Stirling Osborne Park Centre
Draft Positioning Paper

Final

Stirling City Centre Alliance

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SGS Economics & Planning

Independent insight.

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TABLE OF CONTENTS

1 INTRODUCTION

1.1 Background

SGS Economics and Planning Pty Ltd (SGS) were commissioned by the Stirling City Centre Alliance (the Stirling Alliance) to prepare this Positioning Paper for the Stirling City Centre and Osborne Park area (the Stirling / Osborne Park Centre.)

The Stirling / Osborne Park Centre is approximately 5.5 kilometres to the north west of the Perth CBD and approximately four kilometres east of the coast, as shown in Figure 1. The area is located within the central sub-region of the Perth Metropolitan Region and is highly accessible by road, rail and buses.

The combined Mitchell Freeway and Northern Suburbs Railway corridor traverses the area and forms part of the eastern boundary of Osborne Park. Glendalough and Stirling rail stations service the south western and northern portions of the area respectively. Scarborough Beach Road runs northeast/ southwest through the area and provides vehicular access and bus services between the Perth CBD and Scarborough Beach, while also connecting Glendalough with the southern part of Stirling City Centre.

The area is characterised by a vast diversity of land uses including:

- social and community uses to the north of the Mitchell Freeway
- significant retail shopping centres and tenancies to the west of the Osborne Park Main Drain
- mixed use large format retail and light industrial uses to the north of Scarborough Beach Road
- significant office park development to the south of Scarborough Beach Road, and
- ecological, recreational and scenic values of Herdsman Lake to the south.

Previous planning work by the Stirling Alliance has suggested increasing the integration of Osborne Park with the Stirling City Centre. This has been driven by Osborne Park's transition from a predominantly industrial precinct to a mixed use, retail, commercial and services hub. Market forces have been shaping sections of Osborne Park into a de facto extension of the Stirling City Centre. As with other inner city industrial areas, sections of Osborne Park are under increasing pressure to redevelop existing large lot industrial sites to more intensive and higher value land uses, as evidenced by recent medium rise office development at Herdsman. A move to additional bulky goods retail and showroom activities along Scarborough Beach Road has also changed the land use profile of the centre.

The Herdsman-Glendalough Concept Structure Plan (City of Stirling) and the draft Scarborough Beach Road Activity Corridor Framework (WAPC) also provide significant strategic directions for the future role and function of the centres. These changes require supporting transport and other infrastructure investment. An integrated approach to land use, transport and infrastructure planning is needed across all of these precincts.

The Stirling City Centre Alliance

The Stirling City Centre Alliance (the Stirling Alliance) was formed in 2008 in response to the incremental and uncoordinated development of the Stirling City Centre and the limitations of the 1994 *Stirling Regional Centre Structure Plan* to adequately address many of the constraints to development.

The Stirling City Centre Alliance agreement was formally signed by the Western Australian Planning Commission (WAPC), the Department of Planning, Main Roads WA, the City of Stirling, Public Transport Authority, LandCorp, and representation from the sustainability, business and community sectors. The intent of the agreement was to establish an effective and innovative working arrangement for the purpose of achieving a comprehensive review of the Stirling City Centre Structure Plan and to explore implementation options. The Stirling Alliance has achieved significant milestones since its inception including, inter alia:

- various amendments to the *Metropolitan Regional Scheme* (MRS) including omission of the primary regional roads reservation within the Stirling City Centre
- a draft Stirling City Structure Plan and vision
- the endorsement of Improvement Plan 36 to facilitate the land transfers and land exchanges necessary to achieve Structure Plan outcomes
- various technical reports and studies to inform policy and structure planning processes, and
- significant community engagement and alignment of State and local planning policies.

FIGURE 1. STIRLING / OSBORNE PARK CENTRE, STRATEGIC METROPOLITAN CENTRES AND PERTH CITY

Source: SGS Economics and Planning, 2013 based on *Directions 2031*

1.2 This positioning paper

This Positioning Paper defines the planning area to be considered as the Stirling / Osborne Park Centre, and provides a rationale for such a planning area. This is based on benchmarking against other centres in Perth and comparable centres in other Australian cities, to determine its role in a National context.

This Positioning Paper supports the Stirling City Centre Structure Plan and future funding applications to the Federal Government, including Infrastructure Australia. The Positioning Paper:

- defines the Stirling City Centre and Osborne Park area in terms of the State and local policy context
- provide a rationale for the positioning of the centre
- is based on stakeholder views obtained through a half day workshop and targeted consultation with key groups
- informed by indicators and benchmarks to determine the centre's metropolitan role and function and national significance, and
- identifies the role, function and significance of the Stirling and Osborne Park area with regard to its metropolitan and national context.

1 STIRLING / OSBORNE PARK URBAN AREA

1.1 Introduction

It is recognised that the Stirling / Osborne Park Urban Area (SOPUA) is unique within the central sub-regional region in that no other activity centre and industrial areas have such significant land use synergies or form a similar contiguous urban area. This section describes the various precincts in the contiguous urban area in a subregional context. This description forms the basis of the spatial areas applied in the benchmarking analysis.

1.2 Precincts in the Stirling / Osborne Park Urban Area

The Stirling / Osborne Park Urban Area is in the central sub-region of the Perth metropolitan region. The central sub-region covers an area of 45,290 hectares and comprises 19 local government areas.

The following description outlines the approach to defining Stirling / Osborne Park for the purposes of initial benchmarking and analysis. This approach is informed by the review of background documents, research completed for the background paper, consultation with relevant stakeholders and the outcomes of the workshop with representatives from Council, State Government and community representatives (undertaken on the 15 November 2012).

There are five precincts identified. A description of these precincts and their position in the central sub-region is provided below and they are approximately represented in Figure 2.

Stirling City Centre – a Strategic Metropolitan Centre (SMC) as defined in Directions 2031 and the Stirling City Centre Structure Plan (July 2011). It is identified as one of four Strategic Metropolitan Centres within the central sub-region, with the others being Cannington, Fremantle and Morley. Stirling is a mixed use centre, with a strong retail role. There are several major retail facilities and tenancies located in the area. Most notably Westfield Innaloo, comprising almost 37,000sqm of Net Lettable Area (NLA) and over 150 retail tenancies including Target, Kmart, Woolworths and Coles. Innaloo Megacentre is adjacent to Westfield and includes approximately 9,500sqm NLA and comprises a Supa IGA and several retail specialty stores.

Osborne Park Industrial Centre - to the north east of Scarborough Beach Road – an industrial centre identified in Directions 2031 and reaffirmed as an industrial/service area in the draft Scarborough Beach Road Activity Corridor Framework (WAPC). It contains significant amounts of light industrial, storage and showroom activities across Osborne Park to the north of Scarborough Road, generally characterised by hardware trade, homewares and automotive repair outlets. There are five established regional industrial centres in the central sub-region, including Canning Vale, Osborne Park, Ashfield (Bayswater-Bassendean), O'Connor and Kewdale/Welshpool. These regional industrial centres are recognised by various State and regional policies as being focused on providing a range of commercial and industrial products and services to the metropolitan region and its hinterland. They cater for a broad range of manufacturing, fabrication, processing, warehousing and bulk goods handling activities. Almost all industrial zoned areas within the central sub-region are under varying levels of development pressure to transition to higher order uses, with most experiencing some transition to bulky goods retailing and the fragmentation of large lot holdings. The smaller industrial centres are primarily focused on the provision of general and light industrial services and products to meet local population needs. These centres provide an essential local service, although, as with their regional counterparts, many are also under increasing pressure for redevelopment.

Scarborough Beach Road Activity Corridor (SBRAC) – proposed key nodes along the planned light rail line identified in the Herdsman-Glendalough Concept Structure Plan (City of Stirling) and the draft Scarborough Beach Road Activity Corridor Framework (WAPC). The SBRAC is also consistent with the definition of an urban corridor as outlined in Directions 2031. This corridor overlaps with all the other areas, but needs separate recognition of its role as a key corridor, which will support specific land uses, and requires urban uses and densities which complement transits stops. Scarborough Beach Road bisects the broader study area and is identified as a secondary regional road under the MRS providing an important cross city linkage between the western suburbs and the Perth CBD. This road

is also a main link between Glendalough Station and the southern part of Stirling City Centre. Scarborough Beach Road and its immediate environs are currently characterised by a range of automotive, showroom, and bulky goods (white goods and furniture) outlets including Freedom; Super A-mart; The Good Guys; Retravision; Officeworks; Super Cheap Auto and Harvey Norman.

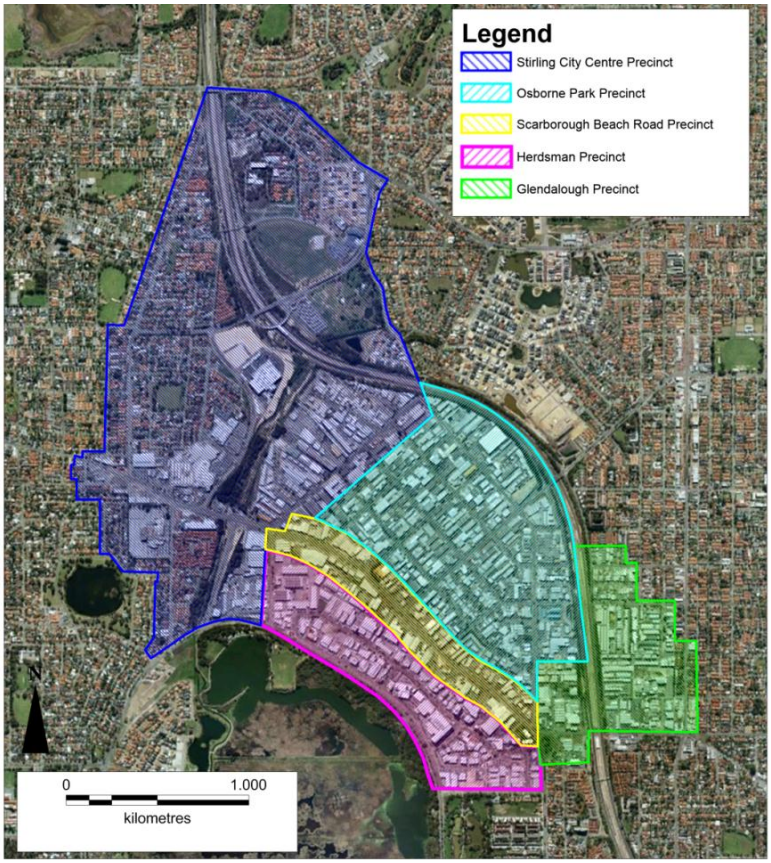
Herdsman Specialised Centre – existing employment precinct with the potential to increase higher intensity mixed use office and retail and higher density residential within the walking catchment of public transport and the amenity offered by Herdsman Lake, as identified in the draft Scarborough Beach Road Activity Corridor Framework (WAPC). The area south of Scarborough Road is commonly referred to as the Herdsman Office Park. It has recently been attracting significant office development. Most notably the West Australian newspaper comprising some 5,000sqm, and government agencies including the Department of Health, the Department of Treasury and Finance, and Department of Training and Workforce Development are located within the Herdsman area.

Glendalough District Centre - as defined in Directions 2031 and identified in the Herdsman-Glendalough Concept Structure Plan (City of Stirling). The characteristics of the Glendalough centre lends themselves well to the development of a pedestrian friendly urban village due to the absence of infrastructure barriers, primarily the Mitchell freeway and associated on and off ramps. These and other desirable characteristics including the presence of an existing heavy rail node and a range of nearby employment creates potential for significantly higher dwelling density levels.

While for planning purposes, these precincts have traditionally been treated as five distinctive areas, each area blends into adjacent areas. The roles and interactions between the precincts need to be considered to ensure an integrated planning approach and to maximise the benefits of infrastructure investment. In fact it is the interface between various areas, where some of the most detailed planning and urban design guidelines are required, to ensure that the various elements of the cluster are well integrated into a whole which works well from the point of view of mixed land uses, transport efficiency, and amenity.

The following sections provide a more detailed analysis of the precincts by benchmarking these against Perth and national centres to inform the proposed positioning of Stirling / Osborne Centre.

FIGURE 2. FIVE PRECINCTS IN THE STIRLING/OSBORNE URBAN AREA



Source: SGS Economics and Planning, 2012

1.3 Changing roles and functions

Each of the identified precincts provide substantial areas of employment, involving a combination of a strong retail anchor that is the Westfield – Innaloo, transitional service industry and warehouses uses in Osborne Park and prominent office and showroom development throughout the Herdsman area.

Bulky goods land use present within the centre services a much wider catchment than local scale retail functions such as groceries and convenience retail.

Market forces and private investment have seen the Osborne Park area transition from what was once a predominately industrial land use base, to one that is now characterised by precincts of industrial, large format retail and office land uses.

Office and development in Herdsman Park looking north to Osborne Park

The rise to prominence of the Herdsman park business area provides regional support for the CBD. Office development in Herdsman is not a direct competitor to the Perth CBD as it provides a different offer to businesses that require strong links to CBD businesses, though the location does offer excellent links to the CBD through the Mitchell Freeway and the Joondalup line.

The challenges of appropriately identifying a combined centre is to adequately identify an area that supplies sufficient land to accommodate market demand for differing land use types, whilst appropriately

considering its impact on the role and function of competing centres within the activity centre hierarchy.

Moreover, given the scale, car parking and freight requirements, traffic generation and low employment densities of large format retail uses, it may be argued that these types of activities conflict with the purpose of activity centres and should be located away from the core functions of an activity centre. It can also be argued that these characteristics detract from the amenity and liveability of an area through traffic impacts and reducing walkability.

The market led transition in Osborne Park has altered the economic role and function of the area (in the metropolitan context). It can be argued its emerging role and function now make a significant contribution towards the desired commercial outcomes and land use mix for activity centres, rather than industrial zoned land. This altered role and function has wider impacts on the activity centre network and function of the Perth Metropolitan region in general.

1.4 Existing strategic planning

The strategic planning for Stirling is addressed at the highest level through Directions 2031 and the accompanying Central Sub-regional Strategy. These are supported by the Public Transport Plan for Perth in 2031 and have statutory backing through State Planning Policy 4.2: Activity Centres for Perth and Peel. At a regional level strategic planning supports the development of higher order centres such as Stirling which should have a mix of uses including retail, residential, entertainment, community facilities and significant employment. They should also have significantly higher residential density, good public transport, and walking and cycling networks.

Regional planning supports the high level role of the Stirling City Centre and its future growth and development, particularly in relation to increased employment and population. Goals for the future of Stirling include reduced car dependence, improved amenity, improved integration with rail stations, and enhanced community facilities. The Stirling Alliance is considered a positive model for local implementation, involving as it does State Government, Council, community and the private sector. This is seen in the development of a draft Structure Plan for Stirling City Centre, which provides the framework for more detailed planning. The changes planned for the centre include a broad mix of uses, reduced car use, increased residential density, and a high level of amenity including open space and community facilities. The Structure Plan also seeks to better integrate the centre with Stirling Train Station. Detailed planning guidance will be informed by the draft Structure Plan, through area plans and Form Codes, adopted under the planning scheme.

