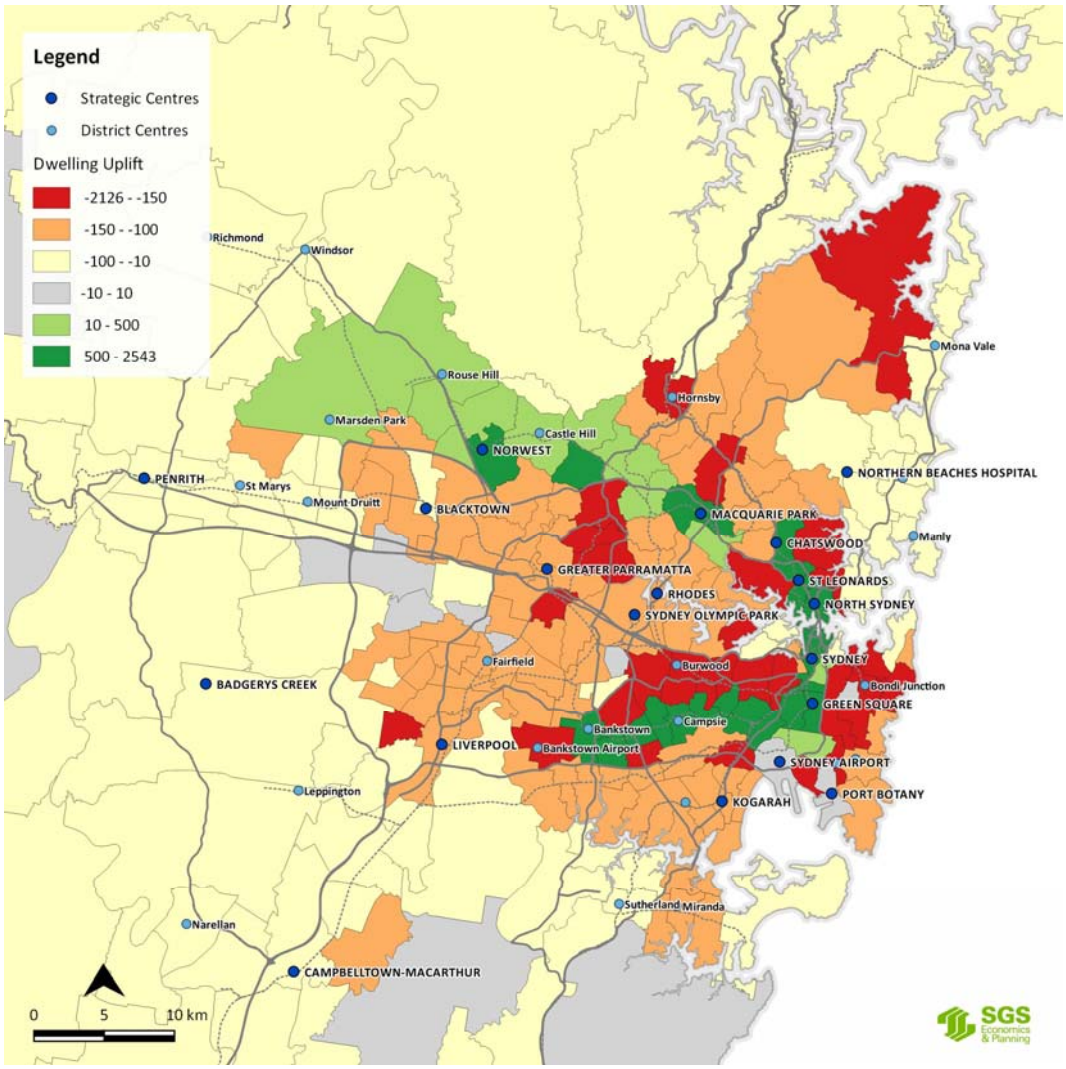
[9] This map adopts deciles as its unit. Each decile represents 10% increment tiers of Sydney (in terms of EJD).

FIGURE 10 IMPACT OF SYDNEY METRO ON EMPLOYMENT DISTRIBUTION ACROSS METROPOLITAN SYDNEY (JOBS INCREASE 2016-2036 AS A RESULT OF SYDNEY METRO)



Source: SGS Accessibility Modelling adjustments of TZP 2016 employment forecasts

FIGURE 11 IMPACT OF SYDNEY METRO ON DWELLING DISTRIBUTION ACROSS METROPOLITAN SYDNEY (JOBS INCREASE 2016-2036 AS A RESULT OF SYDNEY METRO)



Source: SGS Accessibility Modelling adjustments of TZP 2016 dwelling forecasts

The implications for the Precinct are outlined in Table 16 which shows a marginal increase in the level of employment and dwelling growth as a result of Sydney Metro. This is consistent with the prevailing view in the property market that Sydney Metro is a city-shaping piece of infrastructure which is likely to incrementally improve the prospects of many centres without necessarily being the 'game-changer' that revolutionises them. That said, there are many initiatives and supporting policies/infrastructure which can accentuate the impact. This is discussed in more detail in Section 4.4 for housing and Section 4.6 for employment.

TABLE 16 EMPLOYMENT AND DWELLING UPLIFT IN THE PRECINCT BY 2036

	Employment	Dwellings
Current	47,000	8,000
Base Case Forecast	54,000	12,500
Metro Case Forecast	57,500	14,500
Uplift (from Base to Metro Case)	3,500	2,000
% Uplift Increase	6.5%	16.0%

Source: SGS Accessibility Modelling adjustments of TZP 2016 employment forecasts

4.4 Housing demand forecasts

Approach

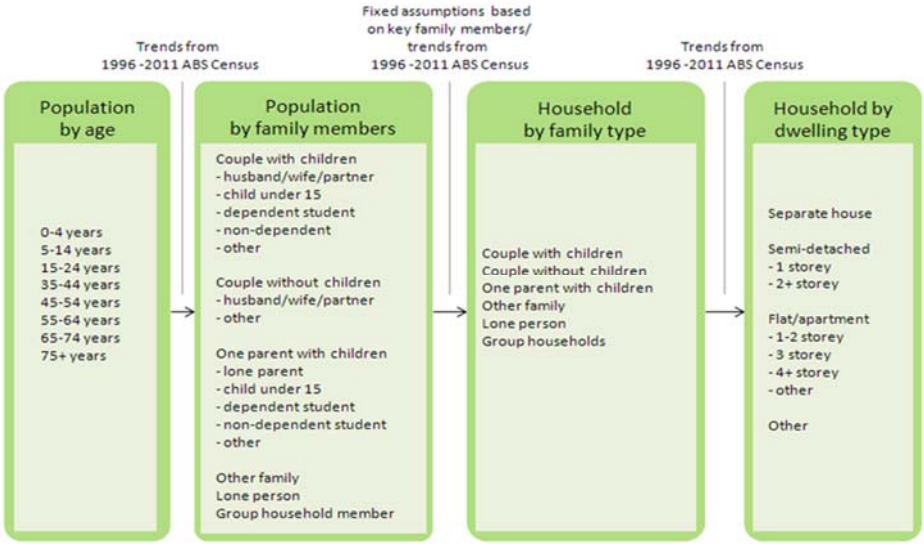
Following the results of the accessibility model, SGS applied its in-house Housing Demand Model to disaggregate the total dwelling forecast into a growth forecast by dwelling type. An illustration of the model in Figure 12 shows the outputs as being housing demand by 'separate house', 'semi-detached' and 'flat/apartment'. In the Precinct where apartments are likely to be the predominant dwelling type in the future, a substitution effect is used to show how separate houses or semi-detached product can be substituted by larger apartments.

While a household may have a preference for a semi-detached dwelling, they may be willing to compromise and live in an apartment at a reduced cost and with improved accessibility/public amenity. The same may occur for households with a preference for detached dwellings who may be willing to live in a semi-detached dwelling if amenity and access are of a higher quality. It is unlikely, however, that this cohort would be willing to compromise so much that they trade a detached dwelling for a two bedroom apartment. Larger apartments may have more success.

Demand for different dwelling types shift throughout an individual's lifespan, due to income levels, the structure of the household they live in and preferences. To that end, changing demographics and the changing relationship between household types and dwelling types described will impact upon future housing choices.

A selection of these trends has been added in Appendix G at the end of this document.

FIGURE 12 SGS HOUSING DEMAND MODEL METHOD



Source: SGS Methods

Results

Table 17 summarises the 'high end' outputs of the Housing Demand Model. It is derived from Census data patterns in demographics and housing types dating back to the 1996 ABS Census. The maximum demand is for **6,500 new apartments in the Precinct by 2036.** By 2066, this figure can be expected to rise to 15,000 new apartments. This is the upper limit potential of the demand that can be attracted to the area. State and Local Government could opt to plan for more apartments in order to deliver a slight oversupply in the market, which (theoretically) could drive down dwelling prices in the longer term.

These are 'high end' forecasts, which represent the maximum volume of unconstrained dwelling growth that the Precinct could potentially accommodate as a result of Sydney Metro and the boosted employment growth with which it is likely to generate. Any extra dwelling provision in the Precinct will likely lead to an oversupply in the market.

Within the apartment market it is expected that demand for bedrooms will be in the order of 15% one bedroom/studio, 65% two bedrooms, 20% three or more bedrooms.

The three or more bedroom apartments will be expected to target larger households which may otherwise prefer to live in semi-detached or even detached housing. Such dwellings would need to be 100sqm or greater in gross floor area (GFA).

TABLE 17 DEMAND FOR DWELLINGS BY TYPE TO 2066

Dwelling type	Current Supply	By 2036		By 2066	
		Growth	Stock	Growth	Stock
Separate house	1,500	-200	1,300	-400	1,100
Semi-detached	1,000	500	1,500	1,500	2,500
Apartments	**5,500**	**6,500**	**12,000**	**15,000**	**20,500**
Total Private Dwellings	8,000	6,800	14,800	16,100	24,100
Population yield	15,000	11,000	26,000	26,000	41,000[10]

Source: SGS Housing Demand Model

This scenario represents the maximum market yield that could reasonably be supported in the Precinct. The following (unmodeled) scenarios could drive a higher yield:

- Unprecedented nation-wide population growth due to international migration policies, normally driven by federal government policies
- Unexpectedly high levels of interstate migration into NSW, often driven by significant levels of increased economic opportunity.

4.5 Employment forecasts

Jobs growth

Employment floorspace was addressed in the Stage 1 report, however, the SGS Accessibility Model has since been run to shed more light on how employment growth can be accommodated across the Precinct.

Table 18 shows the context within which the 57,500 job result (from Section 4.3) should be interpreted. It is an estimation for the volume of economic activity that is likely to emerge in the Precinct just from the construction of Sydney Metro. This represents an increase of 3,500 jobs over and above the TZP 2016 base case forecast of 54,000 jobs. The geography of this impact is not strictly bounded to a radius around the station because the flow on impacts of job growth linked to the increased accessibility may be dispersed elsewhere in the Precinct (that is, new businesses and office floorspace in developments near the station create demands for additional business activity nearby or elsewhere in the Precinct).

This figure still leaves the Precinct 6,000 jobs short of the North District Plan's 'High' target of 63,500 jobs. Reaching the High target is not a foregone conclusion.

There are two broad ways in which that target could be reached (with the relevant estimated job increments shown in Table 18):

(1) Further economic stimulus, which can be generated by supporting transport and public realm infrastructure (introduced as 'follower infrastructure' earlier in this section)
(2) Government led increases in health and education sector activities.

[10] To convert dwellings to population, the following persons per dwelling were assumed: Separate house – 3.1, Semi-detached – 2.1, Apartments – 1.5. These ratios are based on analysis of census data, dwelling data and population forecasts of the local area. Please note that due to rounding of individual cells, some totals may equal the sum of values displayed.

TABLE 18 EMPLOYMENT PROJECTIONS AND TARGETS

Increase	Level of employment	Source	Description	Assessed Likelihood
-	47,000	TZP 2016	Number of jobs in St Leonards in 2016	Certain - already within precinct
7,000	54,000	TZP 2016	Number of jobs in 2036 under the Base Case	Very likely - based on historical trend growth
3,500	57,500	SGS Accessibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	Likely - so long as Sydney Metro is delivered as planned, along with associated population growth and no supply side constraints
1,500	59,000	SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	Possible - requires supporting investment as well as targeted economic development initiatives
4,500	63,500	North District Plan 'High Target'	High end, aspirational target defined in the North District Plan.	Possible - dependent upon realisation of GSC's Health and Education vision and associated initiatives

As outlined in Table 17, 1,500 jobs which could be leveraged off further initiatives and investment is similar to the other key centres in the North District. The difference in the Precinct is the other 4,500 jobs which form part of the high-end, aspirational target outlined in the North District Plan. This is because the Precinct contains a public hospital, which is likely to be the subject of significant State Government focus and initiatives. For example, it is understood that State Government is already considering developing government offices in the health sub-precinct in the near future which may accommodate 2,500 jobs.

Spatial distribution of jobs across sub precincts

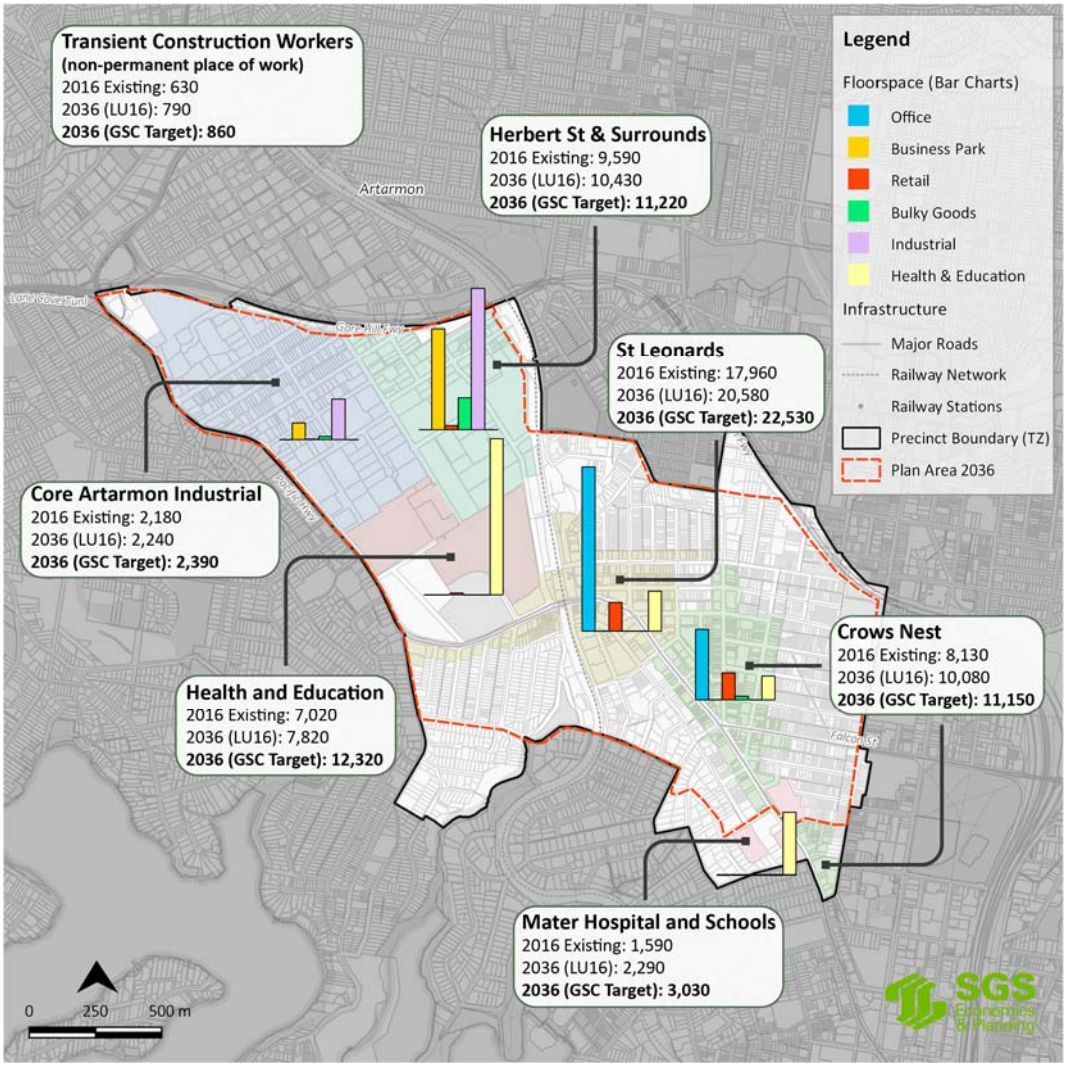
Figure 13 shows the existing distribution of jobs across the Precinct in 2016 (TZP 2016), along with the anticipated distribution of employment under the TZP 2016 forecasts from Transport Performance and Analytics NSW and the North District Plan's High Employment Target.