Stirling is recognised as a Strategic Metropolitan Centre, below the level of Capital City. Between the two levels is the currently unfilled role of Primary Centre. It is an aspiration of the Region that one of the major centres will develop to function as a Primary Centre, mainly by providing regional level employment, with a mix of other activity centre uses.

The role of Osborne Park is acknowledged as an important industrial employment area, and one which has been experiencing a change in uses, adding bulky goods retailing and office employment to the local employment mix. The Central Sub-regional Strategy recognises the potential for some of the Osborne Park area to transition to higher order uses, particularly near a renewed Stirling centre. However, it is also suggested that parts of Osborne Park (particularly outside of the 800m catchments of Stirling and Glendalough Stations) be preserved for industrial uses that play a key local, district and regional role. This does not acknowledge the changing roles and functions in Herdsman Park.

It is also important to note that the importance of the connection between Stirling and Glendalough is stressed in the regional public transport plan which supports a bus rapid transit link along Scarborough Beach Road by 2020 and light rail by 2031. The importance of this access corridor is reinforced in the Glendalough / Joondanna / Osborne Park / Tuart Hill / Yokine Local Area Plan, which highlights the nature of changing land uses in this area and the need to manage this for the best land use and built form outcomes. This connection is important both for supporting higher order land uses along its length, but also in providing a quick and attractive connection between Stirling and Glendalough.

The scale of both population and employment growth are significant and, in combination with improved urban form and amenity, would transform the nature of the area.

1.5 Future role and targets

Stirling City Centre

The Stirling City Centre will play a leading role in shaping the character of the transformation of the area as elements of the City Centre structure plan are implemented. The city centre will continue to support a significant number of dwellings with the 1,625 dwellings recorded in 2006 expected to reach 13,900 by 2031. Much of this dwelling increase will need to be achieved through greater dwelling density and mixed use development as envisaged in the structure plan.

The Stirling City Centre will function as a centre of employment, providing population driven jobs relating to the delivery of goods and services to the growing number of households in the local area. Whilst population based employment will continue to be a strong component of overall employment, 'strategic' employment or employment that does not service the population such as professional services firms, will begin to increase from a current estimated level of 9 percent upwards. Employment diversification will continue to occur as the City Centre further fulfils its role as a strategic metropolitan centre.

Osborne Park Industrial Centre

The Central Metropolitan Perth Sub-regional Strategy iterates the importance of service industry uses within Osborne Park industrial areas that are not covered by the Stirling City Centre Structure Plan or immediately adjacent to Scarborough Beach Road. These functions provide a vital service at the local, regional and district scale and should be retained in these areas. Remnant warehousing and larger format industry land uses are expected to remain within the area whilst still viable. It is expected that redevelopment of many of these uses will be slow and therefore employment growth is expected to remain low compared to the surrounding precincts. Currently no dwellings exist within the area which is expected to remain the case in the future.

Scarborough Beach Road Activity Corridor (SBRAC)

Nominated as the key land use transition area, the SBRAC future role will consist of one that is largely mixed use as current bulky goods showrooms and large format retail uses evolve into a mixed use residential and commercial area. Whilst it is acknowledged that these uses will remain, the draft Scarborough Beach Road Activity Centre Framework (SBRACF) envisages that an increase in land value and improved infrastructure will see a transition to higher density residential and bottom floor services employment uses. The framework suggests the corridor could house some 50,000 people and employ 40,000.. As a approximate indication, the SBRACF projects employment within the Scarborough Beach Road Osborne Park and Herdsman to reach between 22,000 and 24,000 by 2031.

Herdsman Specialised Centre

Both the SBRAC and the Herdsman and Glendalough Concept Structure Plan and Transport Strategy (HGCSPTS) envisage that the Herdsman area and business park will continue to provide commercial employment with the gradual integration of high quality commercial/residential mixed use development, leveraging off local employment and infrastructure developments that better link this area to the broader transportation networks. The Herdsman Business Park and surrounding commercial and office development will continue to play a complementary employment role to the Perth CBD, providing affordable leases and the benefits of business and industry agglomeration (a good example of which is the media company cluster) whilst still holding strong links to the CBD made possible by efficient transport infrastructure.

An economic development scoping paper prepared by Pracsys in 2009 projected that the Herdsman business area would contain 37,744 jobs by 2031 based on floorspace and arbitrary job to floorspace ratios. In terms of land use, 1,379 of these jobs will be attributable to bulky good retail, 34,065 to office, 959 to shop retail and 1,340 to industrial.

Glendalough District Centre

The Glendalough district centre will develop to better capitalise on the Transit Orientated Development opportunities made possible by Glendalough station and the connecting light rail corridor that will interchange there. The HGCSPTS envisages that Glendalough East will retain the strong residential focus already present integrating greater mixed use development in and around the Glendalough Train Station. This structure plan indicates that by 2031 the Glendalough east area (east of the Mitchel Freeway) will contain a total of 1,100 dwellings, assuming a 60 percent development build out. Transition from existing industrial uses present in the

north will occur faster the closer they are to the rail station with an emphasis on retail and commercial mixed use components immediately adjacent to the station.

Population, housing and employment targets as discussed above are compared in Table 1 below.

TABLE 1. POPULATION, HOUSING AND EMPLOYMENT TARGETS

Precinct	Population Target	Housing Target	Employment Target
Stirling City Centre	14,000 – 18,000	13,900	12,000-17,000
Osborne Park Industrial Centre	N/A	N/A	40,000 capacity
Scarborough Beach Road Activity Corridor (SBRAC)	unknown	unknown	22,000-24,000
Herdsman Specialised Centre	6,300 – 8,000[1]	unknown	34,065
Glendalough District Centre		1,100	unknown

Source: Draft Stirling City Centre Structure Plan, 2011, WADoT Scarborough Beach Road Activity Centre Framework Draft, 2012, Hassell Herdsman and Glendalough Concept Structure Plan Report, 2011, WAPC Central Metropolitan Perth Sub-regional Strategy 2010, Pracsys 2011, Hassell Stirling City Centre Detailed Yield analysis, 2011

The Stirling/Osborne Park Urban Area (SOPUA) is intended to be a true mixed use centre, with a high level of in-centre dwellings and a range of employment, services, open space and entertainment that supports the concept of work/ live/ play in the one location. To achieve this a high level of amenity in the public realm in streets and adjoining development with active frontages and a shift from car dominance to walking, cycling, and public transport is required. The Stirling and Osborne Park precincts and Glendalough are intended to be linked by light rail, creating a unifying corridor of intense activity.

Strategic planning documents outline a dwelling capacity of 7,600 for Stirling and 1,700 for Glendalough with a TOD focus. The Draft Stirling Structure Plan has an aspirational dwelling target of 13,900, lifting the density from 6 to 45 dwellings per hectare. There is also a forecast employment of approximately 19,000 jobs and an aspirational target of 30,000 jobs for the Stirling Structure Plan Area including the employment targets for the Osborne Park and Herdsman precincts as described above, which would be substantial.

[1] Syme Marmion (2010)

2 METROPOLITAN CONTEXT

2.1 Introduction

The purpose of the benchmarking was to understand how the each of the precinct that comprise the SOPUA and the SOPUA itself compare to other strategic metropolitan centres as defined by Direction 2031 (refer to Figure 1). This comparison seeks to highlight the similarities and differences of the SOPUA compared to these other centre and provide greater insight into how the area fits into the broader metropolitan context.

Each of these precincts combine to form the SOPUA, however this area is not the recommended centre boundary of this positioning paper. The SOPUA is a broader area that encapsulates each of the precincts outlined in Figure 2 that were defined for the purposes of demonstrating the unique characteristics of the area. For further information as to how the area for data analysis was defined, refer to Appendix 1.

2.2 Benchmarking criteria

The precincts within the study area have been benchmarked against all other Strategic Metropolitan Centres (SMC) as defined by Directions 2031. The criteria for this benchmarking process were determined through a workshop process involving key government representatives and general stakeholders from business and the community. These criteria are covered by three broad categories: transport, employment and housing. Table 2 below outlines these criteria in more detail and the detailed findings are in Appendix 1.

TABLE 2. CRITERIA FOR BENCHMARKING

Category	Criteria	Description	Data source
Transport	Private and Public Transport Accessibility Indicators	Population within a 30 min public transport travel time catchment	WADoT
	Mode Share	Breakdown of the modes of commuting to work	2011 ABS Census/JTW
	Public Transport Infrastructure and services	Infrastructure capacity in terms of assets and number of passengers and services	WADoT
	Journey to work spider diagram	Provides a diagrammatical representation of where people come from to work in the centres study area	2011 ABS Census/JTW
Employment	No of Jobs	Employment in the Centre by industry	2011 ABS Census/JTW
	Jobs by Industry	Number of jobs located within each centre by 1 digit ANZSIC06 classification	2011 ABS Census/JTW
	Self Sufficiency	A ratio between the number of residents living in a centre and the number of jobs by industry	2011 ABS Census/JTW
	Self-containment	The percentage of centre residents who also work in the centre	2011 ABS Census/JTW
Housing	Existing households and housing	Quantity of housing stock each centre	2011 ABS Census/JTW
	Housing Targets	Housing targets and required growth to reach targets	Directions 2031, Planning Commission
	Housing Type Mix	Quantity and share of housing types present within the centre	2011 ABS Census/JTW

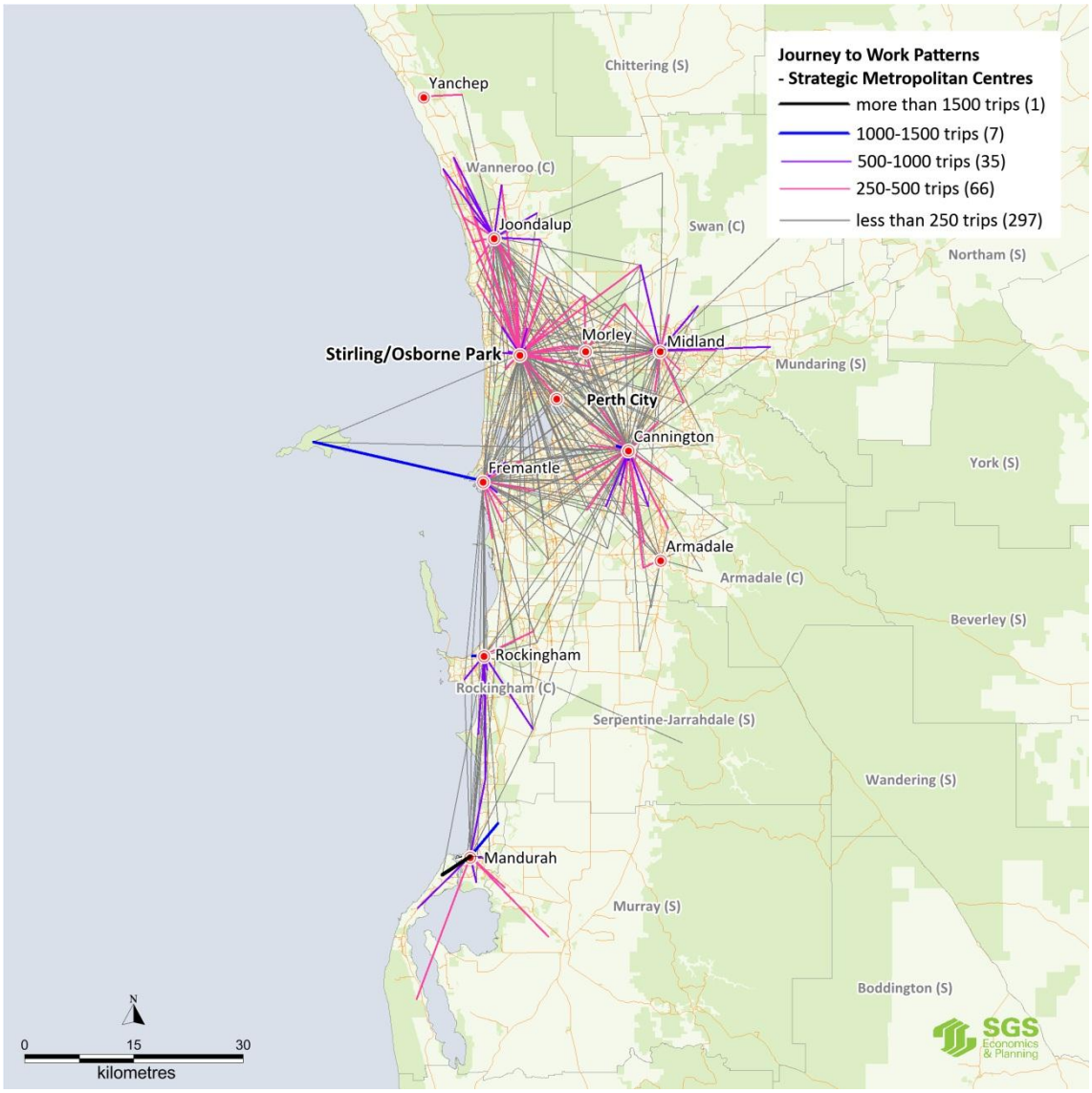
Source: SGS Economics and Planning, 2012

2.3 Transport

In a metropolitan context, SOPUA has a high level of accessibility with the best ranking for public transport access and particularly time efficient public transport compared with car travel. Although car use is high, SOPUA demonstrated one of the highest rates of non-car travel modes of travel to work; in most cases second only to Fremantle. The Osborne Park area has a higher level of car travel than other precincts of SOPUA and other centres, which could be expected given the industrial nature of the precinct. The proportion of walking is the lowest in the SOPUA which is consistent with the large area included and the distance from rail stations for some precincts. This is also consistent with the low level of pedestrian amenity in the SOPUA as well as the absence of mixed use residential development within employment areas, but the overall low levels of car use indicate a high potential for increased walking if connections and amenity can be improved.

The levels of public transport accessibility vary with the precincts of the SOPUA, however overall the centre has public transport which is similar in service to any other centre, but has the advantage of the quickest journey time to the CBD. The catchments for work trips to Strategic Metropolitan Centres across Perth are shown in Figure 3. This analysis shows the large catchment of SOPUA compared to other centres, demonstrating its metropolitan significance. The SOPUA largely draws commuters from the north and west.

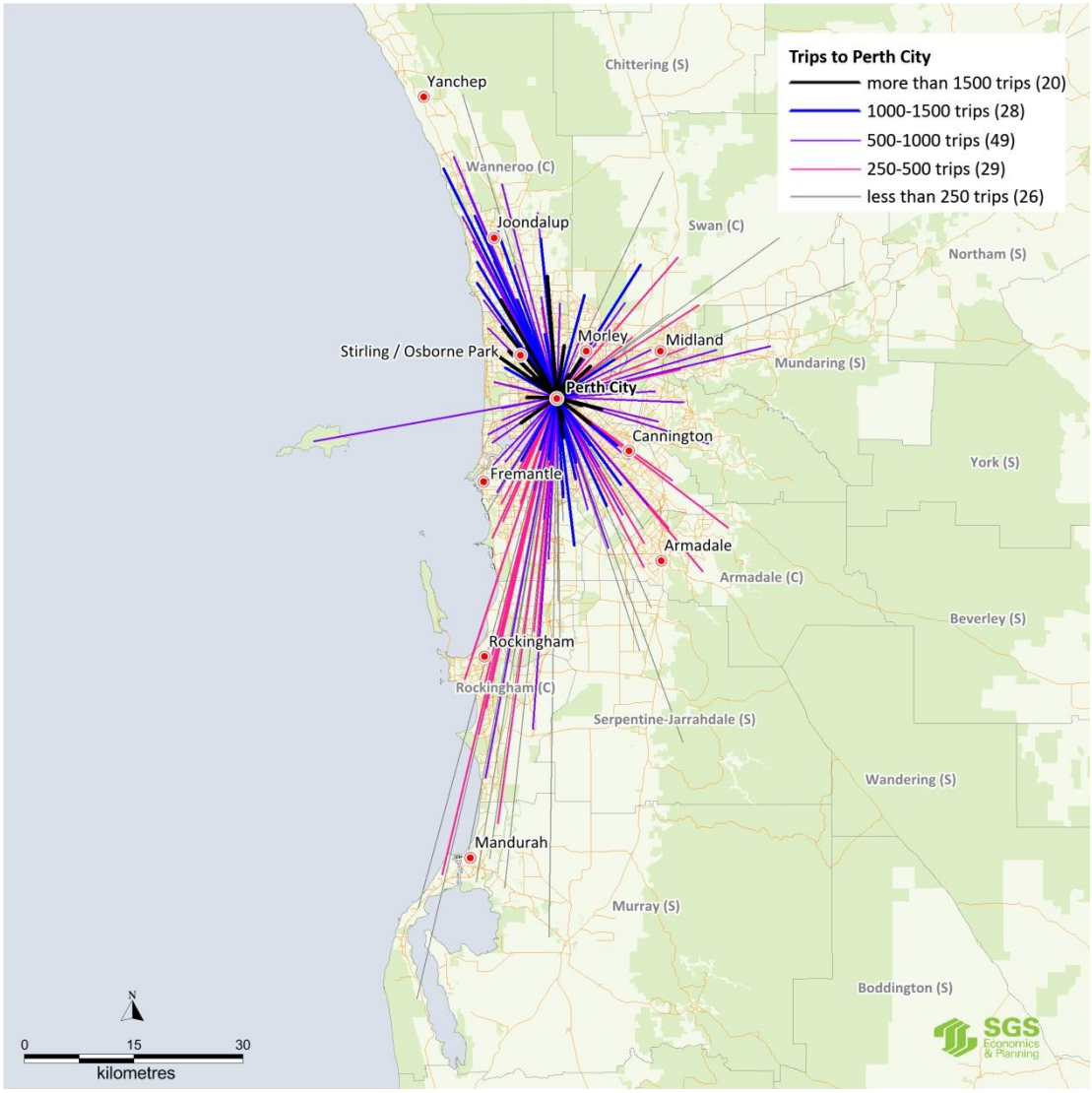
FIGURE 3. JOURNEY TO WORK TRAVEL PATTERNS, PERTH AND PEEL SMCS, 2011



Source: SGS Economics and Planning using 2011 ABS Journey to Work (JTW) Data and ABS Census of Population and Housing

Figure 4 shows the substantially larger power of attraction that the Perth CBD has in attracting workers with between 500 and 1,500 trips being generated by workers travelling to the CBD to work from origins as far away as Mindarie in the north and Oakford in the south. While the strategic metropolitan centres have an important role as work locations, it is clear that Perth CBD remains dominant and attracts many trips from locations across the metropolitan region, particularly to the north. Over time, there is the potential for SOPUA to capture more of the market for work trip that are currently going to the CBD.

FIGURE 4. JOURNEY TO WORK TRAVEL PATTERNS, PERTH CITY, 2011



Source: SGS Economics and Planning using 2011 ABS Journey to Work (JTW) Data and ABS Census of Population and Housing

2.4 Employment

The level of employment in SOPUA is higher than any other centre at 21.8 percent of total Strategic Metropolitan Centres (SMC) employment compared with the next highest being Cannington at 16.2 percent. Even just the Stirling City Centre and Herdsman together make up 15.9 percent of the total employment in SMCs. Jobs considered to be 'knowledge based' were substantial in the SOPUA with 39.9 percent of these jobs located among all SMCs being located in the centre, predominantly in Herdsman, which accounted for 66.2 percent of these. Although the SOPUA has a high level of employment there are relatively few local employed residents (less than all except Armadale and Yanchep) and only a small percentage of these work within the Centre.

2.5 Housing

The Stirling Park precinct of the SOPUA is the only one to include any housing and the density within it is relatively low compared with other SMCs (4.3 dwellings/ha for Stirling City Centre within a range of 10.2 – 3.2 dwellings/ha). SOPUA has a very small level of high density dwellings (flat, unit, or apartment) compared with other SMCs.

2.6 Summary of metropolitan benchmarking

At the Metropolitan level Stirling has a comparatively very high level of public transport accessibility and good level of service, however the level of public transport use is limited by the area and car access to industrial areas of Osborne Park. Walking and cycling are poor, being limited by poor infrastructure, connections, and amenity.

Employment is also at very high levels in SOPUA, with strong shares of this employment in the construction, manufacturing, professional services and retail trade. Low numbers of residents meant that the rate of employment self-sufficiency was high whereas employment self-containment was generally around the same level as other SMCs.

Housing in SOP is not at a standard of density comparable with other SMCs. There is a good level of semi-detached dwellings (mainly retirement living) but few high density dwellings. Residential development is limited to Stirling City Centre and could be expanded into other precincts, with a focus on high density development.

3 NATIONAL CONTEXT

3.1 Introduction

The purpose of the benchmarking against a selection of comparative national centres was to understand how the SOPUA fits into the national context, determine the extent of similarities of these to the SOPUA, to determine what may be lacking for a centre of this size as well as establishing the SOPUA's national significance. The national centres for comparison to the SOPUA were chosen due to the presence of similar attributes. These attributes that formed the criteria for selection included:

- a centre that was located within 10 kilometres of the CBD
- contained prominent bulky good showrooms and large format retailers
- possessed access to both a rail and bus transportation route
- contained a diverse range of jobs between 10,000 and 30,000 in number, and
- (optional but preferred): plans existed for a light rail or heavy rail line to be built through the location in the near future.

3.2 Selected national centres

Fortitude Valley, QLD

Situated directly to the north of the Brisbane CBD, Fortitude Valley has developed as a complimentary centre to the CBD with a vivid nightlife and cultural appeal. The area developed early in the history of Brisbane supported by the construction of a public rail service in 1881. Currently the nearby rail corridor supports all major rail lines that service the north of Brisbane including extended services to the distant towns of Caboolture and Nambour.

Through the first half of the 20th century Fortitude Valley grew to become an eminent shopping destination home to numerous reputable department stores including David Jones, Myer and McWhirters. However with the advent of suburban shopping malls, retail trade gradually declined and the area became dilapidated through much of the 1980s and 1990s. Since this time the area has recovered and gentrified to a limited extent, developing into a nightlife destination, which served to revitalise the area.

Currently the area contains a number of high-end car showrooms and has emerged as a prestige bulky good and homeware retailing cluster. High density residential development exists within Fortitude Valley and the centre serves the local population as well as surrounding inner city residential neighbourhoods of New Farm and Spring Hill.

Woollongabba, QLD

The suburb of Woolloongabba is located approximately four kilometres from the Brisbane CBD and consists of largely industrial development, with varied retail precincts, and intermingled old residential single detached dwellings. Industrial land use has receded over the course of the last 30 years with remnant service industry such as mechanics, workshops and small scale engineering services continuing to function in the area. Some of these buildings have been turned into small scale bulky good showrooms for goods such as kayaks, motorcycles and other bulk consumer goods. Recent developments have included large scale apartment development near the Brisbane Cricket Ground and gentrification of disused main streets into trendy market areas and cocktail bars.

From the 1920's to 1970, a tram service existed through the heart of Woolloongabba that extended to the eastern suburbs. Currently there is no local heavy rail service and residents and commuters are dependent on the South East Busway, a dedicated bus only corridor that leads around the Brisbane River to the CBD, for public transport. Woolloongabba is planned to play a central role in the development of the Cross River Rail link, which will run from the Brisbane Exhibition Grounds north of Fortitude Valley passing under the CBD to Woolloongabba and beyond, much of which will be underground.

Green Square, NSW

Green Square is located approximately five kilometres south of the Sydney CBD and approximately the same distance north of the Sydney Airport. There is significant light service industrial land use coupled with older worker accommodation style residential land use present in the area with some new high density residential and community infrastructure focused around the Green Square Railway Station. Industrial has been a dominant land use within the Green Square area with the first industrial functions including a brickworks, candle and soap manufacturing and breweries among other functions dating back to around 1850. Market gardens also emerged in the latter half of the 19th century in a similar manner to that which later occurred around Herdsman Lake area, providing an additional distinct facet to the local economy. A decline in demand for industrial output, the subsequent decrease in industrial land value and resident worker income resulted in a period of decline within Green Square, causing much of the area to become dilapidated.

Green Square has since experienced significant revitalisation over the last decade which is set to continue under the direction of the City of Sydney. The close proximity of the site to the CBD and the potential for improvement has enticed the City, along with the private sector, to undertake a 278 hectare revitalisation project. The Green Square Project will see the development of a series of priority projects relating to community facilities, public transportation connections, open space and other infrastructure within the suburbs of Green Square and adjoining Beaconsfield, Zetland and parts of Rosebury, Alexandria and Waterloo.

Footscray, VIC

The Western Region of Melbourne developed relatively slowly in relation to some others regions of the city following the founding of Melbourne in 1835. A major constrain to development in the west was low lying swamp land in the vicinity of the Yarra River and Maribyrnong River junction near Port Phillip Bay. The relatively more attractive land in the eastern arc from Fitzroy to South Melbourne developed earlier and over time the rolling hills of the eastern suburbs and sandbelt areas of the Bayside suburbs captured a large share of Melbourne's suburban development in the late 1800s and early 1900s. This pattern was reinforced by public investment in tramways, rails and roads.

Footscray developed from the 1850s as a largely working class suburb. Drainage and road works enabled development to 'jump' the swamp lands in the 1800s. Areas in and around Footscray, like other inner city areas, developed a strong industrial base and in the 1900s Footscray and the wider Western Region captured big industrial firms in steel and petro-chemicals. The presence of big industry and a blue collar workforce reinforced the development of the Region for industry and led to the establishment of a vast industrial node in the then middle and outer - but now inner and middle - Western Region. Supporting road and freight rail networks have more recently seen the Region become a magnet for logistics activities.

The scale of the Western Industrial Node effectively became a second hurdle for residential expansion in the Western Region. Demand built up over time and in the latter part of the 1900s regional demand was sufficient to support development 'jumping' the industrial node to suburbanise the region.

The Western Region is now in a new phase of development. Gentrification has taken hold in the inner western arc between the traditionally wealthy Williamstown and Essendon nodes. Areas in and around Footscray, like Yarraville and Moonee Ponds have gentrified strongly over the past two decades.

New master-planned housing estates have been created in growth areas and on brownfield development sites. Some of these existing developments have set new urban design standards and had an effect of attracting a more skilled and higher income population to parts of the Region. Sanctuary Lakes at Point Cook and Caroline Springs are examples.

3.3 Transport

Compared with other national renewal centres SOPUA has a high proportion of car travel and low proportions of train, bus, walking, and cycling being used as modes of travel to work. The level for SOPUA is brought down by the Osborne Park precinct, and to get high levels of non-car modes will require better use of land near public transport stops, connections within the SOPUA and better infrastructure and amenity for walking and cycling. Travel to work by train and bus is relatively high for Green Square despite its large area of 690ha, compared with 354ha for SOPUA. The frequency of train service to Stirling Station was also substantially less than train stations in the comparison area suggesting that there may be a relationship between service frequency and level of use.

The standard of public transport infrastructure in SOPUA is comparable with other centres with a choice of modes..

3.4 Employment

The level of employment in the SOPUA is at the higher end of the range for national centres, with the number of jobs second only to Green Square. The type of employment varied significantly between centres depending on the specific industries, institutions, or office focus. However the SOPUA has a relatively high proportion of jobs in construction, manufacturing, and retail trade. While there could be a higher level of jobs in professional services and knowledge industries, the SOPUA fares reasonably well in these areas (faring worse than Fortitude Valley but marginally better than Woolloongabba and Green Square and significantly better than Footscray. The level of employed residents in the SOPUA is very low in comparison with other centres, making comparisons of employment self-sufficiency difficult, however, the level of employed residents who worked within the centre was similar for all national centres and the SOPUA.

3.5 Housing

As mentioned previously the SOPUA has a very low level of dwellings and dwelling density. Dwelling density for SOPUA was the lowest at 4.3 dwellings/ha, with next highest being Woolloongabba (9.1dw/ha) and the highest being Fortitude Valley at 25.5dw/ha. The housing mix of the SOPUA contains a very low level of high density dwellings types, specifically flat, units or apartments (four percent), compared with all other centres (ranging from 35 percent to 92 percent). While SOPUA has a higher level of semi-detached dwellings at 52 percent the level of separate houses is still relatively high at 44 percent.

3.6 Summary of national benchmarking

At a Metropolitan level SOPUA has a comparatively good level of public transport service, but public transport usage (as well as walking and cycling) compared to the national centres was considerably lower in 2011. Conversely car travel in the SOPUA was quite high. There is potential for significant improvements in the levels of 'green' modes of travel.

Employment is at very high levels in the SOPUA, however the level of high value, export orientated and knowledge based jobs, while not poor, could be improved significantly. The indicative job density in the SOPUA was higher than most of the comparison areas, owing to the uniform urban form within the centre and higher densities of office buildings in the Herdsman precinct.

Housing in SOPUA is not at a standard of density comparable with other national centres. There is a good level of semi-detached dwellings (mainly retirement living) but few high density dwellings.