These figures have been delineated across six sub precincts, being largely contiguous areas of employment or mixed uses, which share common characteristics. The proportional levels of floorspace demand within each sub precinct under the District Plan's target is also included in an *indicative* bar chart superimposed on the map. The distribution of employment by floorspace category is then shown in Table 19.

In broad terms, the distribution of employment growth across the sub precincts in 2036 is reflective of the existing spatial distribution – with the exception of the Health and Education sub precinct which is expected to be the subject of State Government investment. This is a logical outcome given:

- The Artarmon Employment Area and specifically Herbert Street is expected to continue to play an important industrial, enterprise and urban service role under current zoning
- The Precinct and specifically the area between St Leonards railway station and Crows Nest Metro station will accommodate the most employment uplift due to the impact of Sydney Metro
- St Leonards commercial core is understood to have greater supply-side capacity for employment than the area around Crows Nest village, acknowledging current B3 zoned sites which provide the most potential for significant 'single site' employment growth and this needs to be considered in any changes to planning controls.

FIGURE 13 DISTRIBUTION OF EMPLOYMENT WITIHN PRECINCT - 2016 EXISTING, 2036 BASE CASE GROWTH (TZP 2016) & 2036 NORTH DISTRICT PLAN HIGH EMPLOYMENT TARGET



Source: SGS Economics and Planning 2018; TPA 2017

TABLE 19 DISTRIBUTION OF JOBS WITHIN THE PRECINCT (2036 NORTH DISTRICT PLAN HIGH EMPLOYMENT TARGET)

Floorspace Category	Crows Nest	Mater Hospital & Schools	St Leonards	Health and Education	Herbert St & Surrounds	Core Artarmon Industrial	Total
Office	7,310	-	17,420	-	-	-	**24,730**
Retail	2,500	-	2,630	190	380	80	**5,780**
Bulky Goods	180	-	-	-	1,470	160	**1,810**
Industrial	-	-	-	-	4,940	1,410	**6,350**
Industrial ancillary	-	-	-	-	4,430	740	**5,170**
Health	790	2,500	1,600	11,090	-	-	**15,980**
Education	370	530	880	1,040	-	-	**2,820**
Total	**11,150**	**3,030**	**22,530**	**12,320**	**11,220**	**2,390**	**62,640**

Transient construction workers: 860

Source: SGS

Employment growth in each sub-precinct

The remainder of this section deals with employment at the sub-precinct level.

- Table 20 to Table 25 provide more detail on the types of employment demand growth each sub-precinct can be expected to accommodate. For each sub-precinct, the tables present:
    - The volume employment currently present (as audited in 2016)
    - Base case growth
    - Growth with Sydney Metro
    - Potential for further growth leveraged from Sydney Metro as well as government initiatives.

- Table 26 to Table 31 outlines how the employment demand in terms of floorspace demand. In sequence, this is:
    - The floorspace to job ratios in Table 26 and Table 28 are applied to the employment figures from Table 20 to Table 25
    - This produces the raw floorspace demand requirements in Table 29
    - In Table 30, a 10% allowance is added to the figures in Table 29 for offices
    - Not all sub-precincts in Table 30 are controlled by the market (e.g. Health and Education precinct is State Government owned land), so Table 31 focuses more specifically on market demand in sub-precincts where the market will have a direct role to play.

- Table 32 and Table 33 then focus on the volume of employment floorspace that the market needs to deliver.
    - Table 32 summarises existing employment floorspace controlled by the market
    - Table 33 lines up supply (Table 32) with demand (Table 31) to calculate the volume of employment floorspace that needs to be delivered by the market over the next 20 years for the GSC's employment targets to be achieved.

Table 20 to Table 25 provide detail on the types of employment growth each sub-precinct can be expected to accommodate. A proportion of construction jobs within each of these sub-precincts are transient, being on construction sites within the area. These have been excluded from the tables below.

Employment growth is expected to continue in the Artarmon Employment Area. Sydney Metro will attract more residents to the Precinct, which in turn may provide a slight increase in demand for population serving industries in Artarmon.

However, given the limited vacancies in the sub precinct, there is unlikely to be capacity for significant volumes of increased employment activity. No change to zoning is required but sub-divisions and upper floors of industrial and ancillary floorspace should be encouraged to generate greater employment density and efficiency outcomes.

TABLE 20 EMPLOYMENT GROWTH IN THE CORE ARTARMON INDUSTRIAL AREA[11]

Source	Description	Office	Ancillary Industrial	Retail	Bulky Goods	Industrial	Health	Education	Total
TZP 2016	Number of jobs in sub precinct in 2016	-	656	59	133	1,332	-	-	2,180
TZP 2016	Number of jobs in 2036 under the Base Case	-	694	70	147	1,333	-	-	2,244
SGS Acces-sibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	-	725	78	155	1,383	-	-	2,341
SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	-	741	82	160	1,410	-	-	2,392
High Target	High end, aspirational target defined in the District Plans.	-	741	82	160	1,410	-	-	2,392

The story is similar for Herbert Street - except there is a higher volume of ancillary industrial employment when considering medical and tech related uses in this area. These jobs occupy floorspace at a high employment density, and so the scope for employment increase in this area is greater – particularly with Sydney Metro improving overall accessibility. The character of future jobs in this area will continue trends already observed, including greater technical, creative, medical, engineering, design and professional jobs, working in a mix of industrial and commercial enterprises.

[11] Some summed figures in these tables may contain rounding errors.

TABLE 21 EMPLOYMENT GROWTH IN THE HERBERT ST AREA AND SURROUNDS

Source	Description	Office	Ancillary Industrial	Retail	Bulky Goods	Industrial	Health	Education	Total
TZP 2016	Number of jobs in sub precinct in 2016	-	3,866	282	1,194	4,248	-	-	9,590
TZP 2016	Number of jobs in 2036 under the Base Case	-	4,147	331	1,335	4,617	-	-	10,431
SGS Acces-sibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	-	4,331	364	1,425	4,825	-	-	10,945
SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	-	4,427	381	1,473	4,935	-	-	11,216
High Target	High end, aspirational target defined in the District Plans.	-	4,427	381	1,473	4,935	-	-	11,216

In the St Leonards commercial core, employment growth will be greatest in office and to a lesser extent retail, with the latter generated by increased expenditure mostly associated with population growth though some from additional workers in the Precinct.

Office employment could occur in one of two ways – through pure commercial developments in the current B3 zoned land (or similar development arrangement), or through mixed use developments under a B4 or similar zoning arrangement.

TABLE 22 EMPLOYMENT GROWTH IN ST LEONARDS CORE SUB PRECINCT

Source	Description	Office	Ancillary Industrial	Retail	Bulky Goods	Industrial	Health	Education	Total
TZP 2016	Number of jobs in sub precinct in 2016	14,057	-	2,010	-	-	1,413	484	17,964
TZP 2016	Number of jobs in 2036 under the Base Case	16,035	-	2,336	-	-	1,537	676	20,584
SGS Acces-sibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	16,941	-	2,525	-	-	1,578	812	21,856
SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	17,419	-	2,624	-	-	1,600	883	22,526
High Target	High end, aspirational target defined in the District Plans.	17,419	-	2,624	-	-	1,600	883	22,526

In Crows Nest village and immediate surrounds, employment growth will occur in a similar pattern to the St Leonards core. However, with Sydney Metro, Crows Nest and St Leonards could effectively operate as a single office market, so a significant degree of substitutability is possible across the two sub-precincts.

Collectively, St Leonards commercial core and Crows Nest are expected to accommodate 33,700 office jobs by 2036 under the GSC's high target. This represents an **increase of 7,600 office jobs** over the 2016 figure of 26,100 office jobs.

TABLE 23 EMPLOYMENT GROWTH IN THE CROWS NEST SUB PRECINCT

Source	Description	Office	Ancillary Industrial	Retail	Bulky Goods	Industrial	Health	Education	Total
TZP 2016	Number of jobs in sub precinct in 2016	5,358	-	1,885	157	-	527	197	8,124
TZP 2016	Number of jobs in 2036 under the Base Case	6,681	-	2,201	155	-	760	280	10,076
SGS Acces-sibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	7,096	-	2,396	171	-	781	336	10,780
SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	7,314	-	2,499	175	-	791	366	11,146
High Target	High end, aspirational target defined in the District Plans.	7,314	-	2,499	175	-	791	366	11,146

The Health and Education precinct is expected to grow organically over time as demand increases in its catchment. This will yield approximately 8,300 jobs by 2036. Under the GSC's high jobs target, the State Government is expected to drive the expansion and growth of this sub precinct, pending demand-side considerations. Potential of an extra 4,000 jobs by 2036 is assumed and this is realistic given the anticipated expansion of the health sector and spending on health, the available land for additional development and the highly accessible location.

As mentioned previously, State Government is considering developing a 2,500 employee office building on the hospital site.

TABLE 24 EMPLOYMENT GROWTH IN THE HEALTH AND EDUCATION SUB PRECINCT

Source	Description	Office	Ancillary Industrial	Retail	Bulky Goods	Industrial	Health	Education	Total
TZP 2016	Number of jobs in sub precinct in 2016	-	-	151	-	-	6,297	570	7,018
TZP 2016	Number of jobs in 2036 under the Base Case	-	-	172	-	-	6,849	796	7,817
SGS Acces-sibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	-	-	187	-	-	7,035	956	8,177
SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	-	-	195	-	-	7,133	1,040	8,367
High Target	High end, aspirational target.	-	-	195	-	-	11,092	1,040	12,327

Consultation with the Mater Hospital suggests that there are only modest plans for expansion though in time, with future development and ancillary activities, there is the potential to increase employment to approximately 2,500 jobs in the immediate area by 2036, partly driven by population growth. State Government could seek to partner with the Mater in developing and delivering its next Masterplan to achieve this employment outcome.

The eastern end of the Pacific Highway including the Mater sub precinct could be positioned as a secondary health precinct to complement the Royal North Shore Hospital health and education sub precinct. Office development along the Pacific Highway corridor could accommodate supporting medical and allied health development.

TABLE 25 EMPLOYMENT GROWTH AT THE MATER HOSPITAL AND SURROUNDING SITES

Source	Description	Office	Ancillary Industrial	Retail	Bulky Goods	Industrial	Health	Education	Total
TZP 2016	Number of jobs in sub precinct in 2016	-	-	-	-	-	1,305	287	1,592
TZP 2016	Number of jobs in 2036 under the Base Case	-	-	-	-	-	1,882	407	2,289
SGS Acces-sibility Model	Number of jobs in 2036 which should be delivered as a result of Sydney Metro	-	-	-	-	-	1,933	489	2,422
SGS Analysis	Number of jobs which could be leveraged off the back of Sydney Metro	-	-	-	-	-	1,960	532	2,492
High Target	High end, aspirational target defined in the District Plans.	-	-	-	-	-	2,500	532	3,032

Floorspace across sub precincts

The total demand for floorspace and its distribution throughout the Precinct has been derived from the job numbers above. A ratio of the typical amount of floorspace required per job was derived from current on-the-ground ratios observed during floorspace audits.

The exception is for new office floorspace in the St Leonards core and Crows Nest, which required further investigation for the purposes of specificity. The existing (audited) employment to floorspace ratio is estimated at 26 sqm of floorspace per job in this area.

Consultation was undertaken with property specialists involved in the development of office floorspace in Sydney CBD and the North Shore. The answer in relation to floorspace ratios per job was consistent across three different groups, as shown in Table 25:

TABLE 26 EMPLOYMENT TO FLOORSPACE RATIOS FOR NEW OFFICE BUILDINGS IN THE NORTH SHORE AND SYDNEY CBD (GFA[12])

Fintech/Creative Sector Buildings	Standard Commercial Office Buildings	Government/Public Sector Buildings
11sqm per job	14 sqm per job	18 sqm per job

Source: Colliers International, AMP Capital, Knight Frank

To be conservative, and to ensure the potential for hosting targeted jobs is achieved, the higher end of this range of ratios, that is 18sqm per job, has been adopted for new floorspace, with 26sqm per job retained for existing floorspace (see below). A mix of jobs is anticipated, including some in creative sectors, though administration, health, engineering, services and hybrid technical and commercial activities are anticipated to dominate and they may need more flexibility and have slightly higher floorspace needs, hence another basis for adopting a higher floorspace to job ratio.

The application of a conservative estimate is important because the lower the floorspace to jobs ratio applied, the less commercial floorspace is mandated across the Precinct, which may result in an undersupply. An undersupply will mean employment is not accommodated and economic outcomes are not achieved – whereas a slight oversupply simply means some vacancies, which would then facilitate floorspace turnover and to some extent help to supress commercial rents.

A number of existing office developments within the Crows Nest and St Leonards sub precincts have been identified having a constrained potential for redevelopment. For the purposes of the demand analysis contained below, these sites maintain the existing floorspace to job ratio of 26 sqm per job, as shown below in Table 27.

TABLE 27 CONSTRAINED OFFICE FLOORSPACE

Sub precinct	Constrained office floorspace	Equivalent jobs (26 sqm/job)	Remaining office employment (18 sqm/job)
Crows Nest	51,300 sqm	1,970	5,340
St Leonards	91,800 sqm	3,490	13,930

The ratios used for each sub precinct are shown in Table 28.

[12] GFA includes lobbies, lifts, foyers, communal areas, shared spaces and other amenities.

TABLE 28 JOB TO FLOORSPACE RATIOS (SQM PER JOB)

Floorspace Category	Crows Nest	Mater Hospital & Schools	St Leonards	Health and Education	Herbert St & Surrounds	Core Artarmon Industrial
Office	26 (18 for new floorspace)	-	26 (18 for new floorspace)	-	-	-
Industrial Ancillary	-	-	-	-	48	48
Retail	25	-	25	25	25	25
Bulky Goods	50	-	-	-	50	50
Industrial	-	60	-	-	60	60
Health	47	47	37	30	-	-
Education	47	47	37	30	-	-

Source: SGS land audit, Colliers International, AMP Capital, Knight Frank

These ratios are factored into the estimated levels of floorspace demand, as provided below in Table 29, which is effectively the projected employment demand multiplied by the employment to floorspace ratios.

TABLE 29 DISTRIBUTION OF FLOORSPACE DEMAND WITHIN PRECINCT (2036 NORTH DISTRICT PLAN HIGH EMPLOYMENT TARGET; SQM OF FLOORSPACE)

Floorspace Category	Crows Nest	Mater Hospital & Schools	St Leonards	Health and Education	Herbert St & Surrounds	Core Artarmon Industrial	Total
Office	147,000	-	341,000	-	-	-	489,000
Industrial Ancillary	-	-	-	-	213,000	36,000	248,000
Retail	62,000	-	66,000	5,000	10,000	2,000	145,000
Bulky Goods	9,000	-	-	-	74,000	8,000	90,000
Industrial	-	-	-	-	297,000	85,000	382,000
Health	37,000	118,000	59,000	327,000	-	-	541,000
Education	17,000	25,000	32,000	31,000	-	-	105,000
Total	273,000	143,000	498,000	363,000	593,000	130,000	2,001,000

Source: SGS

In the case of office, industrial ancillary and industrial floorspace, it is important to include a 10% buffer to ensure that market turnover (or churn) is facilitated. Additionally, demand for health and education floorspace within the Precinct represents non-institutional floorspace (e.g. private educational colleges), and demand for this type of floorspace will also require a 10% buffer in specific sub-precincts.

Therefore, for the purposes of deriving a conservative estimate, it is best to apply 10% increase on the demand figures in Table 29. The result is shown in Table 30 below.

TABLE 30 DISTRIBUTION OF FLOORSPACE DEMAND WITHIN PRECINCT INCL. 10% ALLOWANCE FOR OFFICE, INDUSTRIAL ANCILLARY AND INDUSTRIAL FLOORSPACE (2036 NORTH DISTRICT PLAN HIGH EMPLOYMENT TARGET; SQM OF FLOORSPACE)

Floorspace Category	Crows Nest	Mater Hospital & Schools	St Leonards	Health and Education	Herbert St & Surrounds	Core Artarmon Industrial	Total
Office	162,000	-	376,000	-	-	-	538,000
Industrial Ancillary	-	-	-	-	234,000	39,000	273,000
Retail	62,000	-	66,000	5,000	10,000	2,000	145,000
Bulky Goods	9,000	-	-	-	74,000	8,000	91,000
Industrial	-	-	-	-	327,000	93,000	420,000
Health	41,000	118,000	64,000	327,000	-	-	550,000
Education	19,000	25,000	36,000	31,000	-	-	111,000
Total	293,000	143,000	542,000	363,000	645,000	142,000	2,128,000

Source: SGS

For the purposes of demand and supply alignment, Crows Nest, the Mater and St Leonards core have all been condensed into one category, whilst Herbert Street and the Artarmon Employment Area are combined as 'Artarmon' (Table 31). As the Health and Education Precinct is not technically a market location, it has been excluded from this analysis pending future investigations led by State Government. It should be noted that the demand for health and education floorspace within the Precinct will in many cases occupy office or even retail type floorspace.