4 ISSUES AND OPPORTUNITIES

4.1 Issues

Key issues that affect Stirling / Osborne Park urban area (SOPUA) include:

- **Lack of Site Permeability and Connectivity**: At present the SOPUA area is segregated by a range of physical and perceived barriers. The area is characterised by fragmented land uses linked by the road network and car parks with generally poor amenity. The area is difficult to navigate for both pedestrians and vehicles due to the largely car dominated environment, transport corridor barriers, large lot frontages, lot frontages dominated by car parking, lack of views and vistas and lack of notable landmarks. This contributes to a high level of car travel to work, and a correspondingly low level of travel to work by train, bus, walking, and cycling.

- **Inadequate Public Transport Offering**: SOPUA contains valuable public transport infrastructure assets in the form of Stirling and Glendalough Train Stations, the bus interchange at Stirling Train Station and local bus services. These transport services are on a par (or better) with most other higher order centres in terms of frequency of service, multi-modal options, and short travel time to the CBD). However, current services are struggling to sufficiently meet user needs, let alone provide for the expected future demands with planned land use intensification. Current issues with public transport are predominantly related to a lack of integration between transport and land use, levels of service and poor pedestrian access leading to and from the key transport stops. More specifically issues in the area include:
  - poor pedestrian, bus and vehicular access to the Stirling and Glendalough train stations
  - worsening access to Stirling and Glendalough train stations due to increased traffic congestion and inappropriate set down areas
  - the Stirling bus interchange is currently at capacity and cannot support new or expanded services
  - pedestrian access through the area is poor and combined with lack of active frontages and public domain amenity, does not promote public transport use
  - development densities surrounding public transport nodes are low (both in term of employment attracting workers into the areas, and housing supporting out-bound travel)
  - development and the public realm support reliance on vehicle trips compounding congestion, accessibility and public transport use issues
  - limited transit orientated development that currently fails to capitalise on the benefits of the high capacity transit nodes.

- **Lack of Housing Supply and Mix**: As it stands there is a significant lack of housing within the SOPUA, and particularly a lack of high density housing which is needed to activate the centre and support a mix of recreation and entertainment uses. Moreover, there are limited housing options for lower income groups and more affordable housing should be promoted. The SOPUA area presents a significant opportunity to address national and regional issues associated with housing choice and affordability by providing consolidated housing through Transit Orientated Development and along nominated urban corridors and growth areas, as supported by the Draft Central Sub-regional Strategy. The dwellings numbers, density and proportion of high density dwellings are all well below most comparative centres.

- **Poorly Developed Street Interface**: The SOPUA was developed over time without due consideration of the street interface. The retailing environment is now characterised by enclosed large format retailing with car parking dominated frontages that provide poor access and little amenity to pedestrians. This lack of attention to leading practice urban design has resulted in a very poor level of public space, with a lack of incentive for pedestrian movement, and lack of incentive for mixed use or residential development.

- **Limited Local Open Space**: Whilst significant open space areas exist within the Stirling structure plan area and open space creation has been indicated as a key component of the plan, limited open space areas exist within Osborne Park / Herdsman precincts owing to the historic industrial land use of the site. The current lack of undeveloped land for local open space provision and the lack of connectivity to recreational spaces, primarily at Herdsman Lake, have the potential to impact on future mixed use development along the Scarborough Beach Road Corridor.

- **Poor Visual Amenity**: Amenity in the area is generally poor. This is primarily a result of historic land use and development patterns favouring private vehicular access without due regard for pedestrian, resident or employee amenity. Projects such as the proposed light rail infrastructure present an opportunity for redevelopment in the area which could improve amenity. However, given current amenity is poor, it is likely that this will discourage significant development that may improve amenity. While some improvement could be made in the public domain, it is important that future development has a positive street interface and raises the standard of amenity in the area. Given the scale of the area it will be important to focus on key development sites and precincts to encourage improvements.

4.2 Opportunities

Key opportunities that are presented include:

- **Proximity to Perth CBD**: The SOPUA is strategically located approximately six kilometres to the north west of the Perth CBD. This proximity is further enhanced by strong road and rail transportation networks linking the SOPUA area with the CBD, and the western and northern suburbs. Travel time between the area and the CBD is approximately 10 minutes by road or rail. As the CBD develops it is important to provide space nearby for business and services which require CBD access, yet cannot currently afford CBD rents. There also needs to be space provided for uses which are better suited to a 'CBD frame' area given their floorspace requirements, or lower intensity use.

- **Diverse Range of Land Use:** The current range of activities (core retail, wholesaling, large format retailing, industry, service industry, office space) included in the SOPUA, results in a larger cumulative trade area and regional influence than other activity centres independently. This supports the goal of SPP 4.2 which states the SMCs should "provide a full range of economic and community services necessary for the communities in their catchments". The range of uses and land in the SOPUA also provides for future redevelopment t and changes in land use to accommodate a wide range of employment, living, recreation, and community facilities. The larger area of the SOPUA permits an integrated planning approach which allows for the various precincts and land uses to achieve the urban and metropolitan outcomes.

- **Larger Centre Supporting Light Rail infrastructure**: Light rail is proposed to be implemented between Glendalough Train Station and the Stirling City Centre in order to provide greater access to mass transit for an area with high levels of employment. The light rail route has been identified in the Stirling City Centre Structure Plan and the State Government's Public Transport Plan for Perth. The provision of light rail will be a significant driver for intensification and development, particularly along Scarborough Beach Road and provides a significant opportunity for the area to deliver on metropolitan and nationally significant city building opportunities. The SOPUA area allows for planning which will better support the integration of land use and the light rail system, and hence support use of the light rail system.

- **Role as an Enhanced Employment Centre**: The SOPUA area generates some 35,000 jobs in the Perth metropolitan area, second only to the Perth CBD. Opportunity exists to increase this employment share and complement Perth CBD as major employment centre and mixed use hub. The SOPUA as a combined centre demonstrates significant employment diversity across a range of industries, which is a requirement of a centre of this tier, providing greater local employment options for nearby residents who would otherwise have to travel to the CBD to work. Increased employment diversification leads to opportunities to induce greater agglomeration. Agglomeration is a term used in spatial economics to describe the benefits which flow to firms from locating in areas which have a higher density of economic activity. Locating in an area of dense economic activity (as measured by employment) allows firms to achieve economies of scale via a large customer base.

- **Land Use Mix Diversity**: The SOPUA area already has significant horizontal diversity in terms of land use and provides a key opportunity to allow for further vertical diversity through increased densities and residential land uses. The common challenge of attracting commercial uses to a highly accessible location do not need to be overcome at this location, rather the challenge is to provide appropriate levels of amenity to attract both residential densities and also employment densities, to support activity centre growth and development.

- **Greater Use of Herdsman Lake Open Space**: Recreational areas surrounding Herdsman Lake will play a key role in providing the open space needs of any future residential and mixed use development along the Scarborough Beach Road Corridor. Utilisation of this resource for this purpose is contingent on better connectivity through the Hersdsman business areas and improvement of open space areas to support greater volume and range of use.

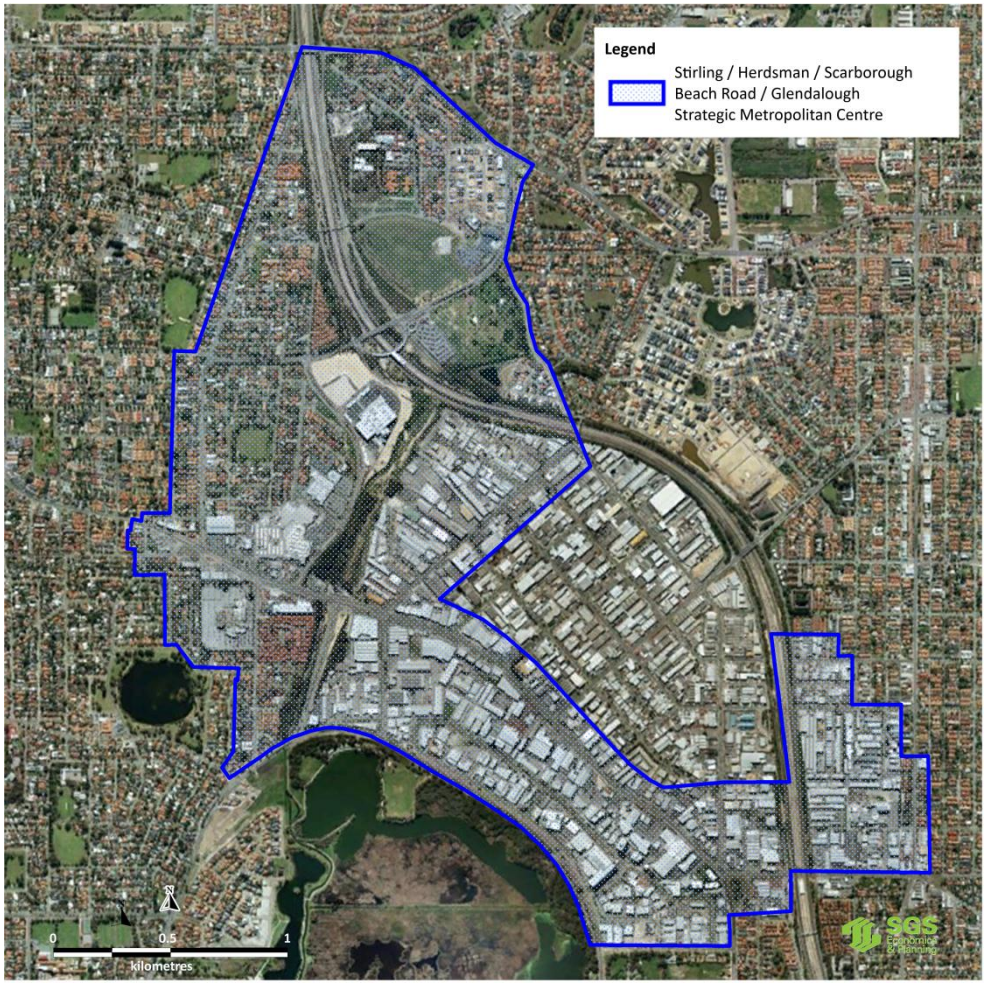
5 FUTURE CENTRE REQUIREMENTS

5.1 Overall directions

Strategic Metropolitan Centre: Stirling / Herdsman / Scarborough Beach Road / Glendalough

This positioning paper has identified Stirling / Herdsman / Scarborough Beach Road /Glendalough as a Strategic Metropolitan Centre. It is proposed that this Centre be planned as an integrated 'cluster' of precincts that together are considered to be a Strategic Metropolitan Centre. This approach is consistent with the clusters approach championed by the current draft Scarborough Beach Road Activity Corridor Framework (WAPC) released by the Western Australia Planning Commission in October 2012.

FIGURE 5. PROPOSED STIRLING / HERDSMAN / SCARBOROUGH BEACH ROAD / GLENDALOUGH STRATGEIC METROPOLITAN CENTRE, 2011



Source: SGS Economics and Planning 2013

Identifying the area as strategic metropolitan centre with a clear precinct structure within it, is a means of formalising land use change occurring within the area and updating regional and metropolitan planning policy that more aptly describes the role and function of the area, and allows for planning to achieve the desired level of productivity.

While it is implied that updating planning policy to reflect current land use and land use trends is worthwhile in its own right, the benefits derived from increased synergies between existing land use and planning policy may be even more significant. Therefore, recognising the Stirling / Herdsman / Scarborough Beach Road / Glendalough Precinct as a single strategic metropolitan centre increases potential synergies from a regulatory and policy perspective. It would allow for a more focused allocation of infrastructure investment and more efficient use of public infrastructure by the community.

From a policy perspective, a combined centre is likely to benefit the Perth metropolitan region more than if each precinct was planned largely separately without adequate consideration of their complementary roles, functions and targets. Moreover, the significant economic role the area plays within the Perth metropolitan region provides an opportunity for the area to address urban issues of national significance. Allowing for a combined centre also means that the market forces resulting in ad hoc changed land uses can be better controlled that result in better activity centre form and function.

The rationale and benefits for this approach are:

- The size and extent of the study area provides the opportunity for integrated high level planning for a broad range of activities that can be better combined and promotes economic benefits by facilitating a mix of uses and business interaction. Consideration of an integrated cluster also assists in planning for infrastructure to benefit the whole cluster. At the same time the study area is some seven kilometres from north to south with a proposed light rail investment that covers a four kilometre corridor. This area is similar in extent to the distance from the WACA in East Perth to Patersons Stadium in Subiaco across Perth CBD. The large extent of these areas contain a range of activities, that while inter-related, require very different planning responses. The cluster approach provides the ability to better plan for each of the land use areas within the cluster by acknowledging the existing roles and future opportunities within each precinct. The cluster approach also allows for targeted planning work and prioritisation of planning and projects.
- The activity centres and structural elements making up the precincts of the cluster reflect the policy settings in Directions 2031. This is a sound framework for informing metropolitan infrastructure investment priorities and local planning responses. It provides for seamless integration with the activity centres planning framework held by the State Government.
- Based around the key existing and planned public transport assets, including the two rail stations (Stirling and Glendalough) and the proposed light rail corridor. It recognises the influence of these assets on land use activities and the role of proposed light rail in shaping future land use potential and integrating economic activity in the cluster.
- Market forces are already leading the change in land uses, in Osborne Park and it is deemed more beneficial to be influencing these though pro-active combined activity centre planning, that will result in a unified and integrated centre. Otherwise actions related to the land uses in the centre will be reactionary and will result in sub-optimal outcomes and impaired productivity for the Stirling / Herdsman / Scarborough Beach Road / Glendalough Precinct Strategic Metropolitan Centre**.**

Planning for Osborne Park

Significant change is not expected to occur in the Osborne Park area with current industrial land uses maintained as within a designated industrial precinct. Much of the area will continue to fulfil the light service industry demands of local and regional customer and it is expected that heavier industrial uses will continue to operate some time into the future. As the land value increases along Scarborough Beach Road, bulky good showroom development will look to develop industrial land, particularly as large lot holdings become available should warehouses and other large industry functions cease to be viable in the location. It is essential that policy work continue to support appropriate land use in the precinct through such instruments as the Glendalough / Joondanna / Osborne Park / Tuart Hill / Yokine (GJOTY) Local Area Plan as well as higher level policy instruments.

Integrating the Glendalough District Centre

The area around the southern rail station has previously been designated the Glendalough District Centre, adhering to the policy intentions of SPP4.2 Activity Centres for Perth and Peel. Although included with the SMC, it is expected that Glendalough will continue to be planned in accordance with these intentions as part of the cluster approach. Glendalough will build on the already established residential land use located within the south of the centre around the train station, focusing on greater densification and the provision of population driven employment in the form of

mixed use development. Mixed use development will lead to a high activity generating land uses congruent with the requirements of a district centre. Like Osborne Park, industrial uses to the north will transition slowly which will have to be managed accordingly. The City of Stirling and the WAPC will play a key role in the development of the centre.

5.2 Future requirements

There are a number of crucial attribute changes that the combined Strategic Metropolitan Centre needs to better function as required under the provisions of SPP 4.2.

Reduction of private vehicle dependency

Currently the proposed Metropolitan Strategic Centre, particularly the Herdsman area, is constrained by congestion and car parking related problems, which will have to be addressed if the centre is to function better. Strategies to address vehicle dependency must include both residents and workers who commute to the centre. For residents who both live and work in the centre pedestrian, cycling and public transport use needs to be facilitated and encouraged, reflected in a shift towards Transit Orientated Development (TOD) principals that better utilise heavy rail node assets present on the edges of the site.

The failing link for commuters in their public transport journey to work is the connection between heavy public transport nodes and their place of work within the middle of the centre area. Many jobs are located a significant walking distance from either train station (well beyond the commonly accepted limit of 400m). Consultation findings as well as other reports such as the Scarborough Beach Road Activity Corridor Framework indicate that bus transportation that links these areas to the station is unreliable and constrained by traffic congestion. A suitable solution that improves this transport link needs to be established to ensure that utility of the entire public transport system is maximised. The proposed light rail system along Scarborough Beach Road would address some of the connectivity issues, how this needs to be supported by the creation of a highly walkable urban environment and the creation of attractive cycle routes. This needs to include the creation of good pedestrian routes which have active frontages to the street, good footpaths, shading, and limited (and consolidated) vehicle crossovers. Cycle routes may take the form of on-street lanes or dedicated paths. In addition to paths along roads, other links and lanes may be provided.

Greater integration of high density residential development within key area

As per the 2011 Census, there are currently no residents living within the Herdsman area, and those in Stirling Park are only medium density (semi-detached). Although there are some areas within those that are not suitable for residential development (particularly industrial areas away from Scarborough Beach Road), there exists significant potential for mixed land use incorporating residential development to emerge in key areas. The presence of local residents serves to add vibrancy to otherwise underutilised areas. In addition, the demand generated by residents and the services and businesses required for them necessitates the creation of a diverse urban environment. The presence of local residents who also choose to work locally and commute by walking or cycling help to reduce the overall burden on road and rail based transportation networks. Such development will help to improve amenity, however public realm amenity improvements should also be considered to support the attraction for residential uses.

Stronger links to green space

As a transitional industrial area, green space suitable for communities is not abundant, with suitable green spaces in the Stirling City Centre and Herdsman Lake being the only viable options for any resident that would choose to live along Scarborough Beach Road. As it is unlikely that new green space amongst the transitioning industrial development and bulk good retail will be forth coming, the key focus will have to be ensuring that these existing green spaces are easily accessible on foot and by bicycle. This will require actively planning movement corridors between these spaces and places of residence.

Consideration of environmental impacts

It is essential that possible environmental impacts be considered in planning the proposed centre. Such considerations are diverse ranging from impacts of transportation choices and the importance of an integrated and efficient public transport system, facilitation of walking and cycling through key activity areas, ensuring building

designs meets construction and operation standards. Ensuring that land uses area appropriately located and that impacts such as industrial noise or pollution affecting residential mixed use areas are mitigated is also important.

Natural assets such as Herdsman Lake add significant amenity value to the area, which is an essential requirement if the centre is to attract high density residential development integrated as mixed use development. Such assets need to be protected against degradation to ensure that centre outcomes are realised.

Governance

Appropriate governance arrangements need to be established to ensure that constraints on development can be addressed and the desired outcomes of the proposed SMC realised. As with other SMCs that are governed by the SPP4.2, a collaborative approach between the state, local government, resident and business community is essential. Subsequently a dedicated organisation would ideally be established and suitably provided with appropriate staff and powers to oversee the development of the centre.

6 NEXT STEPS

This positioning paper is a first step in establishing an updated boundary for the Strategic Metropolitan Centre. Additional work is needed to ensure that the new centre is recognised as such by the relevant planning authorities and strategic plans. An outline of the proposed next steps is provided below.

Seek sign-off from the Western Australian Planning Commission

Although it has been the case that the WAPC has provided input and advice throughout the development of this positioning paper, a review process will be required. Representatives from the Western Australian Planning Commission will need to ensure that a larger Strategic Metropolitan Centre continues to meet the definition of such a centre and will also need to evaluate the impact that such a centre will have on the wider network of centres across Perth.

Development of a consolidated structure plan for the combined centre

With the expansion of the strategic metropolitan area to incorporate the other precinct areas in addition to Stirling City Centre, a new combined centre structure plan that consolidates each of the current structure plans, specifically the Stirling City Centre Structure Plan and the Herdsman Glendalough Concept Structure Plan and the Scarborough beach Road Activity Corridor, will need to be developed. This new Plan would continue to function in the same way as the current existing Draft Stirling City Centre Structure Plan for the wider area, outlining the place, the vision, a definitive structure plan and the planning process to implement it, whilst also facilitating greater integration between each of the precincts. Such an instrument would allow for seamless integration of policies and more effective planning of the area as a whole, whilst also providing the necessary provisions to support the precinct approach to planning. The Plan would also consider the interfaces with other surrounding residential areas and the Osborne Park industrial area, and locations in surrounding Local Government Areas, including the Town of Vincent which contains part of the Glendalough District Centre.

The SPP 4.2 states that any newly created structure plans such as the one required for the new centre would require WAPC approval. Throughout the process it will be imperative to maintain a collaborative approach between all tiers of government and private and community stakeholders.

Establishing a new normative primary service (trade) area for the combined centre

The current primary service trade area will need to be increased to reflect the larger scope of the centre. This will ensure that Retail Sustainability Assessments (RSA) undertaken for major developments in the future will be accurate.

Stronger collaboration with developers and private investors

Based on discussions with private developers and businesses who have invested capital in the area, private entities desire a closer collaborative relationship with the City of Stirling regarding how land can be developed. There appears to be potential for greater collaboration between Council and the private sector, which will further the development of the combined centre. Processes need to be established that will facilitate greater collaboration.

Monitoring of development to ensure adherence to centre planning policies and provisions

The transition of the Osborne Park area from a largely industrial area to a bulky goods retail cluster has created some instances where development has been allowed to occur on the boundaries or completely outside of current planning provisions. An example includes a number of bulky good showrooms existing within old warehouse buildings, outside of retail zonings. In many cases these non-permitted uses create negative externalities that impact on the overall function of the area. Council, in consultation with the Stirling Alliance should consider tightening planning provisions to prevent development occurring that undermines the intention of strategic planning. In

additional it is recommended that suitable monitoring and policing of land uses occurs on the ground to ensure that new development adheres to planning provisions.

Use of newly defined strategic metropolitan centre for future funding applications

The definition of an integrated centre, connected by light rail, that supports renewal, employment and greater housing choice, provides a strong basis for infrastructure funding. An integrated vision for the centre and demonstrating the role it has in achieving metropolitan and national objectives for renewal would further support future funding applications.

Expanding the role of the Stirling Alliance to include Herdsman and Scarborough Beach Road

Currently the Stirling Alliance operates a Public Private Community Partnership (PPCP) model that coordinates planning activities for the Draft Stirling City Centre Structure Plan area. The Stirling Alliance combines key personnel from a number of relevant agencies who work together at the coalface of planning for the centre. This approach has the obvious benefits of incorporating a wide range of inputs, provides each agency with a 'finger on the pulse', action and outcome ownership and ensures that the priorities of each organisation are recognised. Alliance personnel also have established relationships with community and business representatives who are actively involved in planning the city centre. In addition, the Stirling Alliance is an established planning body with an established Public Private Community Partnership Agreement in place as well as the capacity, or ability to quickly acquire the capacity, to immediately progress the development of the centre without a lengthy start-up period.

Generally it is recognised that this collaborative approach has worked well in furthering the Stirling City Structure Plan Area where past approaches have failed and has potential to operate effectively at a larger scale. It is therefore proposed that the role of the Stirling Alliance be expanded to administering the ongoing planning of the proposed Strategic Metropolitan Centre boundary. As per previous operations, the Stirling Alliance would continue to consist of City of Stirling, the Western Australian Planning Commission (WAPC) on behalf of the Department of Planning, the WA Department of Transport, Main Roads WA, Public Transport Authority, Landcorp and the Community.

APPENDIX 1: METROPOLITAN BENCHMARKING

Geographical areas and limitations

The SOPUA was geographically defined as closely as possible using destination zones (DZN) in the case of employment data and Meshblocks to define the Study Area and ABS Statistical Area 1 (SA1) to define the Strategic Metropolitan Centres in the case of population data. These classifications are the smallest practical definitions for which useable data can be obtained and also provide the closest fit to the relevant boundaries. It should be noted that aggregate DZN and MD/SA1 areas created as part of this process cannot be perfectly overlaid although all possible care was taken to ensure that these areas are as congruent as possible with centre boundaries defines by current planning instruments. In addition, the larger areas of some DZN and MB/SA1s have meant that the area for which data has been obtained does not exactly match the precinct boundaries and minimal over or undercount has occurred.

Centre boundaries were defined using any pre-existing centre definitions included in current structure plans and other current planning frameworks. Delineating a meaningful boundary for the Scarborough Beach Road precinct was not possible given the large size and orientation of the DZN that were aggregated to form the other areas. For this reason only the other four precincts were compared in the benchmarking process, with the Scarborough Beach Road Precinct being counted within Osborne Park and Herdsman.

Public transport

Accessibility indicators

Accessibility is defined by the Western Australian Department of Transport (WADoT) as "a measure of ease at which people are able to get to work, schools, shops and all other places they want to get to on a regular basis". Accessibility for both car and public transport is a measure of the total time it would take all people living in the Perth and Peel region to depart every origin zone and to access any destination zone (a smaller subset zone). Through the use of the WA Government's Strategic Transport Evaluation Model (STEM), a series of accessibility indicators for two modes of transportation have been calculated for both car and public transportation. The centre with the shortest travel time represents the base index value and all subsequent centres with lesser accessibility possess a greater index number. Table 3 outlines car accessibility indices for each of the SMCs listed within Directions 2031. Stirling was ranked number 3 in terms of car accessibility with an access index value of 1.13, closely behind the second placed Cannington at 1.12 and the first placed Morley at an Index value of 1.11. It is reasonable to expect that the central SMCs would rate highest, not only due to better transportation infrastructure but also due to their central position within the Perth and Peel region meaning shorter travelling distances overall. It is perhaps for this reason that Yanchep rated the lowest at 2.28 followed by Mandurah at 1.97 and Rockingham at 1.59.

TABLE 3. CAR ACCESSIBILITY INDICATORS

	SMC Rank	Car Access Index	Car Access Rank
Morley	1	1.11	99
Cannington	2	1.12	108
Stirling	3	1.13	147
Midland	4	1.19	218
Fremantle	5	1.29	315
Armadale	6	1.31	333
Joondalup	7	1.39	373
Rockingham	8	1.59	413
Mandurah	9	1.97	482
Yanchep	10	2.28	510

Source: WA Department of Transport, 2011

Table 4 contains public transport accessibility indicators including accessibility indices and rank. Stirling SMC ranked the highest of any in terms of public transport accessibility with an index value of 1.15 followed by Joondalup at 1.26 and Cannington at 1.28. The ease of transport along the heavy rail line that serves both Stirling and Joondalup is a likely reason for this low (highly accessibility) index value. As in the case of the car indices, Yanchep rated the lowest of any SMC at 2.28 again likely due to the position of the centre and also less efficient public transport services.

TABLE 4. PUBLIC TRANSPORT ACCESSIBILITY INDICATORS

	SMC Rank	PT Access Index	PT Access Rank
Stirling	1	1.15	39
Joondalup	2	1.26	91
Cannington	3	1.28	100
Fremantle	4	1.31	114
Armadale	5	1.39	153
Midland	6	1.4	154
Rockingham	7	1.52	223
Morley	8	1.61	266
Mandurah	9	1.79	330
Yanchep	10	3.34	476

Source: WA Department of Transport, 2011

Table 5 shows the ratio of overall time spent on public transport to car transportation, providing a comparison of the two modes and providing insight into which is more desirable for commuters. A higher ratio is an indication that public transport takes longer overall relative to car travel. Stirling demonstrated a ratio of 3.1 indicating that public transport takes approximately 3 times longer than a car to reach a destination within the centre, ranking the SMC third overall. This is not surprising given the strong public transport index score.

TABLE 5. CAR AND PUBLIC ACCESS RATIO

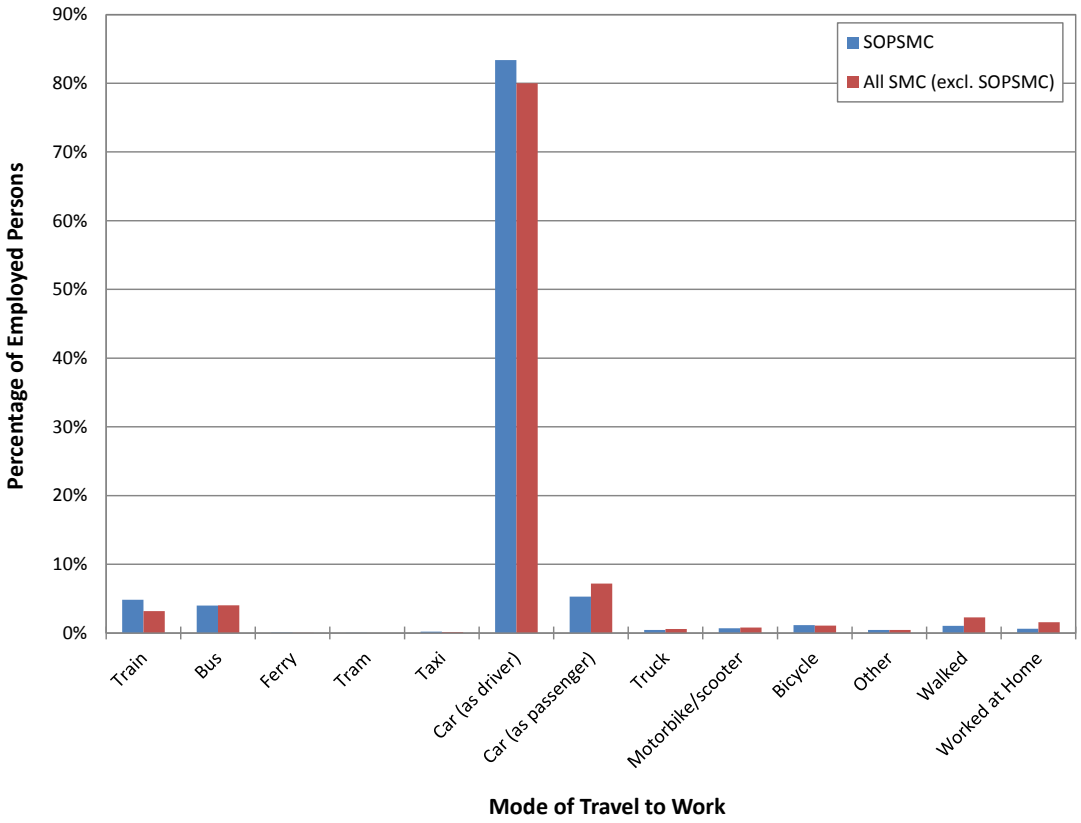
	SMC Rank	Access Ratio (PT Time/Car Time)
Joondalup	1	2.77
Mandurah	2	2.78
Stirling	3	3.1
Fremantle	4	3.1
Rockingham	5	3.23
Armadale	6	3.24
Cannington	7	3.5
Midland	8	3.6
Morley	9	4.42
Yanchep	10	4.48

Source: WA Department of Transport, 2011

Mode share

Persons employed within SMCs of the Perth and Peel region used a variety of means of transportation to work in 2011; however private car transportation was by far the most dominant. Within the SOPUA, workers who drove to work as at least one of the transport modes accounted for 84.0 percent of all workers employed within the centre with 98.7 percent of these workers using a car only. The share of workers employed in the centre who regularly drove to work was slightly higher in the SOPUA compared to other SMCs in the Perth/Peel region which stood at 83.4 percent. Car travel as a passenger was the next highest mode used accounting for 5.3 percent followed by train at 4.8 percent and Bus at 4.0 percent.