Table 31 therefore focuses on the two broad markets that will deliver private sector employment floorspace:

1. St Leonards core and Crows Nest (offices surrounding Metro station)
2. Artarmon Employment Area

TABLE 31 MARKET FLOORSPACE DEMAND WITHIN PRECINCT BY 2036 (CONDENSED)

Floorspace Category	Crows Nest & St Leonards	Artarmon	Total
Office, Health & Education[13]	698,000	-	698,000
Industrial Ancillary	-	273,000	273,000
Retail	128,000	12,000	140,000
Bulky Goods	9,000	82,000	91,000
Industrial	-	420,000	420,000
Total	835,000	787,000	1,782,000

Source: SGS

Demand and supply alignment

The floorspace demand figures have been aligned against existing floorspace supply (Table 32) to gain an understanding of the volume of additional floorspace which the market needs to provide (Table 33).

[13] Health and education uses are likely to occupy office type floorspace in St Leonards and Crows Nest

It should be noted that numbers in Table 33 have been rounded to the nearest thousand as floorspace development is modular and tends to occur in the thousands or tens of thousands.

Table 33 presents the volume of demand which ideally can be supplied for in the Precinct across the two broad markets. Like housing, it is possible that this demand will not be met in the Precinct, and therefore it would then need to be met in a nearby centre such as North Sydney or Chatswood.

In the case of industrial type floorspace, that supply would also be more difficult to find across the broader North District. Indeed, if the industrial floorspace and ancillary industrial floorspace cannot be delivered in the Precinct or elsewhere in the North District, then there will likely be an inefficient economic outcome whereby those industrial services and employment are simply not provided in the District economy. The industrial numbers may appear high, but realistically, with a rapidly expanding local and regional resident population, demand for industrial services and freight (as opposed to manufacturing) will rise.

Alternatively, oversupplying one type of employment floorspace will either divert demand away from a nearby centre or industrial precinct or if the centre is not strong enough to attract demand away from those other centres/precincts, then vacancies will result.

TABLE 32 EMPLOYMENT FLOORSPACE SUPPLY ACROSS SUB-PRECINCTS

Floorspace Category	Crows Nest & St Leonards	Artarmon	Total
Office, Health & Education	511,000	-	511,000
Industrial Ancillary	-	261,000	261,000
Retail	109,000	11,000	120,000
Bulky Goods	10,000	75,000	85,000
Industrial	-	231,000	231,000
Total	629,000	578,000	1,208,000

Source: SGS

TABLE 33 EMPLOYMENT FLOORSPACE REQUIRED (IN ADDITION TO EXISTING) ACROSS SUB-PRECINCTS TO MEET DEMAND WITHIN PRECINCT

Floorspace Category	Crows Nest & St Leonards	Artarmon	Total
Office, Health & Education	187,000	-	187,000
Industrial Ancillary	-	12,000	12,000
Retail	19,000	1,000	20,000
Bulky Goods	-	7,000	6,000
Industrial	-	189,000	189,000
Total	206,000	209,000	414,000

Source: SGS

4.6 Aggregate land use implications

The analysis in this section of the report has significant implications for future growth and development of the Precinct, as summarised in the table below.

Topic	Issue	Decisions
1. Facilitating dwelling growth whilst still delivering an appropriate mix of employment outcomes.	Overall, market demand for the Precinct is estimated at approximately 400,000 sqm of new employment floorspace (not including the H&E Precinct) and 6,800 new dwellings by 2036.	There is a need to find a set of methods to encourage housing development in a way which does not impede office or industrial floorspace development.
2. Accommodating 200,000 sqm of industrial and ancillary industrial floorspace growth in a 20 year timeframe.	The reality is that industrial land has become increasingly scarce across the North District – whilst population growth continues to drive demand for industrial services.	Clearly industrial lands need to be retained. Retention alone however, may be insufficient. The market needs to be encouraged to accommodate more industrial floorspace. This may partially occur organically as rents increase, but planning controls should not be an inhibitor.
3. Housing diversity	In order to facilitate a more diverse housing outcome, the Precinct could accommodate some larger apartments and some ground floor/podium townhouses.	Medium density housing is an important segment of the market, and will have a key role to play in alleviating pressure for families in the market. Given that the Precinct will be limited in its ability to deliver medium density dwellings, follow up planning for these forms of development in surrounding lands and centres is necessary (a similar challenge exists across Sydney).
4. Accommodating office development	The Precinct is in need of not only additional office floorspace (about 187,000sqm by 2036), but also fresh stock in the Premium and A Grade classes.	This is a challenge because commercial office feasibility is not straightforward in the Precinct. The feasibility question is discussed in greater detail in Section 5.

5. DEVELOPMENT FEASIBILITY

Development feasibility tests have been undertaken to better understand potential barriers to supply and test how different combinations of land uses might succeed on various sites. The modelling incorporates the background research from Section 3 relating to development costs, sales revenues and land costs; ultimately informing future planning regulations for the Precinct.

5.1 Rationale and market insight

The previous sections of this report highlight that the Precinct is likely to attract significant growth and development. However there are challenges to accommodating all of the demand as there is often a limited supply of suitable sites. Furthermore, some uses generate higher average returns at lower risk than others.

Development feasibility is therefore an issue of significant interest. In this section the potential for office development is explored in greater detail – both in terms of pure commercial office buildings as well as mixed use office-residential.

Before any quantitative analysis of commercial floorspace was conducted, it was important to first gain an understanding of market interest in the Precinct more generally and this involved consultation with a range of market experts.

Institutional investment

Developments which contain commercial (office and retail) floorspace alone can come in the form of small developments (under five storeys) or larger developments (30,000sqm Net Lettable Area minimum).

The value of land and existing improvements in the Precinct means that there is currently little market interest in redeveloping occupied sites for small, standalone office buildings of up to five storeys. This is also the case for other Strategic and District Centres in established areas. Nevertheless, there may be an appetite for refurbishments and incremental extensions to existing office buildings (e.g. the addition of extra floors where structures allow). A proliferation of strata office suites, as exists on some sites in St Leonards, means that this is more likely than redevelopment when demand pressures build up and returns warrant new investment. Prospects for such refurbishments, extensions and renewal can be encouraged by increases to FSR while maintaining 'employment only' (e.g. B3) zone and use controls.

Larger developments of sufficient critical mass (over 30,000sqm) on the other hand, are of interest to institutional investors. The investors typically hold the asset during and after construction, leasing out the floorspace to tenants. Note that this is a different business model to the build and sell approach of major residential and mixed use developers in Australia.

There is emerging evidence that institutional investors may be open to the idea of providing mixed use building stock, so long as a minimum of 66% of the building's GFA is commercial floorspace and commercial and residential lobbies are separated. The second

of these criteria is significant because that usually necessitates development occurring on larger sites with multiple access points.

This is a major constraint. Site assembly in a place like the Precinct can be difficult when the market value of land is relatively high – impacting on the feasibility of commercial floorspace development. Centres with less strata titled sites (e.g. Parramatta) may be positioned in this regard.

Mixed use development

An alternative means of accommodating commercial floorspace is through mandating commercial floorspace in what would otherwise be residential developments.

Residential developers have been willing in a number of cases in Victoria and New South Wales to provide up to five storeys of commercial floorspace when required by planning controls.

The major and most obvious drawback to this approach is that residential developers do not possess the same industry knowledge and connections to consistently attract commercial tenants in a competitive environment.

Nonetheless, the smaller volumes of floorspace produced can suit the demographic of businesses in the Precinct, particularly small to medium size design, legal and other professional services.

If the surrounding environment of the centre more broadly is suitable for knowledge workers – including important features such as food and hospitality – this is still a reasonable proposition if the centre is unable to attract institutional investors.

The remainder of this section is a feasibility assessment based on these findings.

5.2 Method

The Residual Land Value (RLV) model calculates the residual value of a development after deducting all the development costs from the sales revenues, in the current market. The development costs include construction costs and contingencies, external works and site works, professional fees, developer's profit margin, infrastructure levies or contributions and council fees. This calculation is illustrated in Figure 14.

The model is particularly useful in determining whether a proposed development is feasible, by comparing its RLV to the current land value with improvements. Where the former is greater than the latter, which would be the price a rational developer would be expected to pay for the site, the development is notionally 'feasible'.

FIGURE 14 RESIDUAL LAND VALUE CALCULATION

Source: SGS

5.3 Assumptions

A number of inputs are 'fed' into the feasibility testing process. The following tables outline these broad inputs and the key assumptions that are made in order to 'model' the financial cash flows which underpin development's costs and revenues. The inputs and assumptions apply to each development.

TABLE 34 FEASIBILITY MODEL COST INPUTS AND ASSUMPTIONS

Input	Source	Value
Construction and demolition costs	*Rawlinson's Construction Handbook 2017*	Varies
Land acquisition costs	Return on asset method[14]	Varies
Professional fees	Various sources using industry standards	9.2%
Affordable housing	Developers give away 10% of residential floorspace to affordable housing providers[15] to test the most extreme impact on feasibility.	10%
Section 7.11	Lane Cove per dwelling Lane Cove per sqm commercial North Sydney per dwelling North Sydney per sqm commercial	$17,311 $120 $16,634 $145

TABLE 35 FEASIBILITY MODEL REVENUE INPUTS AND ASSUMPTIONS[16]

Input	Source	Value
Retail rents ($/sqm)	Market assessment & consultation	$800 per sqm per year
Commercial rents ($/sqm)	Colliers (2017)[17], informed by market assessment and consultation	$565 per sqm per year
Commercial yield ratio (NLA as a proportion of constructed GFA)	Market assessment	NLA is 85% of GFA
Capitalisation rates (to convert commercial rental values to sale prices)	Market assessment[18]	7.25%
Median residential sales values	Market assessment	1BR: $631,800 +GST 2BR: $1,090,900 +GST 3BR: $1,272,727 +GST

Given the high-level nature of the feasibility testing, the same prices have been used across all sites. Note that the model used to test development feasibility across all sites is used for hypothetical and comparative purposes only. Specific developer profit margins, actual yields, capitalisation rates, sale prices, the timing of sales and forecast interest/tax payments will all vary from site to site. Financing costs can also fluctuate significantly over time. A more

[14] It is important to note that existing land values of sites have been measured by discounting the amortised returns on existing improvements on site. In practice, sites could potentially be rezoned, which would in turn shift the land value and the cost of acquiring specific sites.
[15] In reality, a more favourable arrangement for developers could be negotiated.
[16] Detailed sales and market rent data sourced from CoreLogic RPData can be found in Appendix B
[17] Metro Office Research and Forecast Report – First Half 2017, Colliers International Australia, accessed via http://www.colliers.com.au/find_research/office/metro_office_-_first_half_2017/
[18] http://www.jll.com.au/australia/en-au/Research/jll-au-office-investment-review-and-outlook-2016.pdf; https://centuria.com.au/wp-content/uploads/2018/02/0732-CMA_1H18-Property-Compendium_Jan18_v3.pdf

detailed investigation would involve sourcing inputs and tailoring assumptions for the specific circumstances for each site.

5.4 Sites tested

Seven sites in the Precinct have been the subject of feasibility modelling for potential development outcomes. They are listed in Table 36 and mapped in Figure 15. Note that some of these 'sites' have been hypothetically amalgamated to approximate more realistic site development outcomes and potential (as identified by SJB in the urban design analysis).

TABLE 36 ADDRESSES OF SITES FOR FEASIBILITY TESTING

Site #	Street addresses
1	100 Christie Street and 655-657 Pacific Highway, St Leonards
2	601 Pacific Highway, St Leonards
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards

FIGURE 15 LOCATION OF SITES FOR FEASIBILITY TESTING

Source: SGS Economics and Planning 2018

The following pages provide a description of each of the seven tested sites along with a summary of existing planning controls.

Site 1 - 100 Christie Street and 655-657 Pacific Highway, St Leonards

Site 1 is located immediately adjacent to the St Leonards Forum, with the current improvements on the site consisting of three office buildings and a public park, being spread

across four lots. 100 Christie St being identified at 12 storeys, and the buildings at 655-657 Pacific Highway being a total of 7 storeys each (with ground floor retail).

Site area	2,727m^2 *(the area of the RE1 zoned park at the north of the site has been excluded as this land is undevelopable)*
Zone	B3 – Commercial Core RE1 – Public Recreation
Maximum building height	49 metres
Maximum FSR	*No control*
Parking provision	1 space per 400m^2 commercial GFA
LGA	North Sydney

Site 2 – 601 Pacific Highway, St Leonards

Site 2 is comprised of a single lot, being presently occupied by a single office tower of approximately 16 storeys, with some ground floor retail uses.

Site area	2,844m^2
Zone	B3 – Commercial Core
Maximum building height	49 metres
Maximum FSR	*No control*
Parking provision	1 space per 400m^2 commercial GFA
LGA	North Sydney

Site 3 – 55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards

Site 3 is comprised of 17 lots across three street frontages, with the 17 buildings being comprised largely of a mixture of 1-3 storey office and retail developments. The development at 55 Chandos St is a notable exception, being a 6 storey office development (including ground-floor lobby).

Site area	5,652m^2
Zone	B4 – Mixed Use
Maximum building height	20-33 metres
Maximum FSR	*No control*
Minimum non-residential FSR	0.6:1 - 1:1
Parking provision	1 space per 400m^2 commercial GFA 0.25 per 1 BR apartment 0.5 per 2+ BR apartment
LGA	North Sydney

Site 4 – 46-52 Nicholson Street and 29-59 Christie Street, St Leonards

Site 4 is comprised of 8 lots, which together constitute an entire block, bounded by Christie, Nicholson and Oxley Streets. The northern portion of the site is comprised of 7 lots, with a range of small-scale office buildings at 2-3 storeys each, with a single lot of 8,206m^2 occupying the remainder of the site. A six storey office development is present on the latter, as is a low-rise, large floorplate development which houses a gym and a childcare centre.

Site area	10,465m^2
Zone	B3 – Commercial Core
Maximum building height	25 metres
Maximum FSR	4.5:1
Parking provision	1 space per 100m^2 commercial GFA
LGA	Lane Cove

Site 5 – 390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft

Site 5 is comprised of 7 substantial lots, with a street frontage onto the Pacific Highway which is presently occupied by several retail and showroom premises, at 2-3 storeys each. The frontage onto Nicholson Street, zoned R3, consists of three lots with a detached dwelling on each. The site is in close proximity to the site of the proposed Crows Nest metro station.

Site area	2,565m^2
Zone	B4 – Mixed Use R3 – Medium Density Residential
Maximum building height	16 metres (B4) 8.5 metres (R3)
Maximum FSR	*No control*
Minimum non-residential FSR	1.5:1
Parking provision	1 space per 60m^2 commercial GFA 0.5 per 1 BR apartment 1 per 2+ BR apartment
LGA	North Sydney

Site 6 – 530 to 542 Pacific Highway and 69 Christie Street, St Leonards

Site 6 is comprised of 6 allotments, being located on the south side of the Pacific Highway, in relatively close proximity to the existing St Leonards station. The site is comprised of one 6-storey office development occupying the southern portion of the site, with the northern portion being comprised of several two-storey main street retail buildings and the St Leonards Telecommunications Exchange. For the purpose of this analysis, costs associated with the removal or relocation of the telephone exchange are excluded. Allotments fronting the Pacific Highway hold higher maximum FSRs and buildings heights than the lot in the south of the site.

Site area	3,972m^2
Zone	B3 – Commercial Core
Maximum building height	36-72 metres
Maximum FSR	10.1:1 – 17.1:1
Parking provision	1 space per 100m^2 commercial GFA
LGA	Lane Cove

Site 7 – 460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards

Site 7 is comprised of 8 allotments, with the lots fronting the Pacific Highway containing substantial developments of up to 6 storeys, typically with office developments above ground floor showrooms, and lower-rise office developments on the lots fronting to Nicholson Street. The higher maximum FSR and height controls are found on lots fronting the Highway.

Site area	6,462m^2
Zone	B3 – Commercial Core
Maximum building height	10-36 metres
Maximum FSR	2:1 – 6:1
Parking provision	1 space per 100m^2 commercial GFA
LGA	Lane Cove

5.5 Base Case

Testing results

The seven sites were first tested using a built form that maximises floorspace under the current controls applicable to each site (as summarised in the previous section). This is considered to be the base case.

On sites within the B4 – Mixed Use zone, commercial floorspace was provided at a minimum, whilst residential floorspace was maximised; this models what the market is delivering on the B4 zoned sites.

Parking is assumed to be underground on each site at the rates required by the relevant Lane Cove and North Sydney DCPs.

The parameters for each site and the results of feasibility testing under existing controls is shown below in Table 37. Any feasibility ratio greater than 1 indicates that the project is theoretically feasible.

In broad terms, existing planning controls are not generating feasible development outcomes. The base case results confirm why pure commercial redevelopments have rarely been observed in St Leonards in recent years.

The exception is site 3, where the B4 zoning allows for a substantial residential component – which increased the apparent feasibility of the development.