FIGURE 6. TRAVEL TO WORK MODE SHARE, PERTH AND PEEL REGION SMCS, 2011



Source: ABS Census of Population and Housing, 2011

A comparison of the SOPUA and the internal precincts with the different Perth SMCs reveals a similar pattern of car driving dominance. Employed who worked in the Yanchep centre demonstrated the lowest level of car driving to get to work owning to the large share who reported that they work at home (their home is located within the centre), which accounted for 10.1 percent of all jobs in this centre. Employees who worked in nearby Fremantle reported a lower use of car transportation in place of greater bus usage (8.1 percent compared to 4.0 percent in the SOPUA), bicycle usage (2.4 percent compared to 1.1 percent) and walking (4.6 percent compared to 1.0 percent). The low level of walking and working at home indicates a lack of suitably located housing for workers near the centre. A comparison of the modal share of each centre is provided overleaf in Table 6. Note: percentage per centre do not sum to 100 percent as the percentages are calculated by summing all modes (which may be more than one per worker) and then dividing that by the number worker whose job was located in each centre.

TABLE 6. PERCENTAGE OF WORKERS BY MODE OF TRAVEL TO WORK, PERTH AND PEEL REGION SMCS, 2011

	Train	Bus	Ferry	Tram	Taxi	Car, as driver	Car, as passenger	Truck	Motorbike/ scooter	Bicycle	Other	Walked	Worked at Home
Stirling City Centre	4.7%	6.1%	0.1%	0.0%	0.1%	79.4%	7.7%	0.3%	0.6%	1.0%	0.4%	1.5%	1.0%
Osborne Park	2.9%	2.3%	0.0%	0.0%	0.2%	86.1%	4.9%	0.7%	0.9%	1.0%	0.4%	0.8%	0.7%
Herdsman	6.1%	4.0%	0.0%	0.0%	0.2%	84.3%	3.8%	0.3%	0.6%	1.3%	0.4%	0.9%	0.4%
Glendalough	5.3%	3.9%	0.0%	0.2%	0.2%	82.3%	6.1%	0.5%	0.5%	1.1%	0.6%	1.0%	0.4%
SOPUA	**4.8%**	**4.0%**	**0.0%**	**0.0%**	**0.2%**	**83.4%**	**5.3%**	**0.4%**	**0.7%**	**1.1%**	**0.4%**	**1.0%**	**0.6%**
Armadale	4.6%	3.9%	0.0%	0.0%	0.0%	75.0%	13.6%	0.1%	0.6%	0.5%	0.2%	3.0%	0.6%
Cannington	3.0%	3.5%	0.0%	0.0%	0.2%	82.0%	5.8%	1.1%	0.6%	0.8%	0.6%	1.4%	2.0%
Fremantle	5.1%	8.1%	0.1%	0.0%	0.1%	72.2%	5.5%	0.1%	1.0%	2.4%	0.7%	4.6%	2.4%
Joondalup	4.7%	3.4%	0.0%	0.0%	0.1%	81.1%	7.6%	0.1%	0.7%	0.9%	0.4%	2.0%	1.0%
Mandurah	1.2%	1.7%	0.0%	0.0%	0.2%	82.1%	8.1%	0.8%	1.2%	0.9%	0.4%	2.3%	1.5%
Morley	2.9%	3.6%	0.0%	0.0%	0.0%	81.7%	7.5%	0.6%	0.7%	0.9%	0.3%	1.9%	1.1%
Midland	2.9%	3.6%	0.0%	0.0%	0.0%	81.7%	7.5%	0.6%	0.7%	0.9%	0.3%	1.9%	1.1%
Rockingham	1.4%	4.1%	0.0%	0.0%	0.2%	80.7%	8.3%	0.6%	0.8%	0.7%	0.4%	1.8%	1.2%
Yanchep	0.0%	0.7%	0.0%	0.0%	0.0%	71.0%	8.0%	2.3%	1.5%	1.1%	1.3%	2.9%	10.1%
All SMCs (excl. SOPUA)	**3.2%**	**4.0%**	**0.0%**	**0.0%**	**0.1%**	**80.0%**	**7.2%**	**0.6%**	**0.8%**	**1.1%**	**0.4%**	**2.3%**	**1.6%**

Source: ABS Census of Population and Housing, 2011

The majority of workers employed within the SOPUA travel to work via a single mode of transportation. In 2011, 95.8 percent of workers travel to work using a single mode, 3.6 percent a dual mode and 0.6 percent three modes of transport. Compared to the aggregate of the other SMCs within the Perth/Peel region, multi modal travel to work was accounted for greater proportion of worker trips at 4.2 percent in the SOPUA compared to 2.8 percent in all other SMCs. This data for each centre is contained in Table 7.

TABLE 7. PERCENTAGE BREAKDOWN OF NUMBER OF MODES OF TRANSPORTATION USED BY CENTRE WORKERS, PERTH AND PEEL REGION SMCS, 2011

	Single Mode	Dual Modal	Tri Modal
Stirling City Centre	95.6 %	3.8%	0.5%
Osborne Park	97.2%	2.4%	0.4%
Herdsman	94.7%	4.6%	0.7%
Glendalough	96.3%	3.2%	0.4%
SOPUA	**95.8%**	**3.6%**	**0.6%**
Armadale	96.3%	3.5%	0.2%
Cannington	97.4%	2.2%	0.4%
Fremantle	95.9%	3.6%	0.5%
Joondalup	96.5%	3.1%	0.4%
Mandurah	98.5%	1.3%	0.2%
Morley	97.6%	2.2%	0.2%
Midland	97.6%	2.2%	0.2%
Rockingham	97.5%	2.0%	0.5%
Yanchep	98.7%	1.3%	0.0%
All SMCs (excl. SOPUA)	**97.2%**	**2.5%**	**0.3%**

Source: ABS Census of Population and Housing, 2011

Public transport infrastructure and services

Generally most SMCs in Perth contained both a heavy rail and bus station with most allowing for easy intermodal travel through co-location of stations. Morley and Yanchep were the only SMCs not to have a train station within 500m. The vast majority of the Osborne Park area was also outside this range making direct access to rail public transport difficult. During peak travel periods between 7am and 9am and 5am to 7pm, the frequency of trains was approximately between three and 15 minutes. Most station infrastructure included an adjacent bus terminal resulting in a short walk less than 30 metres for intermodal commuters and travellers. Key public transport data indicators are provided below in Table 8.

Stirling Bus and Rail Interchange situated above the Mitchell Freeway

Source: Google, 2012

TABLE 8. KEY PUBLIC TRANSPORT CHARACTERITICS

	Public Transport Available (within 500m)	Peak Rail Service Frequency (to CBD)	Rail Travel Time to CBD	Inter-modal Infrastructure
Stirling City Centre	Bus, heavy rail	Between 3 and 15 min	13-14min	Busway overpass situated above heavy rail station
Osborne Park	Bus	N/A	N/A	None
Herdsman	Bus, heavy rail	4 - 15 min	10 min	None
Glendalough	Bus, heavy rail	4 - 15 min	10min	Bus stops directly beneath station
Armadale	Bus, heavy rail	Every 15 min	34min	Adjacent level bus interchange
Cannington	Bus, heavy rail	3 – 8mins	19min	Adjacent level bus interchange
Fremantle	Bus, heavy rail	6-16mins	23-24min	Adjacent level bus interchange
Joondalup	Bus, heavy rail	4-15min	29min s	Adjacent level bus interchange within shopping centre
Mandurah	Bus, heavy rail	4-15min	49-50mins	Adjacent level bus interchange
Morley	Bus	N/A	N/A	Bus station adjacent to shopping centre
Midland	Bus, heavy rail	9-11 mins	26mins	Adjacent level bus interchange
Rockingham	Bus, heavy rail	4-10min	33mins	Adjacent level bus interchange to rail station
Yanchep	Bus	N/A	N/A	Roadside bus stop

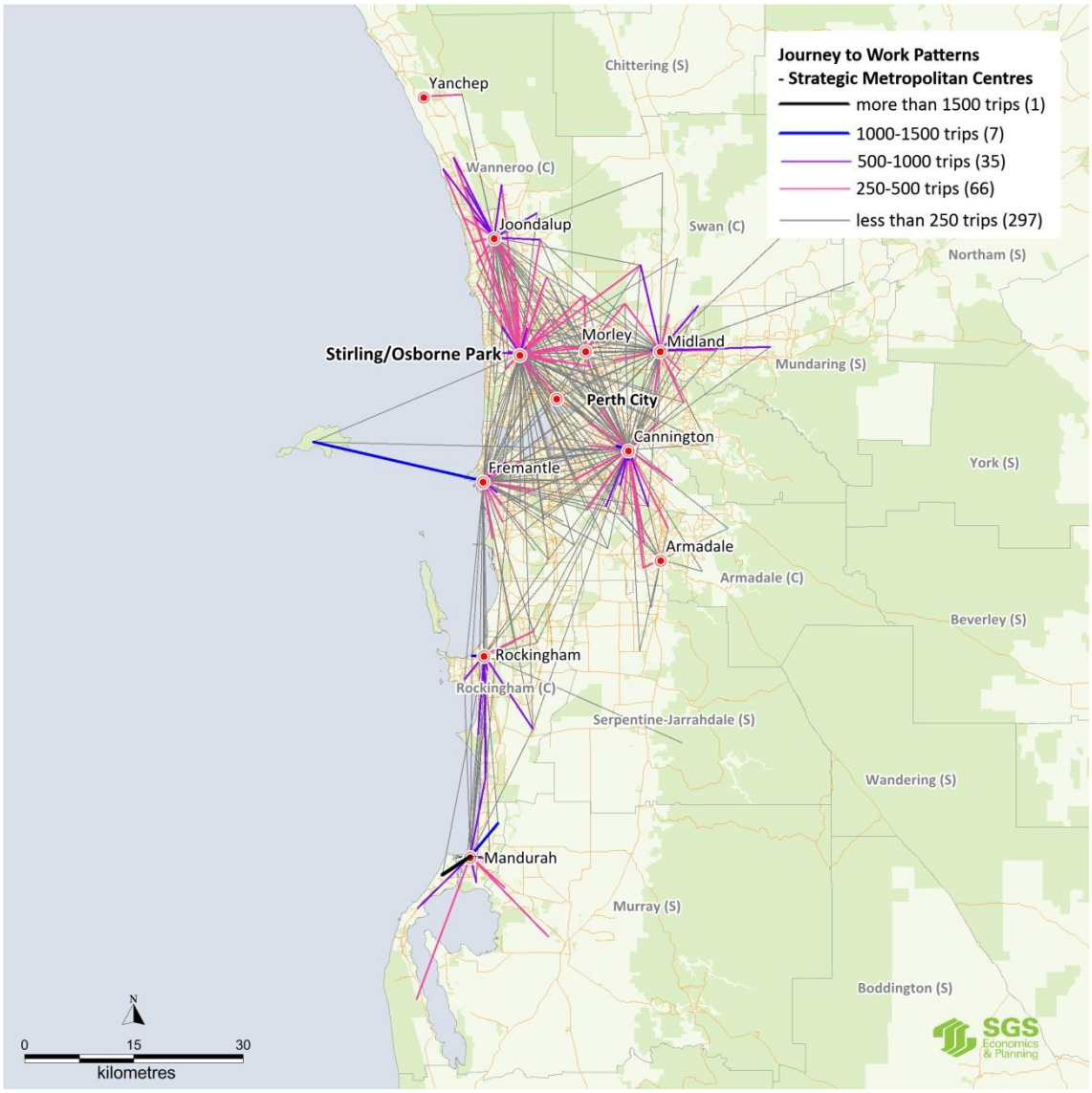
Source: Transperth, 2012

Journey to work catchments

Analysis was undertaken to determine where workers who are employed in each centre reside and to what extent these workers travel. Journey to work data derived from the 2011 census that included both origin and destination components was utilised to graphically represent the scale of commuting that was occurring. Figure 7 below graphically demonstrates the number of trips originating from top 15 origins[2] (that also demonstrated greater than 180 trips) of workers to each centre. This data demonstrated that workers employed within the SMCs were employed much more locally than CBD workers as can be seen in the following Figure 8. Inland SMCs demonstrated relatively radial travel patterns with greater numbers of trips originating from areas away from the CBD (indicated by the blue lines). Workers in coastal SMCs travelled more from coastal residential areas, as can be seen to the north of Joondalup and north and south of Rockingham and Mandurah. These diagrams also serve to outline the relative size of each centre in terms of employment and the relative attraction of the local workforces.

[2] For the purposes of this exercise the Australian Standard Geographical Classification (ASGC) Statistical Area 2 (SA2) areas were used as origin zones.

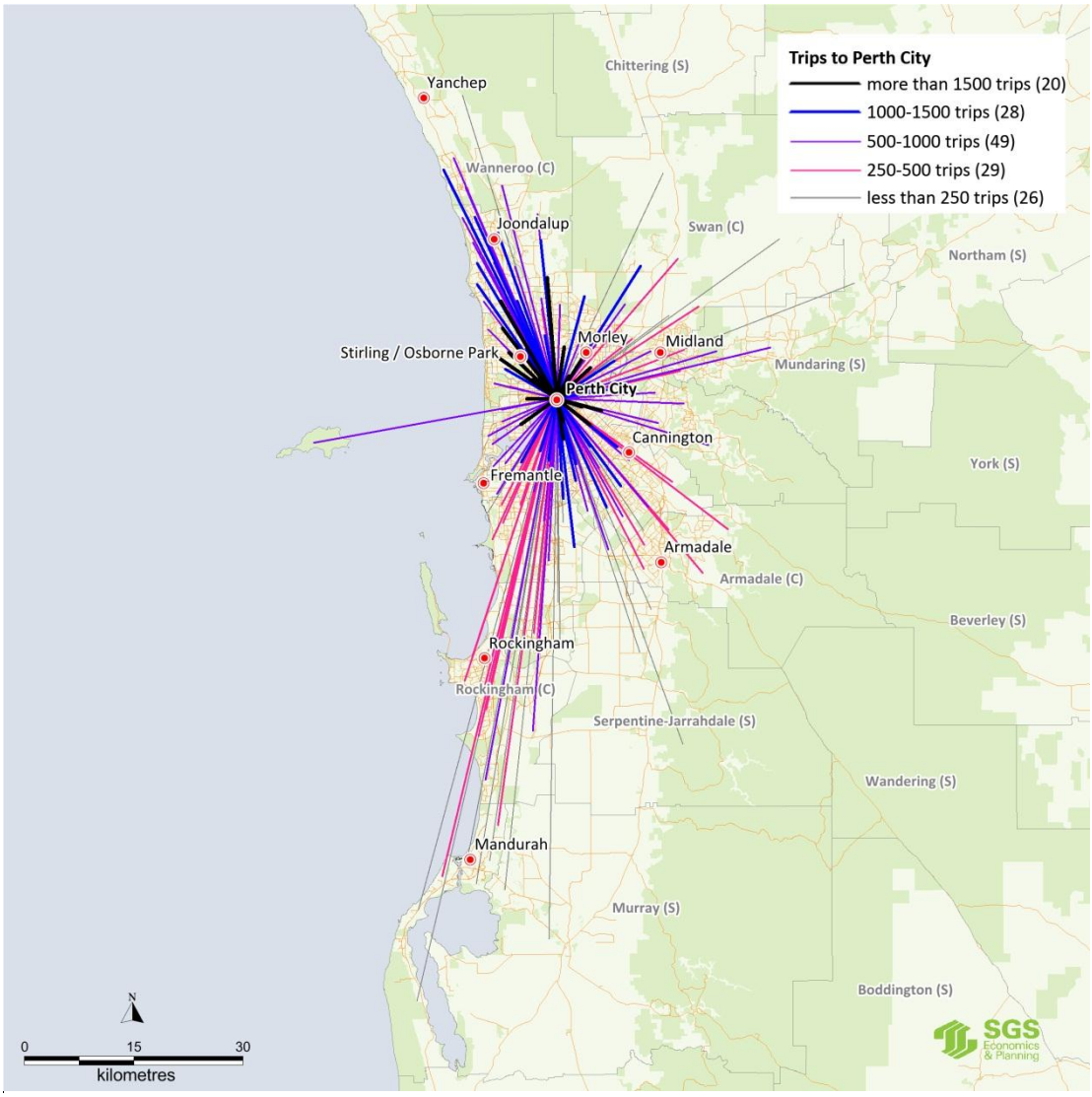
FIGURE 7. PERTH AND PEEL SMCS WORKER TRAVEL PATTERNS, PERTH AND PEEL SMCS, 2011



Source: SGS Economics and Planning using 2011 ABS Journey to Work (JTW) Data and ABS Census of Population and Housing

Figure 8 shows the substantially larger power of attraction that the Perth CBD has in attracting workers with between 890 and 1,225 trips being generated by workers travelling to the CBD to work from origins as far away as Mindarie in the north and Oakford in the south.

FIGURE 8. PERTH AND PEEL SMCS WORKER TRAVEL PATTERNS, PERTH CITY, 2011



Source: SGS Economics and Planning using 2011 ABS Journey to Work (JTW) Data and ABS Census of Population and Housing

Employment

Number of jobs

Each of the study area precincts contained varying numbers of jobs. Based on the most recent ABS Journey to Work (JTW) data, Herdsman contained the highest number of jobs at 10, 150 and Osborne Park the lowest at 2,089 jobs. All together the combined number of jobs located within the Study Area based was 22,656 jobs. Under the current boundary assumption this would make the SOPUA the largest of any in the region in terms of employment, accounting for 21.8 percent of all jobs in the SMCs. The next largest is Cannington at 16,824 or 16.2 percent of SMC employment. Table 9 below outlines the absolute job numbers of both the Study Area Precincts and the Metropolitan SMCs as well as percentage shares of each.

TABLE 9. SIZE OF EMPLOYMENT OF THE STUDY AREA PRECINCTS AND PERTH AND PEEL STRATEGIC METROPOLITAN CENTRES

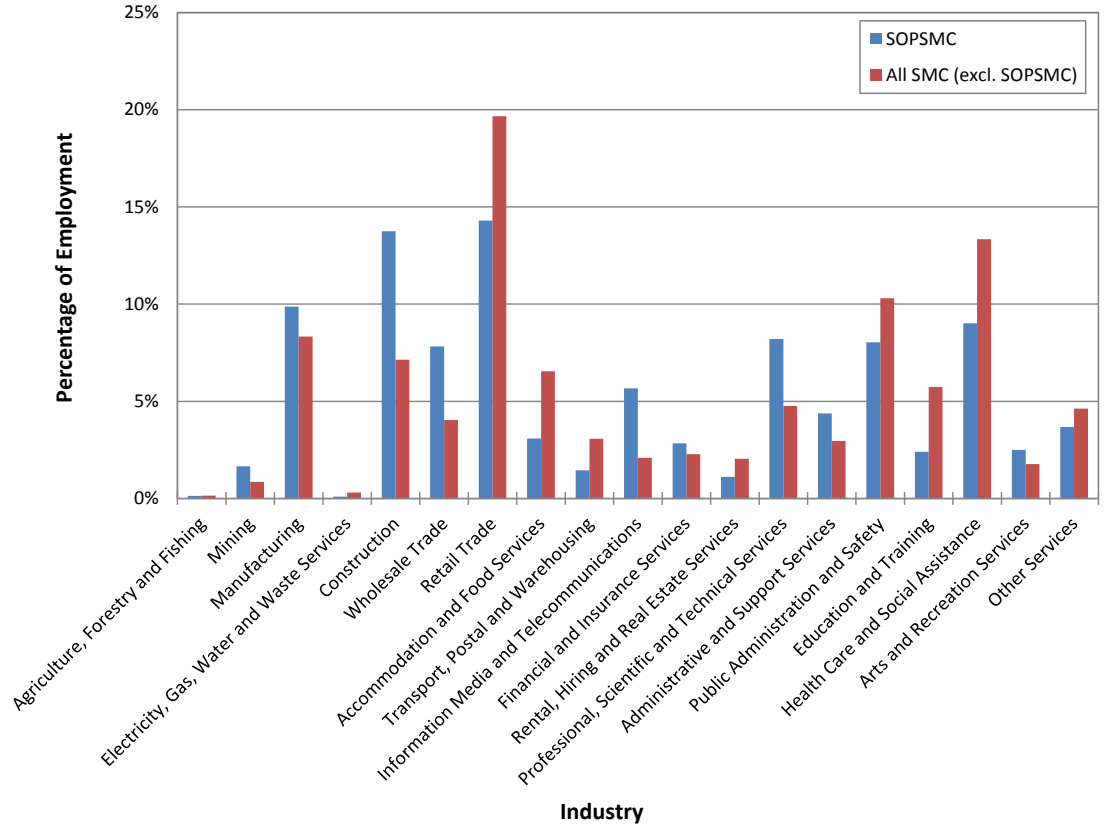
Name	Number of Jobs	% share of Study area	% share of SMCs
Stirling City Centre	6,375	28.1%	-
Osborne Park	2,089	9.2%	-
Herdsman	10,150	44.8%	
Glendalough	4,042	17.8%	
Stirling /Osborne Park	22,656		21.8%
Armadale	2,667		2.6%
Cannington	16,824		16.2%
Fremantle	12,526		12.1%
Joondalup	13,141		12.7%
Mandurah	9,012		8.7%
Morley	5,556		5.4%
Midland	11,751		11.3%
Rockingham	9,026		8.7%
Yanchep	682		0.7%
Total incl. Study Area	**103,841**		

Source: ABS Journey to Work (JTW) data, 2011

Jobs by industry

The SOPUA demonstrated significantly higher construction industry jobs than other SMCs. The percentage share of construction jobs within the SOPUA was 13.8 percent, which was significantly higher that of all of the SMCs which demonstrated 7.1 percent of total employment in this industry. Other industries that were more prominent in the SOPUA than other SMCs were wholesale trade at 7.8 percent compared to 4.0 percent, professional, scientific and technical services at 8.2 percent compared to 4.8 percent and information media and telecommunications at 5.7 percent compared to 2.1 percent owing to the presence of large businesses located in Herdsman such as the West Australian Newspaper. Conversely industries that were under represented compared to the other SMCs were retail trade at 14.3 percent compared to 19.7 percent, health care and social assistance at 9.0 percent compared to 13.3 percent and accommodation and food services at 3.1 percent compared to 6.5 percent. These differences highlight the significantly different nature of SOPUA to the other SMCs and the influence that the inclusion of industrial and warehouse areas of Osborne Park and the office areas of Herdsman has on the employment structure. Figure 9 below provides a graphical comparison of the SOPUA and all other SMCs by industry.

FIGURE 9. EMPLOYMENT BY INDUSTRY, SOPUA AND OTHER PERTH SMCS, 2011

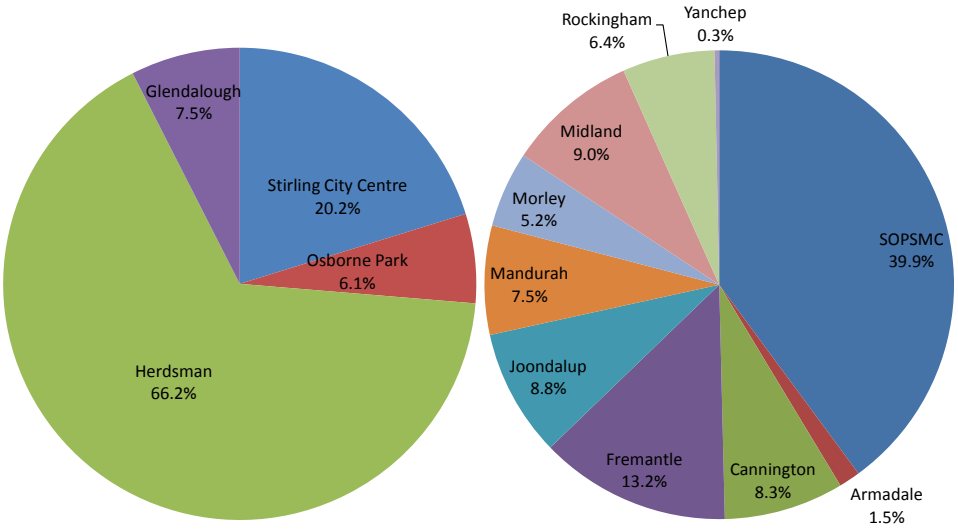


Source: ABS Journey to Work (JTW) data, 2011

Table 22 in Appendix 3 compares each of the centres and the industry structure of each. Cannington demonstrated the greatest similarities in terms of employment by industry, possibly owing to it larger size and interlaced industrial and bulky goods land use.

Journey to work data also tells us that the SOPUA contained the highest share of knowledge workers among all of the Perth and Peel SMCs. Knowledge workers are simply defined here as being employed within the information media and telecommunications, financial and insurance services and the professional, scientific and technical services industries. Figure 10 contains pie charts that show the share of these workers within the SOPUA among each of the different precincts as well as the share of these workers among all of the Perth and Peel SMCs. The Stirling and Osborne Park Strategic Metropolitan Centre contained 39.9 percent of knowledge worker jobs among all SMCs followed by 13.2 percent in Fremantle and 9.0 percent in Midland. With the SOPUA itself, most of these jobs were located within the Herdsman Precinct 66.2 percent followed by Stirling at 20.2 percent, Glendalough at 7.5 percent and Osborne Park at 6.1 percent.

FIGURE 10. KNOWLEDGE INDUSTRY EMPLOYMENT BY PRECINCT/SMC, SOPUA AND ALL PERTH AND PEEL SMCS, 2011



Source: ABS Journey to Work (JTW) data, 2011

Employment self sufficiency

Self-sufficiency is an indication of the ability of an area to fulfil the employment needs of the resident population locally. The rate of employment self-sufficiency is a ratio of employed residents living in an area against the number of jobs located in the same space, which is often expressed per industry. Achieving the right level of employment self-sufficiency (effectively a balance between the right amount of residents and jobs) is an important consideration when undertaking activity centre planning. Centres need to have enough jobs so that residents have an option to work locally and enhance sustainability but larger centres should have a much larger level of jobs to provide employment for a larger area, with efficient public transport access.

Table 10 below outlines the rates of employment self-sufficiency for each of the SOPUA and other SMCs within the Perth region. Both Osborne Park and Glendalough as defined by the ABS contained no population so finding a ratio is impossible in this case. However based on the population data available for the Stirling city Centre, the SOPUA demonstrated a high rate of 1,618 percent. This indicates that there are approximately 16 times as many jobs located within the area as there are employed residents. The rate of employment self-sufficiency tends to be very high when analysis is focused on centres due to their role as employment foci and the generally higher number of jobs relative to low number of actual in-centre residents. This effect was less pronounced in all other SMCs, which demonstrated a significantly lower level of self-sufficiency at 304 percent.

TABLE 10. PERTH SMCS RATES OF EMPLOYMENT SELF SUFFICIENCY

	Employed Residents	Jobs in Area	Rate of Employment Self Sufficiency
Stirling City Centre	1,400	6,375	455%
Osborne Park/Herdsman	-	12,239	N/A
Glendalough	-	4,042	N/A
SOPUA	1,400	22,656	1618%
Armadale	510	2,667	523%
Cannington	12,962	16,824	130%
Fremantle	4,007	12,526	313%
Joondalup	2,172	13,141	605%
Mandurah	3,989	9,012	226%
Morley	4,100	5,556	136%
Midland	3,128	11,751	376%
Rockingham	2,833	9,026	319%
Yanchep	465	682	147%
All SMCs (excl. SOPUA)	34,165	103,841	304%

Source: ABS Census of Population and Housing, 2011, ABS Journey to Work (JTW), 2011

Self-containment

The rate of employment self-containment is the percentage of employed residents who both live and work within a given area. Typically this rate is higher when at a larger scale and particularly when analysing a distinct and isolated town. Conversely self-containment in smaller scale suburban areas and centres within a city tends to be lower due to the greater degree of dispersal of employment. This is predominantly the case with regards to most of the SMCs within the Perth and Peel region. Fewer SOPUA residents (actually Stirling City Centre residents and a few Glendalough residents as there are no recorded residents of Osborne Park and Herdsman) lived and worked within the proposed centre area than other SMCs, with the self-containment rate standing at 15.4 percent of residents compared to generally higher rates elsewhere. Mandurah demonstrated the highest rate of employment self-containment at 36.3 percent, which is not surprising given the greater distance and isolation. Armadale demonstrated the lowest rate of the SMCs at 10.2 percent. Caution should be taken when interpreting these figures due to the limitations of the geographical matching discussed at the start of this section and the very small scale of the centres.