It should be noted that the construction of commercial floorspace is not inherently unfeasible. Rather, the development of a modest commercial tower is not necessarily a substantial upgrade in terms of floorspace to the existing improvements onsite once land

acquisition, construction and transaction costs are accounted for. The results do not mean that current commercial uses are 'uneconomic' just that redevelopment may not be warranted, even though refurbishments are still possible and likely where the office market returns warrant the investment. In many cases, there is already a substantial office footprint onsite and the uses or tenants are generating a commercial return to owners.

In situations where an owner has held a site for a long time there may be different expectations in terms of a return from redevelopment. Their benchmark for returns may relate to what they paid for the site many years ago, though in effect a 'rational' owner will compare the multiples of rent being achieved as the asset's value, rather than an historic price.

TABLE 37 DEVELOPMENT FEASIBILITY – UNDER CURRENT CONTROLS (BASE CASE)

Site	Addresses	Site area (sqm)	Commercial Floorspace	No. of dwellings	Highest storey	Non-Res. FSR	Res. FSR	Feasibility ratio
1	100 Christie Street and 655-657 Pacific Highway, St Leonards	2,727	13,158	-	12 (48m)	3.45	-	0.06
2	601 Pacific Highway, St Leonards	2,844	13,720	-	12 (48m)	4.80	-	0.05
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards	5,652	2,977	193	10 (31m)	0.40	2.38	1.13
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards	10,465	25,246	-	6 (24m)	2.40	-	0.35
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft	2,565	1,057	22	4 (14m)	0.41	0.80	0.67
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards	3,972	20,318	-	18 (72m)	5.09	-	-0.09
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards	6,462	15,550	-	9 (36m)	2.39	-	0.03

Source: SGS

Base case implications

Before progressing to the project case scenarios, it is important to understand the implications of these base case results.

What the results are effectively saying is that without planning intervention and changes to existing planning controls, B3 zoned sites are generally unlikely to redevelop in the near future (though refurbishment and renewal are possible in some sites in single ownership or where a cooperative strata arrangement exists).

Without redevelopment or major refurbishment the existing employment floorspace will be protected, however, recent SGS analysis and research has found most of this floorspace in the Precinct is C and D grade stock.

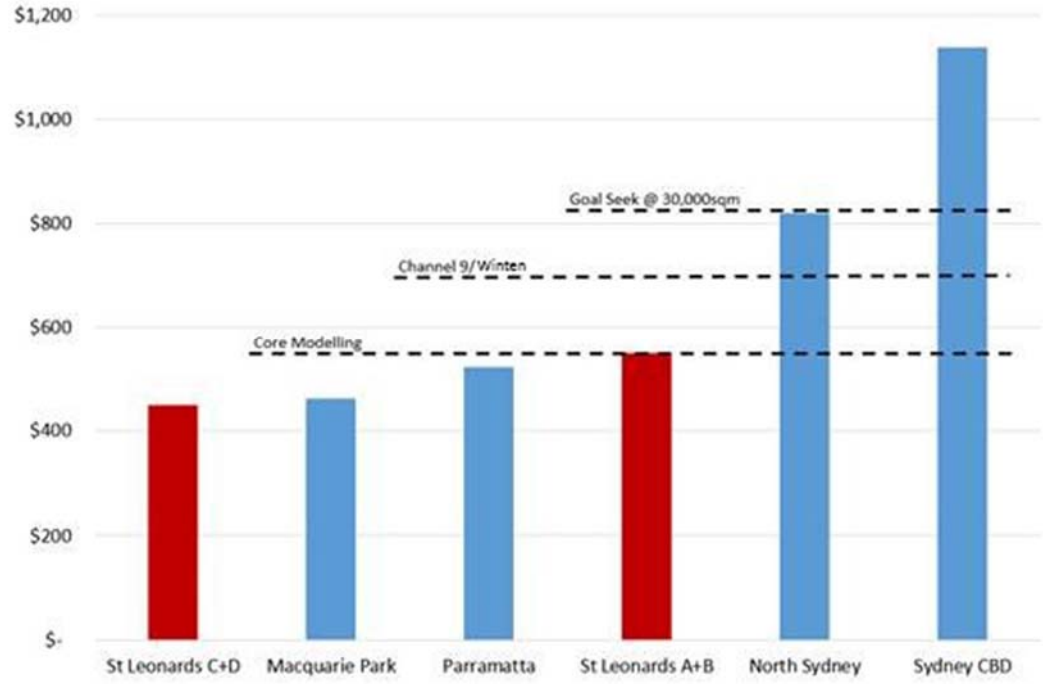
C and D grade stock is suitable for traditional, local small and medium sized enterprises which are seeking affordable rents. If that stock is preserved without significant redevelopment occurring, then the Precinct will continue accommodating those types of enterprises.

Sydney Metro is scheduled to open in 2023-24. As discussed in Section 4, this is a city-shaping infrastructure project which is likely to generate increased demand for business and employment in the Precinct and other centres along the line. This in turn will increase rental yields.

Modelling the uplift in rental yield from major infrastructure items is a difficult exercise given the wide range of influencing factors. However, it is certainly possible to assess the rental yield that would be required to make pure commercial redevelopments feasible on the B3 zoned sites by 2024. This is also known as a 'goal seek' method.

Figure 16 summarises the results of that 'goal seek' method. Broadly, it shows that current rents for A and B grade stock[19] in the Precinct are in the order of $550 per annum per sqm on average. This return would need to rise to over $810 (whether that be due to Sydney Metro and/or other factors) for pure commercial developments to be notionally feasible. Major (pure) commercial developments also need to be around 30,000 sqm for the equation to be positive (which, at this size, typically assumes a tenant pre-commitment to leasing). This has also been confirmed with institutional investors via consultation.

FIGURE 16 RENTAL YIELD COMPARISON



Source: SGS

It is difficult to predict how the Precinct could reach $810 per sqm in commercial rent (or accelerate to that level plus inflation, as costs also inflate) by 2024. An appropriate approach however is to compare with other centres. The obvious example is North Sydney CBD, as it is in the same corridor and in close proximity. The Precinct would effectively need to achieve rental yield parity with North Sydney CBD to attract pure commercial office development.

For the recent Winten development in the North Sydney CBD, it is believed that Channel 9 as the major anchor tenant is paying close to $700 per sqm per year (though there are likely to be a range of commercial in confidence elements to the rental package which make this base figure misleading). Nevertheless this figure is probably realistic for anchor tenants. Follower

[19] C and D grade stock make up the majority of existing office floorspace in St Leonards but developers would be far more inclined to build A grade offices in new developments.

tenants may pay closer to the $800 per sqm per year (or above) for other space in the development.

With general redevelopment, new public domain infrastructure and the increased accessibility that the Metro will bring it is conceivable that rents in the Precinct could move closer to the amount identified here as underpinning a feasible significant commercial only development. While it is not necessarily a consistent basis upon which development feasibility of an entire precinct can be based, it does highlight a need for caution in concluding that commercial development (or major refurbishment or extensions on appropriate sites) won't be feasible in the medium term once conditions change and the market cycle is supportive (particularly if controls are adjusted to enhance yields).

5.6 Project case

The same seven sites were then tested utilising a built form outcome identified in the SJB Urban Design Draft Report.

In this project case, significant volumes of development are envisaged, with some sites expected to accommodate hundreds of dwellings along with thousands of square metres of commercial floorspace. The height of individual buildings on each site is displayed in a plan view below in Figure 17. Table 38 shows the parameters and feasibility result for each site.

Other important assumptions under this project case include:

- 10% of the proposed residential floorspace has been reserved for the provision of affordable rental housing across all of the sites.
- Parking is provided underground, at the following rates, consistent with the North Sydney EDS (note this is not possible on sites which are above the Metro tunnel).
- These developments have been modelled for the present day (2018), using present day prices and market values. There is a sensitivity test later which quantifies how these results might change if the developments were to occur in 2026 or 2036.

1 bedroom unit	0.4 spaces per dwelling
2 bedroom unit	0.7 spaces per dwelling
3 bedroom unit	1.2 spaces per dwelling
Visitor parking	1 space per 7 dwellings
Commercial floorspace	1 space per 400m^2 GFA

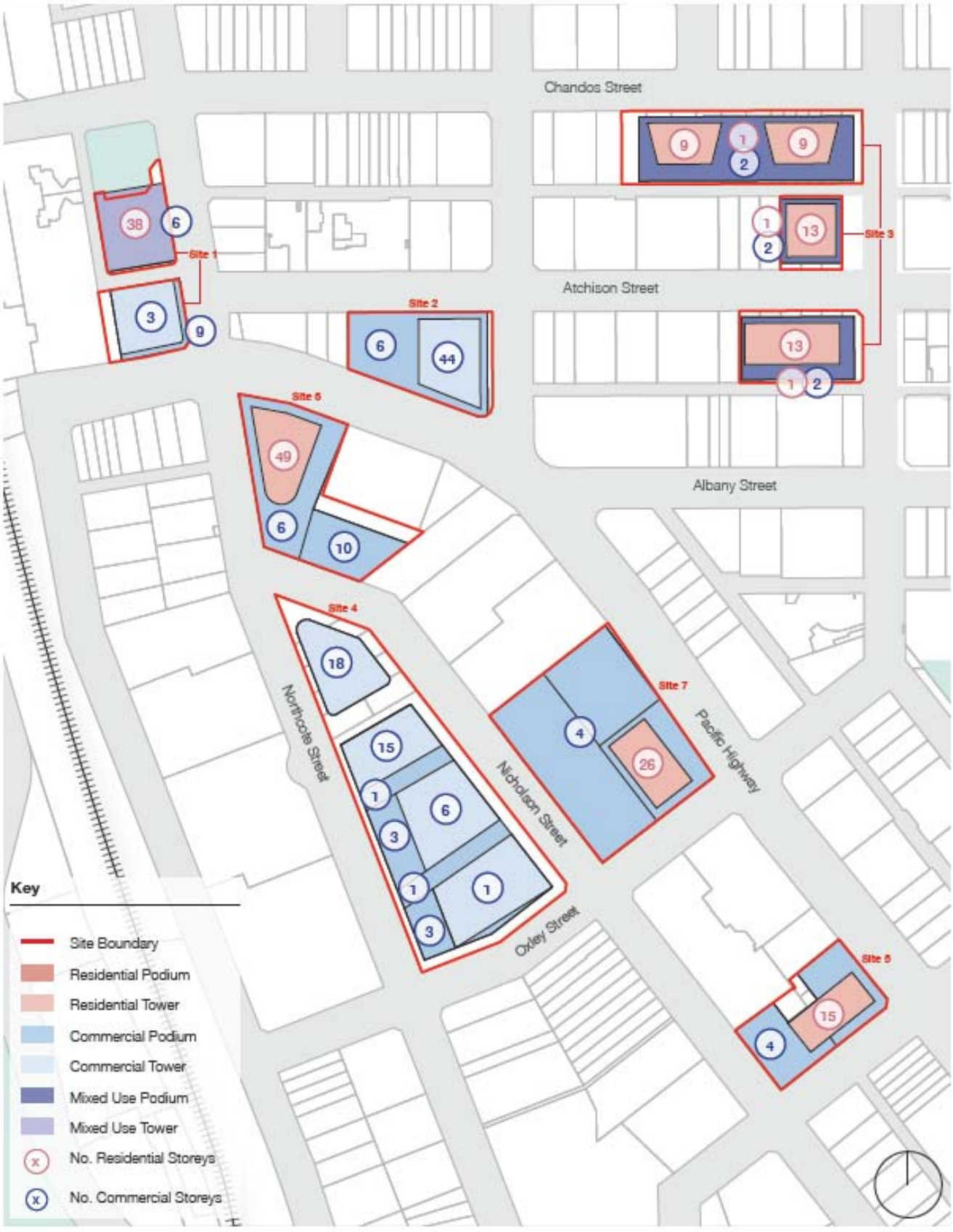
The results show that presently, developments which are most likely to be notionally feasible are those which combine a modest commercial floorspace podium of a few thousand square metres with some residential yield. This is broadly consistent with consultation findings and observed mixed use development outcomes across Strategic and District Centres in Metropolitan Sydney, where mixed use developments with three to five storeys of commercial office floorspace are fairly common.

TABLE 38 DEVELOPMENT FEASIBILITY – SJB PROJECT CASE

Site	Addresses	Site area (m^2)	Comm. FS	No. of dwellings	Highest storey	Non-Res. FSR	Res. FSR	Feasibility ratio
1	100 Christie Street and 655-657 Pacific Highway, St Leonards	2,727	27,006	217	44	7.13	6.88	0.54
2	601 Pacific Highway, St Leonards	2,844	56,873	0	44	20.00	0.00	-1.62
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards	5,652	5,652	233	16	1.00	4.33	1.01
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards	10,465	59,226	0	18	6.50	0.00	0.33
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft	2,565	2,619	91	18	1.00	3.00	1.74
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards	3,972	23,833	234	34	6.00	5.00	0.62
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards	6,462	32,308	152	30	5.00	2.00	-0.24

Source: SGS Economics and Planning 2018

FIGURE 17 FEASIBILITY TESTING - SJB PROJECT CASE BUILT FORM



Source: SJB 2018

5.7 Sensitivities

Sensitivity tests were applied to the project case in order to determine the impact on notional feasibility of trend based growth in market values and no on-site parking for developments. All other assumptions are identical to the project case unless indicated otherwise.

Future trend estimates

In order to derive the feasibility of these developments into the future, trend increases in cost and revenue assumptions were applied to evaluate notional project feasibility in 2026 and 2036. This is a hypothetical test; unexpected 'shocks' to the property market could change the outcomes.

Most values were indexed in line with inflation, however separate growth rates were observed for residential sales and commercial rents, as shown in Table 39 below.

The historical trend growth in sales values was discounted by CPI to derive real price growth rates, which were then extrapolated out into the future.

TABLE 39 FEASIBILITY MODEL FUTURE TREND ADJUSTMENTS[20]

Input	Source	Rate	2026 value	2036 Value
Inflation	ABS Consumer Price Index – March 2017 (Cat. No. 6401.0)	2.1%[21]	-	-
Residential price growth	Historical market data	3.11% (nominal)	1BR: $689,338 2BR: $1,190,223 3BR: $1,388,594	1BR: $753,248 2BR: $1,300,572 3BR: $1,517,334
Commercial price growth	Historical market data	2.58% (nominal)	$589/m^2	$616/m^2

Source: SGS Economics and Planning 2018

The results for both 2026 and 2036 are displayed in Table 40. As expected, these developments become more feasible in the long term due to market price growth though not sufficiently to have the notionally unfeasible developments (in 2018) become feasible for development by 2026.

By 2036 however, that background growth changes the equation sufficiently for a few sites (sites 1 and 6) to become notionally feasible. Importantly, the two pure commercial sites without residential dwellings (sites 2 and 4) remain notionally unfeasible.

And whilst land owners are still likely to prefer development as soon as possible to minimise risks, the numbers in Table 40 suggest that if development was not to proceed immediately, the long term opportunities may remain. From a precinct wide perspective, this inconsistent feasibility outcome should actually assist with a smoother staging of development yields; it ensures that the local market is not immediately flooded with commercial floorspace and residential dwellings that lead to oversupply.

[20] Assumes zero inflation and residential/commercial price growth into the future
[21] This is a conservative escalation. 10 year trend (March 2007 to March 2017) is 2.4%.

TABLE 40 DEVELOPMENT FEASIBILITY - FUTURE TREND ESTIMATES

Site	Addresses	**Feasibility Ratio** (current)	**Feasibility Ratio** 2026	**RLV increase** (2026 – current; '000s)	**Feasibility Ratio** 2036	**RLV increase** (2036 – current; '000s)
1	100 Christie Street and 655-657 Pacific Highway, St Leonards	0.54	0.76	$22,673	1.00	$47,961
2	601 Pacific Highway, St Leonards	-1.62	-1.48	$14,403	-1.31	$30,606
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards	1.01	1.20	$17,433	1.41	$36,822
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards	0.33	0.50	$14,998	0.68	$31,872
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft	1.74	2.00	$4,621	2.28	$9,765
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards	0.62	0.97	$13,698	1.36	$29,003
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards	-0.24	-0.06	$13,159	0.14	$27,894

Source: SGS Economics and Planning 2018

The construction of the Sydney Metro, including a station at Crows Nest, has the potential to further improve the competitive position of, and demand for commercial floorspace across the sites being tested for development feasibility. Table 41 below shows the increases in RLV for each of the sites, should commercial rents see a 20% increase resulting from the increased demand generated by the new metro line. Note that this is a speculative scenario for the purposes of sensitivity testing – it is not a forecast, and real price of dwellings and office floorspace could vary significantly based on a broad range of factors.

This uplift has been applied as a one-off increase in addition to trend growth in both commercial and residential values. By 2026, five out of the seven tested development sites are notionally feasible with Sydney Metro. That result remains broadly similar for 2036.

TABLE 41 DEVELOPMENT FEASIBILITY - FUTURE TREND ESTIMATES (WITH 20% UPLIFT ON COMMERCIAL RENTAL VALUES)

Site	Addresses	**Feasibility Ratio** (current)	**Feasibility Ratio** 2026	**RLV increase** (2026 – current; '000s)	**Feasibility Ratio** 2036	**RLV increase** (2036 – current; '000s)
1	100 Christie Street and 655-657 Pacific Highway, St Leonards	0.54	1.08	$56,242	1.34	$83,068
2	601 Pacific Highway, St Leonards	-1.62	-0.76	$85,095	-0.57	$104,539
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards	1.01	1.28	$24,458	1.49	$44,169
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards	0.33	1.32	$88,616	1.54	$108,864
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft	1.74	2.18	$7,877	2.47	$13,170
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards	0.62	1.73	$43,323	2.15	$59,985
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards	-0.24	0.48	$53,318	0.71	$69,894

Source: SGS Economics and Planning 2018

No on-site parking

In order to address potential issues of significant traffic generation resulting from the intensification of uses within the area, there will need to be a review of the local parking policy pertaining to multi-unit development and commercial floorspace.

Whilst such potential policy changes are still being conceived, the extreme example of providing no on-site parking (residential and commercial) has been tested for its impact on the notional feasibility of each development.

In addition to the removal of development costs associated with parking, a reduction in the sales values for each site was applied to account for the reduced provision of parking, being valued at $70,000 per residential space, or $400 per month for a commercial space[22]. The results are shown in Table 42.

Due to the substantive cost of providing underground parking, the feasibility ratio across all sites improves despite the associated reduction in property (sales) value (although the improvement in feasibility is relatively minor and is unlikely to turn notionally unfeasible developments into notionally feasible development scenarios). This relates to each development in isolation. While many developers will anticipate providing parking to meet perceived demand expectations are changing and car free apartment product is desirable from a strategic and policy perspective in a Transit Oriented Development area such as the precinct. Innovative and alternative parking solutions are recommended.

TABLE 42 DEVELOPMENT FEASIBILITY – NO ON-SITE PARKING PROVISION

Site	Addresses	**Feasibility Ratio** (project case)	**Feasibility Ratio** (no on-site parking)	**RLV increase** ('000s)	**No. residential parking spaces removed**	**No. commercial parking spaces removed**
1	100 Christie Street and 655-657 Pacific Highway, St Leonards	0.54	0.61	$7,826	139	57
2	601 Pacific Highway, St Leonards	-1.62	-1.58	$4,485	0	121
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards	1.01	1.08	$6,203	141	12
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards	0.33	0.38	$4,675	0	126
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft	1.74	1.84	$1,651	37	6
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards	0.62	0.75	$4,958	76	51
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards	-0.24	-0.18	$4,542	49	69

Source: SGS Economics and Planning 2018

The increase in RLV indicates that a proportion of uplift could be captured in order to fund the provision of parking spaces offsite. A number of reasons support such an approach:

[22] These figures have been confirmed through consultation with local and metropolitan market experts including Knight Frank, CBRE and a commercial developer in the Walker Corporation.

- Done well, it is economically efficient because offsite parking may be able to be provided at grade – resulting in significant net savings costs from avoiding the construction of underground car parks across multiple development sites.
- In terms of traffic management, offsite parking can assist in redirecting traffic flows away from important sub-precincts such as around the Metro Station in Crows Nest.
- Demand for onsite parking in commercial developments is inconsistent and incompatible with strategic sustainability objectives in well-connected locations. Offsite parking allows those that need car spaces to still use them, without providing spaces for those that do not.

It should be noted that the uplift in RLV alone may not be enough to cover the acquisition of a suitable site and (to a lesser extent) the construction costs of a parking station, with further parking analysis being required to determine whether such costs could be adequately offset.

Increased development contributions

A high level assessment of the impact of increased development contributions has been conducted as a sensitivity test using the following contribution rates per dwelling across all sites:

Section 7.11 contributions	$20,000 /dwelling
Special infrastructure contributions	$15,100 /dwelling

These increased rates have been substituted into the project case to assess the impact on feasibility within each site, replacing the existing LEP contribution rates for residential development. The existing LEP utilises the standard section 7.11 contribution rates for Lane Cove and North Sydney LGAs, with no special infrastructure contribution. Contribution rates for the commercial component of each development remains at the standard rates across both scenarios.

It should be noted that this sensitivity test only constitutes an initial, high level investigation, and further examination of appropriate levels for development contributions and their impact upon notional development feasibility may be warranted.

TABLE 43: DEVELOPMENT FEASIBILITY - INCREASED DEVELOPMENT CONTRIBUTIONS

Site	Addresses	Development Contributions (project case; '000s)	Development Contributions (increased contributions; '000s)	Extra Contributions Charged/ Reduction in RLV ('000s)	Feasibility Ratio (project case)	Feasibility Ratio (increased contributions)
1	100 Christie Street and 655-657 Pacific Highway, St Leonards	$4,869	$8,475	$3,606	0.54	0.50
2	601 Pacific Highway, St Leonards	$1,689	$1,689	$0	-1.62	-1.62
3	55-89 Chandos Street, 23-33 Atchison Street and 58-64 Atchison Street, St Leonards	$3,668	$7,334	$3,666	1.01	0.97
4	46-52 Nicholson Street and 29-59 Christie Street, St Leonards	$2,575	$2,575	$0	0.33	0.33
5	390-378 Pacific Highway, Crows Nest and 29-35 Nicholson Street, Wollstonecraft	$993	$1,952	$959	1.74	1.69
6	530 to 542 Pacific Highway and 69 Christie Street, St Leonards	$3,895	$6,197	$2,302	0.62	0.56
7	460-452 Pacific Highway and 55-67 Nicholson Street, St Leonards	$2,770	$4,315	$1,545	-0.24	-0.26
	Total	**$20,459**	**$32,537**	**$12,078**	-	-

Source: SGS Economics and Planning 2018

5.8 Implications

The analysis in this section of the report has provided some further implications for the future growth and development of the Precinct. They can be summarised as follows in the table below:

Topic	Issue	Decisions
1. Current status quo	Although there will be significant demand for office jobs and floorspace, pure commercial office redevelopments are currently notionally unfeasible in this precinct (though refurbishments or extensions to existing office buildings are possible, if ownership patterns are compatible). Existing office stock is also predominantly B/C/D grade though some could be upgraded through refurbishment).	Wherever possible, new office floorspace should be encouraged including refurbishments and extensions to existing office buildings. For mixed use sites allow residential development and mandate for commercial floorspace (creating new and higher quality floorspace), in particular to meet short-medium term employment demand. The analysis in this section demonstrates that this is likely to be a feasible option though actual market conditions may not replicate this theoretical outcome.
2. Parking and affordable housing	At the volumes of development hypothesised, affordable housing can be incorporated into mixed use developments (along with commercial floorspace). Removal of on-site parking is also something that will not significantly reduce development feasibility.	This leaves room for planning interventions for both affordable housing and parking.
3. Future projections	Sydney Metro may stimulate demand for pure commercial office buildings but this would require a significant uplift in rental values.	Sites should be retained for pure office development to meet medium-long term demand, in anticipation of positive future market conditions (i.e. preserving sufficient B3 sites for future pure commercial development is desirable).

6. PLANNING FOR GROWTH

The analysis in this report has demonstrated the volumes of housing and employment growth that is expected to occur in the Precinct over the next 20 years. In this section, the market assessments are distilled into a strategic assessment of sub-precincts, preceding a final conclusion for land use across the Precinct.

6.1 Land use suitability

A strategic suitability analysis of sub-precincts has been undertaken. It adopts a broad and basic multi-criteria assessment framework to distil the suitability of sites for all major land use categories from an economic perspective.

The assessment here incorporates SGS analysis of the Precinct (both Stage 1 and Stage 2) as well as market intelligence gathered from consultation with local market experts.

This assessment is organised into three components as follows:

1. Assessment criteria – which outlines the land and access requirements for each land use type
2. Sub precinct characteristics – which provides an assessment of how each sub-precinct measures up against each assessment criteria
3. Sub precinct suitability – based on (1) and (2), arrives at conclusions for the extent to which land uses are suitable to each sub precinct.

Assessment criteria

All major urban land uses have specific land and access requirements. Table 44 and Table 45 below outline which requirements are significant to each land use category. The business related land use criterion have been derived from past SGS land audits and surveys whereby businesses nominated which issues were of greatest significance to their location decisions.

The 'residential' land use category primarily refers to multi-unit developments, with its criterion confirmed through consultation with local real estate experts.

Most of these land use characteristics are a matter of common sense. When considering combinations of land uses however, it is important to understand the complex set of needs.

New criteria can emerge. For instance, a mixed use residential and office building will likely require multiple entrances.

Some criteria can also be removed/reduced. Peripheral retailing alone is less feasible or likely on expensive sites, but becomes a possibility on the same site as a ground floor podium/ showroom of a residential or office building.

A glossary of these criteria can be found in Appendix E.

TABLE 44 ASSESSMENT CRITERIA – PREFERRED LAND REQUIREMENTS

Land Use	Criteria (see Appendix E)					
	High amenity	Competitively priced land	Decontaminated sites	Buffers to sensitive uses	Established knowledge cluster	Larger lots
Office	✓				✓	
Manufacturing		✓		✓		✓
Freight		✓				✓
Service industry		✓				
Retail 1 (core[23])	✓					
Retail 2 (peripheral[24])		✓				✓
Residential	✓		✓			
Resi+Office	✓		✓		✓	✓
Resi+Office+Retail 1	✓		✓		✓	✓
Resi+Office+Retail 2	✓		✓		✓	✓
Office+Retail 1	✓				✓	
Office+Retail 2						✓
Office+Freight		✓				✓
Office+Manuf.		✓		✓		✓

Source: SGS

[23] Food and accessory based retailing, including hospitality
[24] Bulky goods, showrooms, motor vehicle sales

TABLE 45 ASSESSMENT CRITERIA – PREFERRED LOCATION/ACCESS REQUIREMENTS

Land Use	Criteria (see Appendix E)				
	Access to public transport	Access to passing trade by foot	Access to main roads	Access for trucks	Multiple access points
Office	✓				
Manufacturing			✓	✓	
Freight			✓	✓	
Service industry			✓		
Core retail	✓	✓			
Peripheral retail			✓		
Residential	✓				
Resi+Office	✓				✓
Resi+Office+Retail 1	✓	✓			✓
Resi+Office+Retail 2	✓		✓		✓
Office+Retail 1	✓	✓			
Office+Retail 2			✓		
Office+Freight			✓	✓	
Office+Manuf.			✓		

Source: SGS

Sub precinct characteristics

The same land and access requirements have then been assessed against each sub precinct (Table 46 and Table 47). This was informed by land use audits and site visits to each sub precinct.

The analysis demonstrates that all sub precincts have their own unique combinations of strengths and weaknesses. 'Low' classifications are identified as significant constraints which might disqualify that location from relevant land uses. The distinction between 'Moderate' and 'High' is more subtle, with a 'High' rating likely to improve competitiveness for attracting relevant land uses. A 'Moderate' rating implies a more mixed perspective with a reasonable preponderance of the characteristic.

The analysis is broad and shouldn't be considered 'absolute'. Different land uses will have different requirements and preferences in particular locations. The intention is to highlight generally the attributes of different locations and what this says about their suitability for particular land uses.

TABLE 46 PRECINCT CHARACTERISTICS – LAND REQUIREMENTS

Sub precinct	Locational characteristics					
	High amenity	Competitively priced land	Decontami-nated sites	Reasonable buffers to sensitive uses	Established knowledge cluster	Large lots
Artarmon West	Low	Moderate	Low	High	Low	Moderate
Gore Hill	Low	Moderate	Moderate	High	Low	High
Herbert Street	Moderate	Moderate	Low	High	Moderate	Moderate
St Leonards	High	Low	High	Low	High	Moderate
Crows Nest	High	Low	High	Low	Moderate	Moderate
Pacific Highway	Moderate	Moderate	Moderate	Low	Moderate	Moderate

Source: SGS

TABLE 47 PRECINCT CHARACTERISTICS – LOCATION/ACCESS REQUIREMENTS

Sub precinct	Criteria (see Appendix E)				
	Access to public transport	Access to passing trade by foot	Access to main roads	Access for trucks	Multiple access points
Artarmon West	Low	Low	High	High	Moderate
Gore Hill	Low	Low	High	High	High
Herbert Street	High	Low	Moderate	Moderate	Moderate
St Leonards	High	High	Moderate	Low	Moderate
Crows Nest	High	High	Moderate	Low	Moderate
Pacific Highway	High	Moderate	High	Moderate	Moderate

Source: SGS

Sub precinct suitability

Table 48 and Table 49 below summarise the results of the suitability analysis for all precincts. The ratings (High, Moderate and Low) are an overall assessment based on up to 11 factors from Table 44 and Table 45 for various types of employment generating land use categories as well as multi-unit residential development. These ratings are explained as follows:

- High: Regionally competitive for this type of land use (either currently or potentially), this is the ideal location for this type of activity.
- Moderate: The land use is potentially suited to this location and there is likely to be some demand for it. Unlikely to proliferate en masse/be overly competitive if there is another competing location with a 'High' rating.
- Low: There is a significant inhibitor which prevents or is likely to deter this land use from locating in this sub precinct – or in the case of existing uses (and their existing rights) expansion is unlikely. Most common reasons are poor buffer distances (heavy industry), poor access to passing foot traffic (retail) and poor amenity (office).

While such analysis cannot be definitive – because some of these conditions and characteristics can change, and because preferences might vary from business to business even within the same use class – it nonetheless demonstrates that using these assumptions, all sub precincts are able to accommodate at least two or three distinct land use categories

(Table 48), along with some options for multiple uses on the same site (Table 52). A key conclusion here is that **all** sub precincts are able to accommodate some form of employment use.

TABLE 48 PRECINCT LAND USE SUITABILITY (SINGLE USE)

Precinct	Office	Manuf.	Freight	Service industry	Core retail	Peripheral retail	Residential
Artarmon West	Low	High	High	High	Low	Moderate	Low
Gore Hill	Low	High	High	High	Low	Moderate	Low
Herbert Street	Moderate	High	High	High	Low	Moderate	Low
St Leonards	High	Low	Low	Low	High	Low	High
Crows Nest	High[25]	Low	Low	Low	High	Low	High
Pacific Highway	Moderate	Low	Low	Low	Moderate	Moderate	Moderate

Source: SGS

TABLE 49 PRECINCT LAND USE SUITABILITY (MULTIPLE USE)

Sub precinct	Residential +Office	Residential +Office +Retail 1	Residential +Office +Retail 2	Office +Retail 1	Office +Retail 2	Office +Freight	Office +Manuf.
Artarmon West	Low	Low	Low	Low	Low	Low	Low
Gore Hill	Low	Low	Low	Low	Low	Low	Low
Herbert Street	Low	Low	Low	Low	Moderate	Moderate	Moderate
St Leonards	High	High	Low	High	Low	Low	Low
Crows Nest	High	High	Low	High	Low	Low	Low
Pacific Highway	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low

Source: SGS

Sub precinct land use recommendations

The results of the suitability analysis can be interpreted to inform a spatial economic and land use structure for the Precinct. The structure provides planning guidance for prioritising and balancing competing land uses across the sub precincts. The **bolded** uses are considered highly suitable for the location.

It should be noted that this land use guidance should be reconciled with the need to accommodate the growth of housing, and in particular jobs as forecast in this study, and to enable the Precinct to fulfil its strategic economic potential. From this perspective the precautionary principle should elevate the accommodation of jobs over housing as a matter of priority in some locations where both uses are viable.

Certainly mixed use development in the Precinct is a viable option – but only if the long term projections of employment floorspace are able to be accommodated.

[25] Currently Moderate, will be High with Sydney Metro

TABLE 50 SUBPRECINCT ASSESSMENT

Sub precinct	Suitable land uses	Preferred future economic role
Artarmon West	**Manufacturing, Freight, Service industry,**	Pure industrial precinct, containing full range of industrial activity.
Gore Hill	**Manufacturing, Freight, Service industry,**	Pure industrial precinct, containing full range of industrial activity.
Herbert Street	**Manufacturing, freight, service industry,** ancillary office	Innovative industrial precinct, with associated ancillary office and tech/IT floorspace as allowed under existing planning controls.
St Leonards	**Office, core retail, residential**	Mixed office, retail and residential precinct.
Crows Nest	**Office, core retail, residential**	Mixed office, retail and residential precinct.
Pacific Highway	Office, core retail, peripheral retail, residential	Mixed office, retail and residential precinct, cognisant of the Highway's role in accommodating traffic movement.

Source: SGS

6.2 Final Strategies

This report informs the second of a two stage process:

- Stage 1 – Strategic Employment Review
- Stage 2 – Land Use & Infrastructure Implementation Plan

This Stage 2 report has built on the Strategic Employment Review of Stage 1, and added accessibility modelling, housing analysis and market feasibility analysis. This provides further insight for strategic directions in this centre.

The analysis presented in Sections 2 to 6 of this report has documented the existing and future status of the Precinct and its employment sub-precincts. Through this analysis, a number of key issues and opportunities were identified. Some headline strategies can be distilled as follows.

Further develop the emerging economic 'eco-system'

The ever changing economy of metropolitan Sydney, and Australia, has led to significant changes in the structure of employment in recent decades. Over a long period, the number of lower skilled industrial jobs has decreased, with jobs growth being driven by knowledge based activities. In middle suburban industrial areas job numbers have fallen. However in Artarmon, the loss in manufacturing employment has been more than offset by the increase in service industry businesses, which serve a large catchment across the North District and beyond, as well as higher order businesses with global markets.

The presence of the IT sector has also grown across the Precinct – particularly in Herbert Street in the Artarmon sub-precinct, but also in parts of the St Leonards commercial core and (to a lesser extent) Crows Nest.

There is genuine diversity in office floorspace and employment growth in the area. The consultation with business owners (undertaken for the Stage 1 Strategic Employment Review) found there is a good mix of firms (e.g. in media, communications, tech, design and engineering) with intense 'Business to Business' connections, playing critical roles in multiple and varied supply chains, but also an increasing number of 'Business to Consumer' firms (i.e. banks, accountants, real-estate agents), particularly in the St Leonards and Crows Nest commercial cores.

The opening of a Metro station at Crows Nest will initially draw more Business to Business firms to the area, increasing economic output and productivity of the Precinct. It is important to ensure that sufficient land and floorspace capacity is available at that time (likely to be 2024) and in the years following for commercial office development.

Finally, growth in the health and education sectors is an ongoing opportunity for this employment area. Even without significant intervention from Government, this sector is likely to continue to increase in prominence given the projected levels of population growth and the ageing of the population.

All of this highlights the notion of this complex of economic activities forming an economic ecosystem, in some ways unlike any other cluster or precinct in metropolitan Sydney. The investment in new rail and a Metro station at Crows Nest provides the opportunities to 'super-charge' the development of the ecosystem. Ancillary investment in the public domain, in infrastructure which promotes sustainable living and business operations, in much greater internal pedestrian and cycling connectivity and economic development support activities, as well as carefully crafted changes to planning controls, will be necessary to underpin this economic ecosystem.

Provide varied opportunities for commercial office investment

Demand for commercial office floorspace is quite varied across the Precinct.

Herbert Street

In the Herbert Street area within the Artarmon Employment Area sub-precinct, some recent commercial development includes a large office component combined with some warehouse, factory or other industrial facility. Whilst the majority of employees work from the office component of a building, the consultation revealed that the industrial component was just as important to those businesses' on-site operations. This suggests that the industrial character of Herbert Street needs to be retained in order to continue to attract these businesses.

St Leonards

In St Leonards and Crows Nest (west of Willoughby Road) commercial offices take on a more traditional office-tower format, with a range of businesses that include the administrative headquarters of a manufacturing firm and financial services that host clients on site. This sub-precinct will potentially require the greatest level of planning intervention given the need to refresh ageing stock. Catalysing new office development, to host employment growth and take advantage of the significant investment in nearby new infrastructure at the Crows Nest station, is possible for the land already zoned B4 by allowing additional residential with a requirement for a minimum commercial or office floorspace. If this can be successfully achieved it would have the added benefit of generating valuable housing supply. This report suggests the market would sustain up to 6,800 new dwellings in this area by 2036.

In the B3 zoned area of the St Leonards core, there are a number of options to consider. Broadly speaking, they are:

A. Following a similar logic to that for Crows Nest outlined above, which would mean rezoning to B4 but requiring a minimum employment outcome
B. Keeping the existing B3 zoned land unchanged, in anticipation of future demand for pure commercial/office developments when Sydney Metro is operational (on the assumption that such development will be more attractive and feasible with the accessibility that the Metro provides and also when a more favourable office market cycle may exist)
C. Rezoning some land to B4 in order to deliver housing outcomes, and reserving some sites for pure commercial office floorspace in the future when Sydney Metro is operational.

In deciding which of these options to pursue, there are a number of priorities to consider. In order of importance, they are:

1. Mandating for sufficient employment floorspace to help achieve the GSC's **employment target** of 63,500 jobs by 2036.
2. Delivering sufficient volumes of residential dwellings to contribute to housing demand and help improve **housing affordability** in the local market.
3. The important role of retail, housing and employment in **activation** of the Precinct (in that order).

Table 51 below explores how each of the three potential options addresses these priorities

TABLE 51 ST LEONARDS B3 VS B4: OPTIONS AND PRIORITIES

Priorities	Option A – B4 rezoning	Option B – Retain B3	Option C – Hybrid B3/B4
1. Achieving employment target	Can achieve the 63,500 jobs target (and more) but would require strong controls and enforcement in mandating employment floorspace outcomes. For undeveloped sites there may be pressure to allow conversion to residential.. Concern that the employment/office floorspace provided would be 'token' to achieve residential potential and lack brand integrity and effective positioning to be attractive. There is also the risk that in the long term, the precinct loses the potential to accommodate pure employment uses, as strata residential title residential development 'sterilises' future opportunity for commercial or mixed use sites in the future.	In the long term this is likely to be the best option for this priority particularly after Sydney Metro is operational but in the short/medium term is not guaranteed to contribute towards employment growth targets because of insufficient development feasibility for pure commercial buildings. However, because there are so few B3 sites remaining retention of some or all would be appropriate to protect long term employment opportunities?	The most balanced outcome as the B4 area would likely generate new development (and employment floorspace if mandated) in the short term, whilst the B3 zoned land would offer opportunities in the future provided it is protected for employment or office only.
2. Meeting housing demand and improving housing affordability	Opens the entire Precinct to the residential development market, so would likely catalyse dwelling construction, though mixed use/employment component 'complicates' development and might deter less sophisticated developers.	No contribution, although it should be recognised that existing B4 zoned areas can still contribute on this front.	Will need to be informed by urban design study regarding the volume of B4 land required to meet housing demand and suitable options for meeting that demand while incorporating appropriate amounts of office development.
3. Activation of the Precinct	Has greatest potential to maximise activation outcomes, but would still require a solid curation and activation strategy. Associated car parking strategy is important as high rates of car use and ownership, including basement car parks will be incompatible with highly effective street level activation and work against sustainable transport objectives in a public transport 'rich' context.	The greatest 'cost' in preserving land for long term employment opportunities is that in the short to medium term, activation is unlikely to be as strong. However, some refurbishment of existing commercial stock is likely, which may address short term demand and will in some cases include investment at the street level and in activation.	Has the potential generate a similar activation outcome to Option A if the appropriate volume of land is rezoned in line with take up rates.

All three options have their strengths and ultimately they are all viable, but Option C would appear to be the most balanced – particularly because it gets some development going in the B4 zone whilst banking some land for the long term. Option B is a wait and see approach

which preserves employment use potential for the long term (although at the risk that insufficient redevelopment occurs in the near future), while Option A is the most aggressive means of chasing residential development yield and could also generate significant activation through the sheer volume of people that would be living in the Precinct – but may sterilise the area for further employment development in the long term.

This report recommends that the choice of option be informed by the urban design study's recommendations for how much residential floorspace potential on mixed use sites (e.g. B4 zone) is provided to contribute towards the 6,800 dwellings forecast by 2036, while **ensuring that the short, medium and long term employment outcomes and floorspace provision can be met, desirably including some in 'stand-alone' office buildings,** on sites which are employment or commercial only (e.g. B3 zone).

Where there is no pressing need for more B4 zoned land, preservation of future employment opportunities in the B3 zoned area, particularly on the larger sites, is desirable.

Ultimately, large and/or amalgamated sites should be strongly encouraged and supported as the means to achieving standalone commercial buildings and standalone residential buildings on the same site, particularly in B4 areas. If that outcome is achieved, then a mixed use precinct should simultaneously deliver optimal employment and housing outcomes in a timely fashion.

Finally there is also the question of prioritising specific locations when creating more intense mixed use precincts. It is recommended here that land to the east is best placed to facilitate mixed use development due to the position of the Crows Nest Metro Station and more residents to add to the vitality of the Crows Nest village.

The B3 land in the west towards St Leonards station is also closer to the emerging employment cluster in Herbert Street, so demand for pure commercial development is most likely to emerge there in the long term.

Crows Nest

In Crows Nest (east of Willoughby Road), commercial offices are more typical of what can be found in other inner suburban centres. Some have a similar interaction to their customers as retail shops in the sense that they both play a role in serving the population. The major difference between these population serving office uses and the retailers is that there are usually no trade flows associated with selling of physical products. This area may lend itself to a boutique office environment over time, with smaller businesses in creative and professional sectors, similar to what has emerged in Surry Hills.

It is worth noting the presence of the B4 zone in Crows Nest, which does restrict the potential for any pure commercial developments in the long term.

Harness a rapidly growing health sector

The health sector is experiencing significant expansion right across metropolitan Sydney, and is expected to continue its emergence as the major metropolitan-wide industry growth sector of the 21st century. As a predominantly population serving industry, the jobs tend to be created where the population is growing. However, areas with either an ageing or affluent population and an existing critical mass of higher order health related activity, including research and teaching faciliteis, are particularly attractive for district level specialised health businesses and the Precinct is well located in this regard.

Whilst the Royal North Shore, North Shore Private and Mater Hospitals are expected to expand, there are also opportunities for the Royal North Shore Hospital sub-precinct to host a range of allied health uses. As hospitals tend to also attract ancillary medical specialists and services, this employment area will further develop as a medical related knowledge and service cluster in the future.

There is currently capacity on the Royal North Shore Hospital site, and nearby in Herbert Street or in office buildings on Pacific Highway or at St Leonards, for private sector health and ancillary uses. The Master Plan for RNSH has identified opportunities for growth.

A focused economic development strategy for the health and education sector would be beneficial, and should further enhance what are expected to be two of Australia's key exporting sectors of the 21st Century. Such a strategy should focus on:

- liaison with Department of Health and Department of Education
- a joint health and education property and asset development plan (RNSH, TAFE and Bradfield Senior College sites) with the aim of developing a world class, active campus
- partnerships for major facilities and operators, including research organisations and institutes
- a method for attracting a greater volume and critical mass of allied health businesses to the area

Protect the industrial lands in Artarmon for service and hi-tech industry

Manufacturing in its purest sense has decreased in significance as a land use in most industrial precincts. This does not mean that industrial floorspace and lands are redundant. In Artarmon, there are multiple reasons why an industrial precinct is still required in this location, for example:

- The industrial area is one of only a few in the North District (for example, the nearest auto-repairs precinct is 12 kilometres away in Brookvale, while for every 1,000 people in the North District there is only 7.3 ha of industrial land compared to 33.1 ha on average across the metropolitan area). It has significant strategic value in terms of retaining the opportunity for those businesses that require a location within an industrial zone.
- The industrial area is located on the northern edge of the Precinct, and provides a valuable, alternative 'non-centre' business location, with the southern part of the industrial area within walking distance of St Leonards Railway Station. The northern parts of the industrial area are also within an 800 metre walking distance of the Artarmon local shopping centre and railway station.
- At the intersection of the Pacific Highway and the M2 Motorway, the sub-precinct has excellent access to the metropolitan arterial road network, both in a north-south as well as an east-west direction, including access to Port Botany and Sydney Airport. This accessibility was greatly enhanced by the construction of the Harbour Tunnel and more lately the Lane Cove Tunnel.
- The industrial area is well buffered from sensitive residential and other uses in most directions and does not have interface issues. The Pacific Highway to the west, M2 Motorway to the north and railway line to the east provide effective long term buffers to sensitive uses and clearly define the area in those directions.
- There appear to be synergies between the industrial zone and the hospital precinct. There are several medical industry related manufacturers, which provides evidence of a deep health related cluster in this area.

In the core of this Industrial area, service industries are effectively using old industrial buildings. In some sense, the physical floorspace requirements of a manufacturing and an auto-repairs business is not dissimilar. It is important for the effective functioning of the lower north shore that the core Industrial area at least retains its building stock and continues to play a service industry function. If possible, intensifying this industrial use (e.g. over multiple storeys) could help to accommodate more service industry activity as demand grows over time. Critical urban support activities such as batching plants, electricity sub-stations and postal depots are in Artarmon. These need to be distributed in the existing urban area to

support the building and functions of the city as it grows, and can't be relocated to the urban fringe without significant transaction and wider economic costs.

As mentioned above, there is a need to support a dynamic mixed industrial urban services business precinct on the eastern side of Artarmon along Herbert Street. There, the majority of jobs are for knowledge workers in ancillary office floorspace. However, some businesses actively use on-site industrial floorspace which allows for some light industrial assembly, warehousing and low level freight activities, even if they have significant office activities above or elsewhere on site. This sub-precinct will continue to evolve, embedded in a complex rather than homogeneous business environment.

6.3 Precinct directions

In Section 6.1 a preferred future economic role was defined for each sub precinct, along with a listing of suitable land uses. In this sub section, general recommendations and directions are provided for land use planning purposes, though recommendations for site specific planning and development controls is beyond the scope of this report.

Artarmon West

Key Directions

- Protect for industrial uses and service industry land uses.
- Limited net floorspace change is anticipated – conversions of industrial floorspace to office or retail floorspace should be discouraged.
- No residential development.

Implications for planning, land use and infrastructure strategy

- The growth of lower north shore service and light industry needs will need to be accommodated at Artarmon (with some 'overflow' potential in Gore Hill).
- The existing available capacity should be sufficient given options for re-use and redevelopment of existing floorspace.
- Intensification of industrial activities and site utilisation should therefore be expected for some sites – so no change to zoning but changes to FSR or other to facilitate continued industrial development and intensification should be facilitated.

Gore Hill

Key Directions

- Support for industry/warehousing development, including smaller formats that support the growth of industrial activity not able to be accommodated in or which 'overflows' from Artarmon West, helping to meet the floorspace demand identified for this area.
- Recognise that there are some 'tech' developments already and continued prospects for a mix of industrial enterprises.
- No residential development.

Implications for planning, land use and infrastructure strategy

- Preserve for an industrial related, mixed employment only outcome.
- Pure office development should be directed away from this precinct towards the St Leonards core, where public transport access and amenity is more suitable (though there is a shuttle bus which is still appropriate for industrial and enterprise activities).

Herbert Street

Key Directions

- Support dynamic evolution for industrial, 'tech' and warehousing activity.
- Facilitate industrial/tech/warehouse floorspace in innovative formats in the bulky goods area.
- No residential development.

Implications for planning, land use and infrastructure strategy

- Existing zoning is delivering organic growth and evolution.
- No need to change zoning, but new, productive employment uses such as hospitals, medical facilities, technologically driven industry which require integrated facilities and larger floorplates than what can be delivered in the St Leonards core should be considered and encouraged in this location, including in the current 'bulky goods' area. This may require a review of numeric controls.

St Leonards Core

Key Directions

- Maintain potential for commercial and employment only sites, given the new Metro station and Metro rail investment is expected to catalyse higher value office development in the medium-short term.
- In the current mixed use zone, allow additional residential development but also require minimum commercial floorspace consistent with achieving employment target. Encourage mixed use with stand alone commercial office (horizontally separated) on larger sites.
- Consider major car parking reforms (reduced rates, shared solutions etc) to reduce development costs and imposition at street level.

Implications for planning, land use and infrastructure strategy

- Retain most or all of the existing B3 zoned sites, allow additional floorspace including mixed use with minimum commercial floorspace in the B4 zone.
- Ensure connection and access to new Metro Station is optimal, along with street amenity.
- Parking innovations should be pursued to enhance amenity and reduce costs. Investigate zero or greatly reduced parking in new developments combined with for example, an offsite parking facility(s), and establishing a 'market' for existing and new spaces.

Crows Nest

Key Directions

- This sub-precinct is where most change is expected around the Sydney Metro station – the opportunity exists to create a modern mixed business environment and a low traffic impact, 'green zone' with high amenity.
- The challenge is to ensure an employment outcome while facilitating redevelopment given costs of redevelopment and returns on office development compared to residential development. There is a need to monitor outcomes to ensure capacity for employment is provided.
- Minimum employment floorspace should be required to meet need – market testing has shown that mixed use (commercial office plus residential) will catalyse development, in forms acceptable to investors.

Implications for planning, land use and infrastructure strategy

- Catalyse employment floorspace with residential in genuine mixed use redevelopment.
- Require a minimum employment floorspace outcome in any redevelopment.
- High amenity area; protect the grain and scale along Willoughby Road.
- Enhance retail activity and create an 'urban heart' between Metro Station and Willoughby Road.

Pacific Highway corridor (St Leonards)

Key Directions

- Commercial employment including professional services and ancillary health.
- Limited net employment floorspace change anticipated though opportunities for renewal and refurbishment, and some minor extensions for additional office on some sites.
- Innovative redevelopment for employment encouraged.

Implications for planning, land use and infrastructure strategy

- Prioritise employment only with additional yield potential to catalyse investment.

Pacific Highway corridor (Crows Nest)

Key Directions

- Encourage showroom, large format retail on ground and first floor of commercial podiums.
- Podiums could also accommodate commercial or medical centres etc. for Mater Hospital related ancillary activity.
- Incentives for redevelopment including residential.

Implications for planning, land use and infrastructure strategy

- Some sites and blocks subject to heritage protections.
- Consider a boulevard treatment for the Pacific Highway, review on-street parking to encourage public transport priority.
- Pacific Highway 'boulevard' podiums, allow additional residential on upper floors to catalyse change.

Health & Education (Royal North Shore)

Key Directions

- Support development of a world class health and education precinct

Implications for planning, land use and infrastructure strategy

- Joint Health and Education site precinct planning process with economic development initiatives to encourage accelerated growth of health and education jobs. There is capacity for growth on both the Royal North Shore Hospital and TAFE sites, with the TAFE site potentially being able to accommodate a joint school development.
- Establish a coordination body to undertake joint master planning.
- Innovations to allow ancillary development 'on-site' in private and allied health should be further explored.

Health & Education (Mater)

Key Directions

– Explore opportunities for consolidating and expanding health and education activities.

Implications for planning, land use and infrastructure strategy

– Liaise with the Mater Hospital to find initiatives that facilitate expansion and co-location opportunities with allied health providers, including in the adjacent Pacific Highway strip and nearby sites.

APPENDIX A – ACCESSIBILITY MODELLING

The accessibility modelling of Sydney Metro assumes two major rounds of land use impact:

First round impact

In the first round, better access results in more productive employment (finance, professional services etc.) Better employment opportunities leads to more residents living in the local area.

1. Changes in accessibility (measured by travel time) resulting from the Metro project are determined. Travel time uplift assumptions are shown below:

TABLE 52 MODELLING IMPACTS OF SYDNEY METRO STATION ON ACCESSIBILITY (PUBLIC TRANSPORT)

Origin	Destination	Improvement to accessibility	Rationale
Metro Stations	to Metro Stations (within an 800 metre walking radius)	50%	E.g. 14min journey from Crows Nest to Sydney CBD halved to 7min journey
Metro Stations	to Metro Stations (within a two kilometre radius)	25%	Outer limit of train station catchment
Non-metro locations of Sydney	to Metro Stations	No change	The uplifts would not be significant enough to induce any observable land use changes.
Non-metro locations of Sydney	to non-metro locations of Sydney	No change	The uplifts would not be significant enough to induce any observable land use changes.

2. Any SA2 (census geography) for which more than 10% of its land area falls within the 800m or 2km buffer are deemed to be impacted by the Metro.
3. Some manual adjustments were made to ensure anomalous exclusions/inclusions were avoided.
4. The improvement to travel time & accessibility then increases the Effective Job Density (EJD) of that centre.
5. EJD is a measure of the relative concentration of employment, derived from the density and accessibility of all jobs across a region. Accessibility is what the Metro is improving.
6. Regressions have been conducted to determine the how changes in EJD relate to employment (by industry) and household concentration across the metropolis.
7. The relationships between EJD, employment and household – as well as subsequent changes were measured using historical data over the periods of 1996, 2001, 2006 and 2011.
8. The relationships are quantified using coefficients for every ANZSIC industry as well as for households.
9. The model then applies those coefficients to TPA TZP 2016 base forecasts.

Second round impact

In the second round impact, more local residents result in more population serving employment in the local area (retail, healthcare, service industry etc.)

1. In the long term, a greater concentration of people living in an area eventually also attracts more jobs.
2. Another correlation was calculated between the number of households in an area and the levels of population serving employment by industry.
3. A second round of shifts is then applied, which tends to boost health, education type jobs.

APPENDIX B – SALES DATA

Sales values have been obtained from the CoreLogic RPData database for catchment area along with the St Leonards Centre precinct, wherein the type of dwelling could be ascertained as either an apartment, semi-detached or detached, and where a sale price was provided. The period sampled is from June 2016 to June 2017, and is displayed below in Table 53[26].

TABLE 53 MEDIAN SALE PRICES IN THE PRECINCT

	1 Bed	2 Beds	3 Beds	4 Beds	Total
Apartments – Broader Catchment	$695,000	$980,000	$1,386,000	$3,350,000	$880,500
Apartments - St Leonards Precinct [27]	$695,000	$1,070,000	$1,400,000	-	$885,000
Semi-detached	-	$1,225,000	$1,650,000	$1,930,000	$1,591,000
Detached	$695,000	$990,000	$1,450,000	$2,640,000	$2,300,000

Source: CoreLogic RPData (2017)

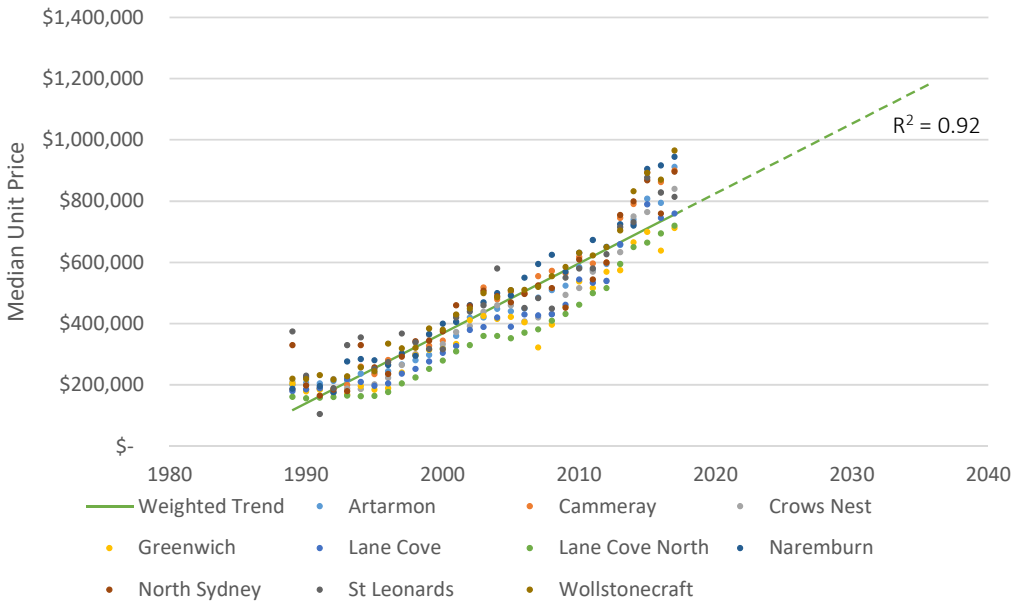
Historical data on the sale volumes, numbers and median prices within the precinct and the surrounding suburbs has also been obtained, with complete data being obtained from 1989 to 2017. The data for units encompasses both townhouses (and similar dwellings) and apartments, being displayed in Figure 18 below. The weighted average of sales has been extrapolated out to 2036, being marked by the green dotted line.

Rate of growth has been particularly pronounced in recent years and above long term trend. This is most likely due to population growth pressures at a macro level.

[26] The number of zero-bedroom dwellings is excluded from this table, as whilst this may be representative of studio apartments within the sample, a range of other dwellings have been incorrectly recorded as having zero bedrooms within the source data; these dwellings are included in the total column below.

[27] This is the value utilised in the feasibility assessment contained in section 5, as it largely reflects new stock and the accessibility levels likely to be seen throughout the precinct following the completion of the Crows Nest metro station.

FIGURE 18 HISTORICAL UNIT SALE PRICE – WITH EXTRAPOLATED FUTURE GROWTH



Source: CoreLogic RPData (2017)

APPENDIX C - RETAIL DEMAND FORECASTS

Approach

Whilst city-shaping infrastructure such as Sydney Metro do not directly increase demand for retail floorspace, the presence of more residents in the Precinct (in part as a result of Sydney Metro) will. Retailing will then also present minor local employment opportunities along with better public domain outcomes.

In broad terms, there are three opportunities for retailing in the Precinct:

- Food based core retailing (supermarkets, non-supermarket food stores, hospitality)
- Non-food based core retailing (clothing, general merchandise – but not Department Stores)
- Peripheral retail activities (furniture, hardware, motor vehicle, motor vehicle parts)

The purpose of this section is to articulate the demand and supply equation for these uses. The primary focus is on floorspace.

Core retail

Core retail activities consist of the food and non-food shops which are commonly found within the core of a retail centre.

It includes food stores which are supermarkets, non-supermarket food stores such as butchers, bakers etc. and also hospitality, which is an umbrella term for cafes and restaurants (which may also double as night time entertainment venues in the modern context).

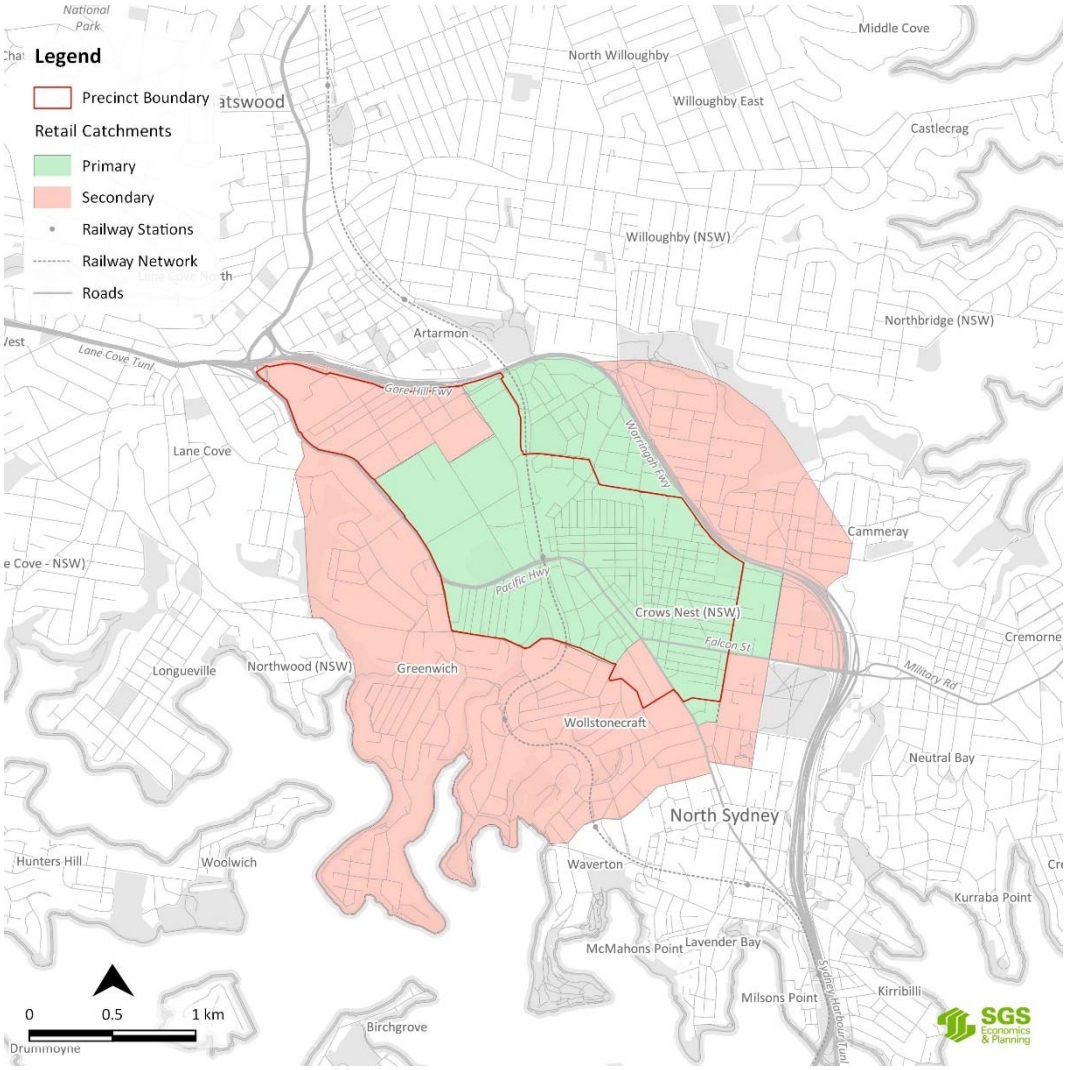
It also includes non-food stores including clothing and general merchandise.

Figure 19 maps the trade area for core retail activities in St Leonards. Some trade is likely to be captured from the south and the east, as there is a supermarket (Woolworths) in Crows Nest, and another planned (and approved) supermarket (also Woolworths) in St Leonards South.

This centre is expected to primarily service residents living within its precinct boundaries. There are two main reasons for this:

- There are some major retail anchored centres in close proximity to St Leonards and Crows Nest, including Chatswood, North Sydney CBD and to a lesser extent, Lane Cove.
- The volume of expected population growth means that traders in St Leonards and Crows Nest will be able to capture sufficient trade within this relatively confined area. For instance, a full line supermarket requires a minimum of 8,000 residents in its Main Trade Area. If St Leonards (as expected) grows to a centre of 26,000 residents by 2036, that population alone could support up to three full line supermarkets.

FIGURE 19 ST LEONARDS CORE RETAIL MAIN TRADE AREA



Source: SGS

Core retail floorspace demand is quantified in Table 54 below. Note how core retail activities will in and of themselves generate 1,100 jobs in the precinct by 2036.

TABLE 54 TOTAL FLOORSPACE DEMAND 2016 TO 2036 – CORE RETAIL

Floorspace by store type	2016	2036	2036 jobs
Supermarket	4,500	7,500	300
Food Retailing	3,500	6,000	240
Specialty Shops	3,500	6,000	240
Hospitality	5,000	8,500	340
Department Stores	-	-	-
Total	**16,500**	**28,000**	**1,120**

Source: SGS

Peripheral retail

Peripheral retail largely refers to large format retailing that comprises a range of products including hardware, furniture and motor vehicle sales. This type of retail needs to be analysed separately as it is more land intensive than other types of retailing and also requires ease of access to major arterials.

Because of these unique access and land requirements, new peripheral retail clusters are difficult to create in established areas. As shown in Figure 20, the St Leonards and Artarmon centre is one of the largest clusters of peripheral retail sales in the North Shore – particularly for furniture and motor vehicle related sales.

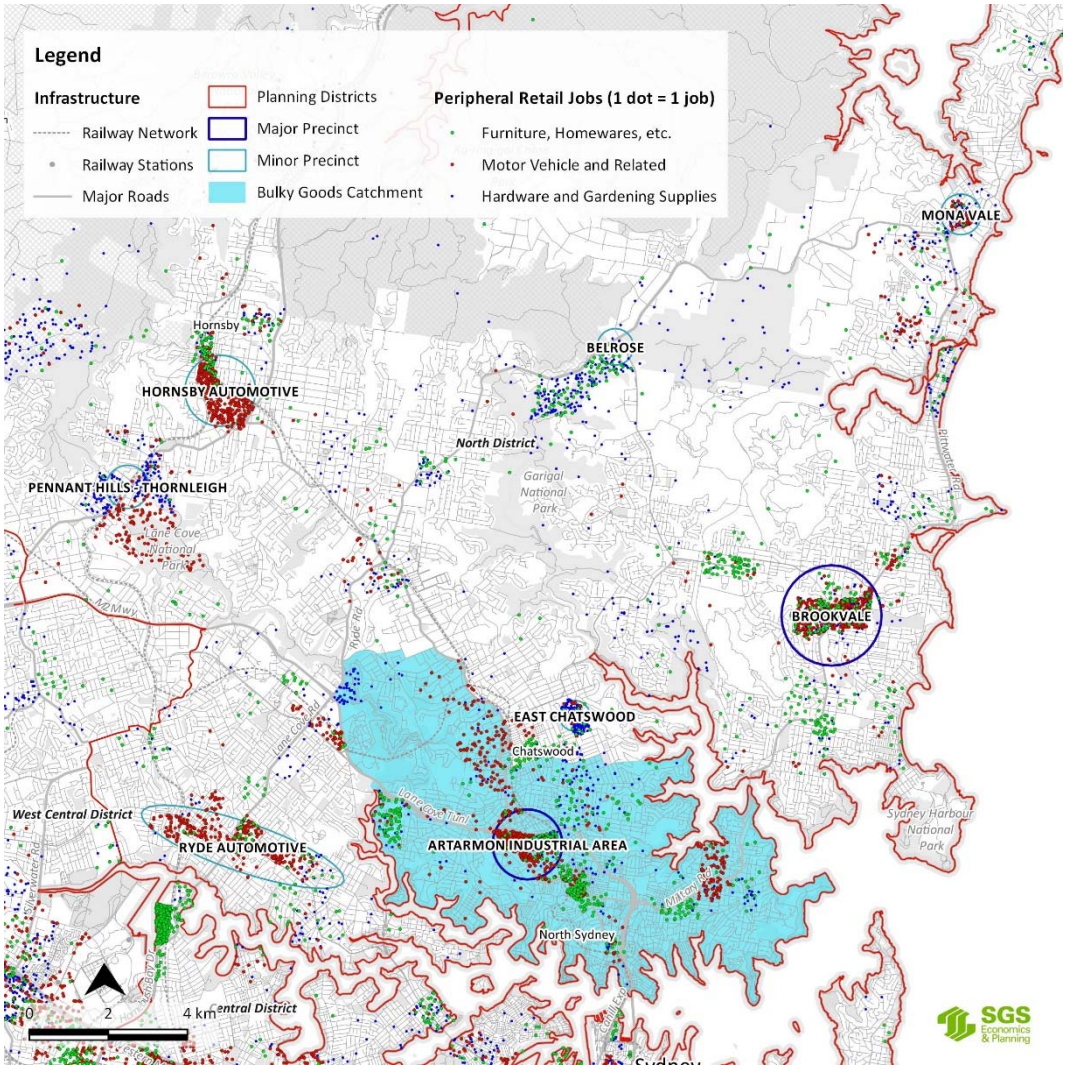
Total floorspace demand is shown in Table 55 below.

TABLE 55 PERIPHERAL RETAIL FLOORSPACE DEMAND

Floorspace Demand	2016	2036	2036 Jobs
Motor Vehicle Retailing	13,050	19,575	392
Motor Parts Retailing	2,550	3,825	77
Furniture, etc	4,100	6,150	123
Hardware, etc	5,450	8,175	164
Total	**25,150**	**37,725**	**755**

Source: SGS

FIGURE 20 PERIPHERAL RETAIL CLUSTERS AND THE ST LEONARDS CATCHMENT



Source: SGS

APPENDIX D – CASE STUDIES

Site	Built form	Separation of uses	
Riparian Plaza, Brisbane	Single 53-storey tower	Vertical	**Description** The Riparian Plaza is located in Brisbane's CBD, on the banks of the Brisbane River. It contains 27 commercial storeys, to a total of 30,000m^2 of floorspace, and 12 storeys of residential apartments at the top of the building. 11 floors of parking are provided above-ground at the base of the tower, in addition to communal areas separating each of the uses. **Implications** The tower is comparable in height to some of the larger developments being investigated within St Leonards, with the level of commercial floorspace provided being particularly significant, at 30,000m^2. The siting of residential uses above the 40th floor added substantially to the value of this component.
Beau Monde Tower, North Sydney	Single 36-storey tower	Vertical	**Description** The Beau Monde apartment development in North Sydney incorporates a significant mix of uses with separate entrances for the residential and commercial components of the building. The residential component– which comprises around 240 apartments spread over 29 floors – was an addition to the existing commercial and retail premises on the first seven storeys of the building. **Implications** Given that it has been identified in consultation as being a positive contributor to the success of vertically separated mixed-use developments, separated lobbies for the residential and commercial components provides positive outcomes for the commercial development.

Site	Built form	Separation of uses	
Conservatory Tower, Adelaide	Single 19-storey tower	Vertical	**Description** The Conservatory development on Hindmarsh Square is a 19-level building comprising 430sqm of ground floor retail space, four floors of above-ground parking, five floors of office space and nine floors of residential development. **Implications** The building won two awards from the South Australian branch of the peak development industry body UDIA, for its utilisation of a particularly high standard of environmentally sensitive technologies and design. It is noted that this enabled the development to have a considerable commercial advantage, capturing some of the highest per sqm commercial rents in Adelaide at the time.
Era, Chatswood	Single 43-storey tower	Vertical	**Description** The Era tower in Chatswood consists of a 38 storey residential tower, containing 295 apartments, being sited on a five storey commercial podium (including ground-floor retail). 4,900sqm of commercial floorspace was provided, along with 7 levels of basement parking. **Implications** The location of this development, in relative proximity to St Leonards and in a regional centre makes it pertinent to this study. The development's modest amount of commercial floorspace (as proportional to the residential component) may have made it less attractive to larger commercial tenants, with the office component being largely comprised of small-strata tenancies. The inclusion of separated lobbies and ground floor retail have served to its advantage, as well as a substantial landscaped area provided surrounding the building, including the utilisation of space above the rail corridor.

APPENDIX E – SUITABILTIY ASSESSMENT CRITERIA GLOSSARY

Criteria	Meaning
High amenity	A location which already possesses a range of characteristics suitable for living, recreational or meeting purposes. The presence of good street scaping, entertainment, pedestrian traffic flows and retail/hospitality/community facilities all help to boost the amenity of an area.
Competitively priced land	Sites which are relatively affordable for small and/or land intensive businesses. Generally excludes land with substantial development already in place as the revenue streams from the improvements on the land would be significant. In the urban context, typically refers to industrial or low density residential lands.
Decontaminated sites	Sites which have not been the subject of intensive industrial activity. Also refers to sites were have been occupied as service/petrol stations. The significance of this criteria is that site decontamination can often be a highly costly exercise to developers.
Buffers to sensitive uses	Reasonable distance to nearest residential (or environmentally sensitive) land use. Generally refers to the conflict between noxious industries and dwellings.
Established knowledge cluster	Refers to established critical mass of knowledge intensive activity in a given area. In the St Leonards context this applies to St Leonards CBD, Crows Nest and Herbert St.
Larger lots	Large lots suitable for large scale manufacturing, freight, showrooms as well as major residential/commercial/mixed use development.
Access to public transport	Self-explanatory. High access would be within 400metre walking distance, Medium/moderate access within 800metres.
Access to passing trade by foot	Generally a retail issue. In the urban context, passing (pedestrian) trade generally refers to established retail and commercial nodes. Public transport hubs, community facilities and places of special interest are also relevant. Mandating retail floorspace on development sites without passing trade is not a productive outcome for anyone.
Access to main roads	Important for showrooms in particular, but can also be significant for industrial uses (see below)

Access for trucks	Requires main road access in the first instance. Essential for most freight and manufacturing activities.

APPENDIX F - URBAN SERVICES

SGS has defined Urban Services as the following mix of industries.

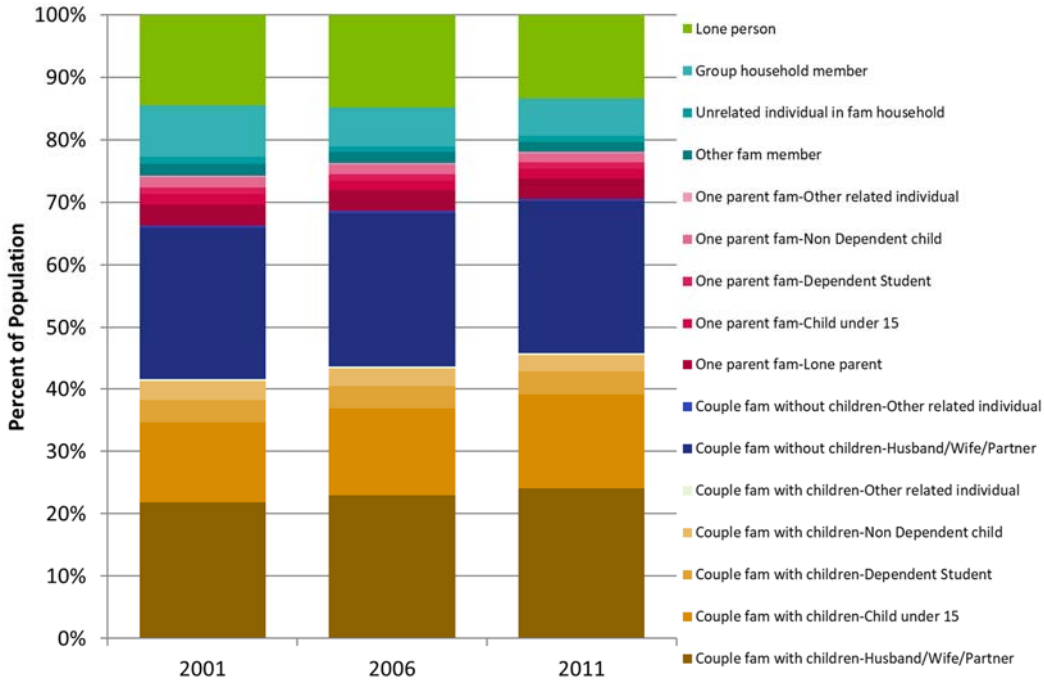
TABLE 56: URBAN SERVICES – ANZSIC INDUSTRY CLASSIFICATION

ANZSIC Code	ANZSIC Code description
66	Rental and Hiring Services (except Real Estate)
73	Building Cleaning, Pest Control and Other Support Services
42	Other Store Based Retailing (restricted to the following 4 digit codes)
4230	*Hardware, Building and Garden Supplies Retailing, nfd*
4231	*Hardware and Building Supplies Retailing*
4232	*Garden Supplies Retailing*
39	Motor Vehicle and Motor Vehicle Parts Retailing
94	Repair and Maintenance
16	Printing (including the Reproduction of Recorded Media)
26	Electricity Supply
27	Gas Supply
28	Water Supply, Sewerage and Drainage Services
29	Waste Collection, Treatment and Disposal Services
33	Basic Material Wholesaling
46	Road Transport
51	Postal and Courier Pick-up and Delivery Services
52	Transport Support Services
53	Warehousing and Storage Services
30	Building Construction
31	Heavy and Civil Engineering Construction
32	Construction Services

Source: SGS, ABS 2011

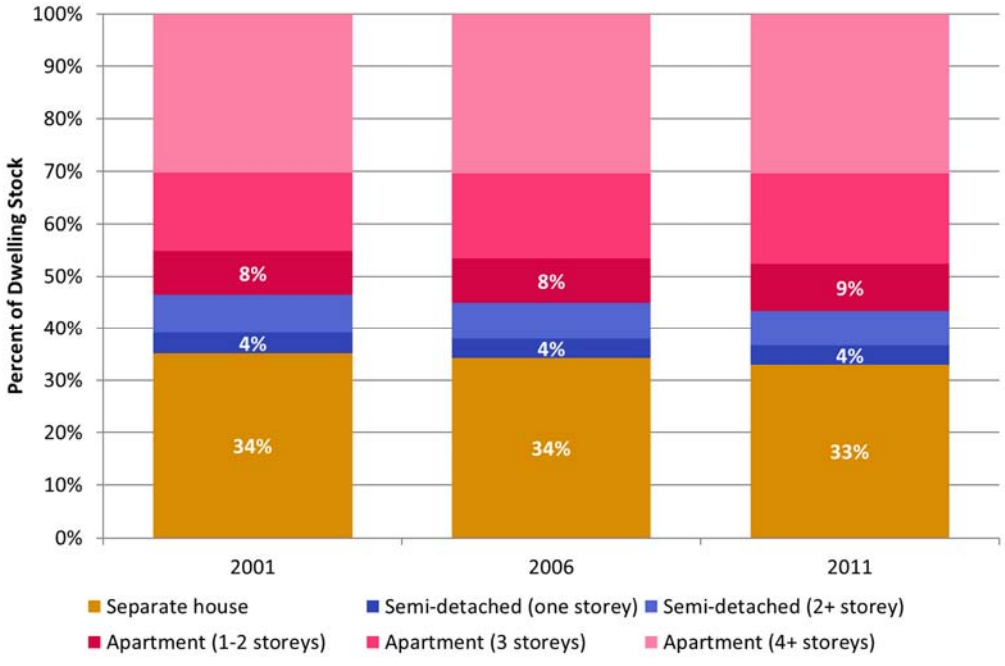
APPENDIX G – HOUSING MODEL INPUT TRENDS

FIGURE 21: CENSUS HOUSING TRENDS – FAMILY HOUSEHOLD STRUCTURE



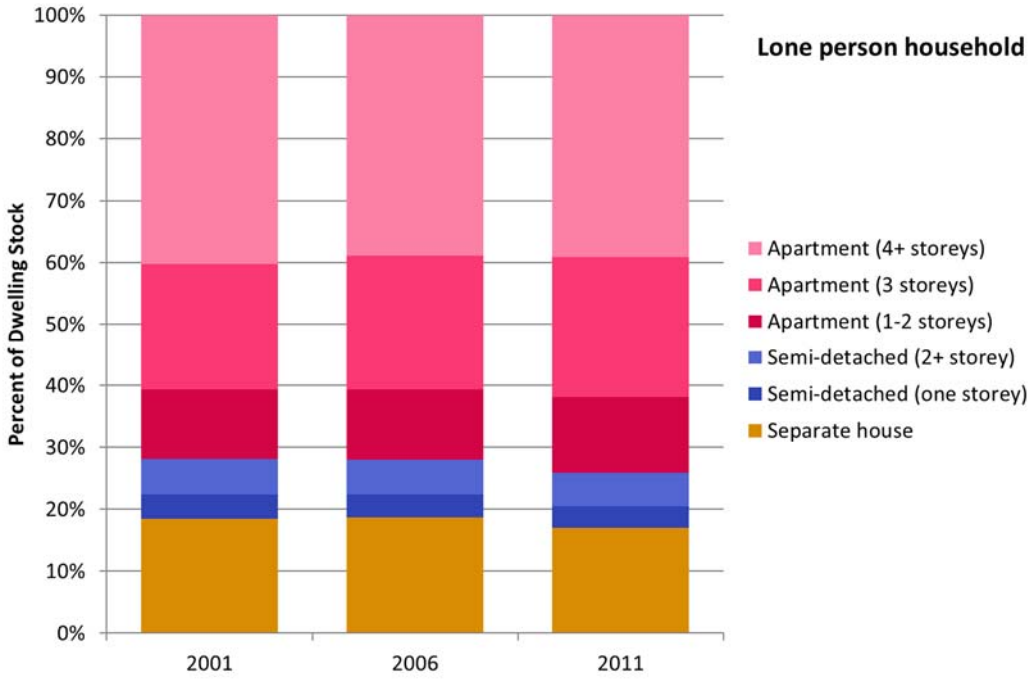
SGS, based on ABS Census

FIGURE 22: CENSUS HOUSING TRENDS - DWELLING STRUCTURE



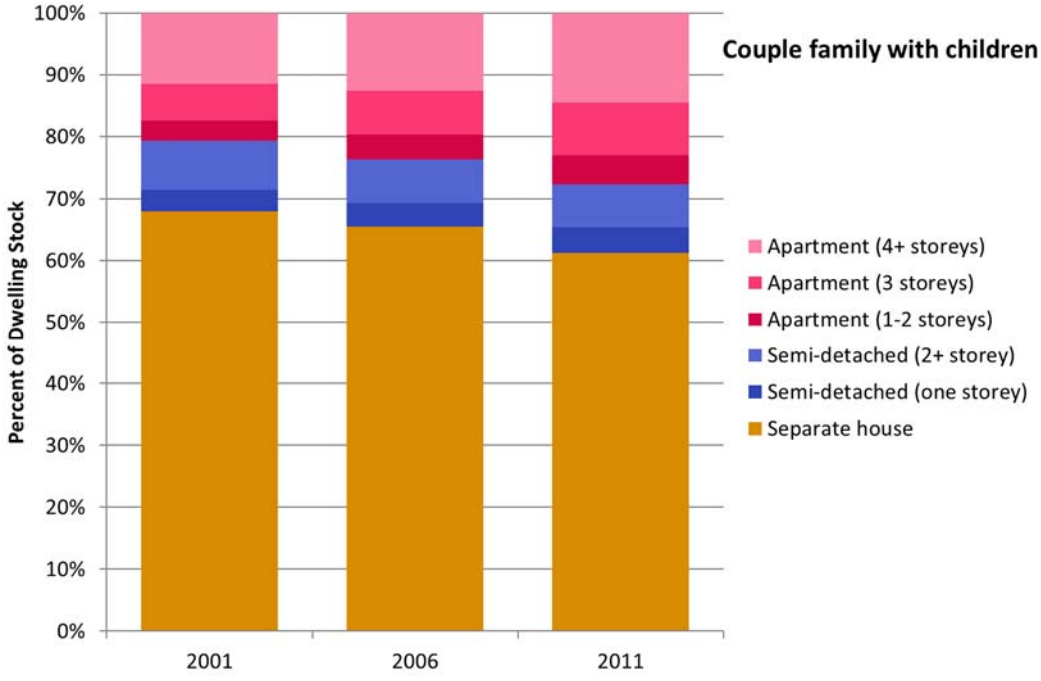
SGS, based on ABS Census

FIGURE 23: CENSUS HOUSING TRENDS - DWELLING STRUCTURE – LONE PERSON HOUSEHOLDS



SGS, based on ABS Census

FIGURE 24: CENSUS HOUSING TRENDS - DWELLING STRUCTURE – COUPLE FAMILY WITH CHILDREN



SGS, based on ABS Census

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