TABLE 11. RATE OF EMPLOYMENT SELF CONTAINEMENT, SOPUA, PERTH AND PEEL SMCS, 2011

	Employed Residents	Resident Employed Locally	Rate of employment Self-containment
Stirling City Centre	1425	220	15.4%
Osborne Park	0	0	N/A
Herdsman	0	0	N/A
Glendalough	3	0	0.0%
SOPUA	1428	220	15.4%
Armadale	530	54	10.2%
Cannington	13130	2693	20.5%
Fremantle	4044	1286	31.8%
Joondalup	2183	573	26.2%
Mandurah	4042	1467	36.3%
Morley	4137	699	16.9%
Midland	3206	879	27.4%
Rockingham	2882	853	29.6%
Yanchep	1559	326	20.9%

Source: ABS Census of Population and Housing, 2011, ABS Journey to Work (JTW), 2011

Housing

Households and housing

The nature of housing available within and near each SMC varied widely in terms of nature, density and cost. The table below shows the total dwelling numbers for the all the metropolitan centres as counted in the 2011 Census of Population and Housing. The Stirling City Centre (the only precinct to contain any households) contained 1,518 households developed at an indicative density[3] of 4.3 dwellings per hectare. Fremantle demonstrated the highest dwelling density of 10.2 dwellings per hectare followed by Morley at 7.2 and Rockingham at 7.0. The table also estimates a very broad level indicative density figure for each centre.

TABLE 12 TOTAL DWELLING NUMBERS, PERTH AND PEEL STRATEGIC METROPOLITAN CENTRES, 2011

Centre	Number of Dwellings	Area (hectares)	Indicative Density (dwelling per hectare)
Stirling City Centre[4]	1,518	353.8	4.3
Armadale	921	208.6	4.4
Cannington	10,948	2,903.7	3.8
Fremantle	4,220	411.3	10.2
Joondalup	1,925	504.3	3.8
Mandurah	7,527	1,164.7	6.5
Morley	3,775	524.7	7.2
Midland	3,741	741.3	5.0
Rockingham	4,342	621.1	7.0
Yanchep	1,563	491.4	3.2

Source: ABS Census of Population and Housing, 2011

Housing targets

Changes in dwelling numbers (by Sub Region) to 2031 are discussed in Directions 2031. Dwelling targets for individual Metropolitan Centres have not been discussed, and the Strategy advises that each local government should accommodate the growth in dwellings within their respective boundaries. The central sub region, of which the SOPUA is a part, is expected to grow by 205,000 people and 121,000 between 2008 and 2031. This is by far the largest absolute change followed by 110,000 and 65,000 in the North West Sub region and 70,000 and 41,000 in the south West sub region.

[3] The area used to calculate this indicative density includes non-residential land meaning that the number is likely to be lower than the actual value. However if non-residential land is assumed to be the same proportion of overall land this method still allows for a valid comparison.

[4] Stirling City Centre was the only precinct to contain households

TABLE 13 DIRECTION 2031 HOUSING TARGETS, PERTH SUB REGIONS, 2008 - 2031

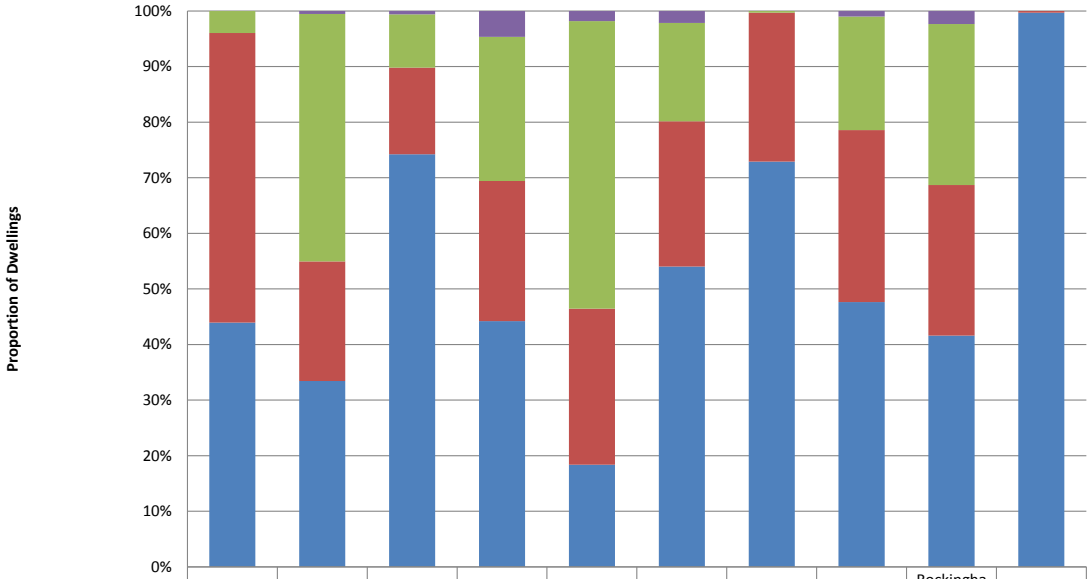
Regions	Metropolitan Centres	2008		2031		Change	
		Population	Dwellings	Population	Dwellings	Population	Dwellings
South East Sub region	Armadale	170,000	65,000	228,000	100,000	58,000	35,000
Central Metropolitan Perth Sub Region	Stirling / Osborne Cannington Fremantle Morley	705,000	319,000	910,000	440,000	205,000	121,000
North East Sub Region	Midland	189,000	73,000	258,000	113,000	69,000	40,000
South West Sub Region	Rockingham	208,000	82,000	278,000	123,000	70,000	41,000
North West Sub Region	Yanchep Joondalup	285,000	107,000	395,000	172,000	110,000	65,000
Peel Sub Region	Mandurah	88,000	38,000	133,000	64,000	45,000	26,000

Source: Directions 2031, WAPC, 2010

Housing type

Separate housing was the most common dwelling type in most centres with the exception of the centre areas of Armadale and Joondalup however the degree of this dominance varied substantial between centres. Separate dwellings within the SOPUA made up 43.9 percent of all dwellings however the centre contained a large proportion of semidetached dwellings which accounted for 52.1 percent of dwellings, many of which were located in aged care living facilities. The centre contained very few higher density flat, unit or apartment dwellings with this category only accounting for 4 percent, with most other SMCs demonstrating a higher share of this dwelling type. Figure 11 compares the dwelling shares of the SOPUA against each SMC. Characteristics of interest include the dominance of separate houses in Yanchep with 1,558 of 1,563 dwellings or 99.7 percent being separate houses. Cannington and Morley also demonstrated a high proportion of separate houses. Unlike the SOPUA Joondalup has a high proportion of flat, units or apartments at 51.7 percent.

FIGURE 11. DWELLING STRUCTURE, STRATEGIC METROPOLITAN CENTRES, 2011



	SOPSMC	Armadale	Cannington	Fremantle	Joondalup	Mandurah	Morley	Midland	Rockingham	Yanchep
Other	0	5	65	196	35	161	0	38	102	0
Flat, unit or apartment	60	410	1052	1095	996	1332	12	764	1257	0
Semi-detached	791	198	1706	1064	540	1967	1011	1157	1177	5
Separate house	667	308	8125	1865	354	4067	2752	1782	1806	1558

Source: ABS Journey to Work (JTW) data, 2011

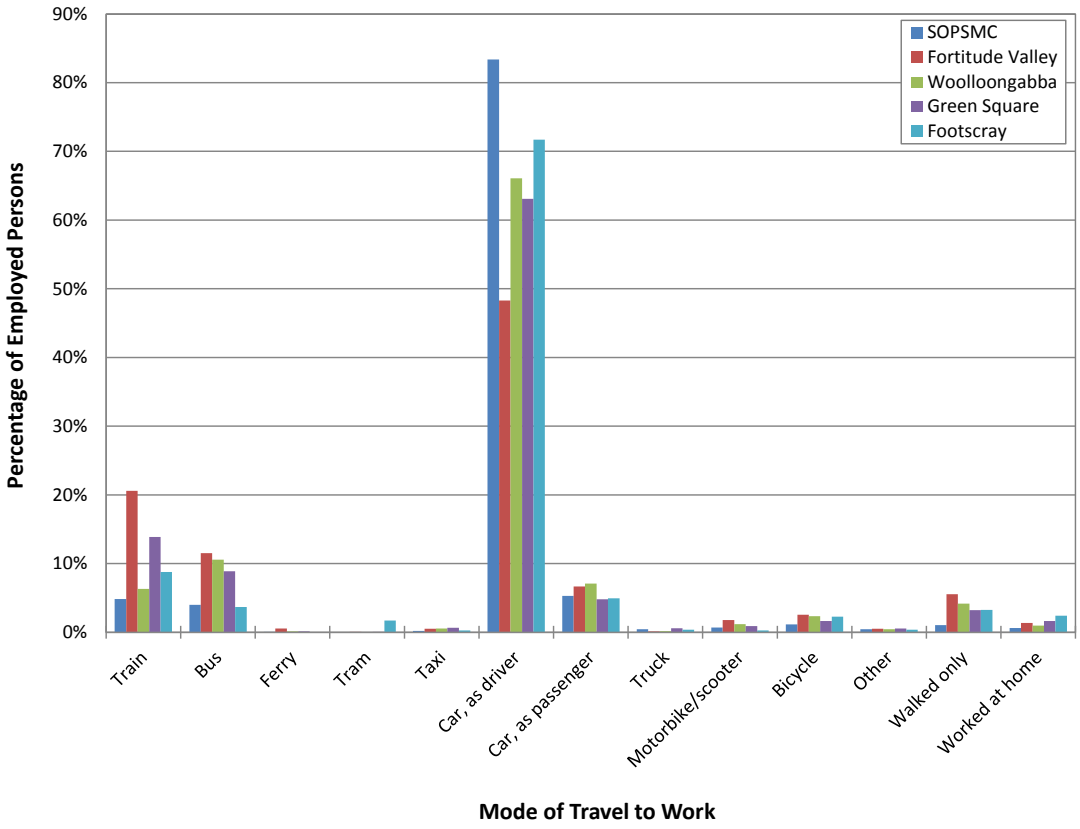
APPENDIX 2: NATIONAL BENCHMARKING

Transport

Mode share

In terms of mode types, similar to most developed cities driving of a private car to work was by far the most common mode of transport to work for workers who worked in the SOPUA and the comparison areas. However the degree of this dominance varied significantly. Car travel as a driver was by far the highest in SOPUA with 83.4 percent of workers travelling by this means for at least one leg of their commute and was the lowest in Fortitude Valley at 48.3 percent of workers with other centres falling somewhere between. A far higher percentage of Fortitude Valley workers reported using the train and bus at least once in their journey into work which accounted for 20.6 percent and 11.5 percent of workers respectively, which was far in excess of the SOPUA at 4.8 percent and 4 percent. This is likely attributable to the closer proximity of Fortitude Valley to the CBD, and the greater number of train lines and bus routes which pass through the area. Interestingly few workers used the tram to travel to work in Footscray however train use was significant with 8.8 percent of workers using the train that stops at the adjacent Footscray station to travel at least one leg of their journey to work. A graphic comparison of the SOPUA and the national centres is provided below in Figure 12.

FIGURE 12. TRAVEL TO WORK MODE SHARE, SOPUA, FORTITUDE VALLEY, WOOLLOONGABBA, GREEN SQUARE, FOOTSCRAY, 2011



Source: ABS Census of Population and Housing, 2011

The same information is contained below in Figure 14.

TABLE 14. PERCENTAGE OF WORKERS BY MODE OF TRAVEL TO WORK, SOPUA, FORTIUDE VALLEY, WOOLLOONGABBA, GREEN SQUARE, FOOTSCRAY, 2011

	Train	Bus	Ferry	Tram	Taxi	Car, as driver	Car, as passenger	Truck	Motorbike/ scooter	Bicycle	Other	Walked	Worked at Home
SOPUA	4.8%	4.0%	0.0%	0.0%	0.2%	83.4%	5.3%	0.4%	0.7%	1.1%	0.4%	1.0%	0.6%
Fortitude Valley	20.6%	11.5%	0.5%	0.0%	0.5%	48.3%	6.7%	0.1%	1.8%	2.6%	0.5%	5.5%	1.4%
Woolloongabba	6.3%	10.6%	0.1%	0.1%	0.6%	66.0%	7.1%	0.2%	1.2%	2.3%	0.4%	4.2%	1.0%
Green Square	13.9%	8.9%	0.1%	0.0%	0.6%	63.1%	4.8%	0.6%	0.9%	1.6%	0.5%	3.2%	1.6%
Footscray	8.9%	3.7%	0.0%	0.1%	0.3%	72.9%	5.0%	0.4%	0.3%	2.3%	0.4%	3.3%	2.5%

Source: ABS Census of Population and Housing, 2011

Single mode travel to work was by far the most common in the SOPUA as well as all of the national centres in 2011. The national centres demonstrated a slightly lower percentage of workers who travelled by single mode compared with the SOPUA level of 95.8 percent, with 95.1 percent of Footscray workers and 94.5 percent from Woollongabba reporting travelling by a single mode. Although single modes was still the most dominant in Fortitude Valley, this centre sowed a much higher rate of dual mode transport at 9.7 percent compared to 3.6 percent in the SOPUA. A comparison is provided below in Table 15.

TABLE 15. PERCENTAGE BREAKDOWN OF NUMBER OF MODES OF TRANSPORTATION USED BY CENTRE WORKERS, SOPUA, FORTITUDE VALLEY, WOOLLOONGABBA, GREEN SQUARE, FOOTSCRAY, 2011

	Single Mode	Dual Modal	Tri Modal
SOPUA	95.8%	3.6%	0.6%
Fortitude Valley	89.5%	9.7%	0.8%
Woolloongabba	94.5%	4.5%	1.0%
Green Square	92.2%	6.8%	1.0%
Footscray	95.1%	3.9%	1.0%

Source: ABS Census of Population and Housing, 2011

Public transport infrastructure and services

Due to the close proximity of Fortitude Valley to the Brisbane CBD and access to numerous train lines which funnel in through the station, this centre had the fastest travel times to the CBD of two minutes and a frequency of service between three and nine minutes. Due to the older nature of the centre and the lack of room for additional transport infrastructure, modal interchange occurs between the interior of the station and a walk to nearby street bus stops. Unlike the bus services offered within Fortitude Valley, the nature of the Brisbane Busway network that services Woolloongabba means bus services can operate in a similar manner to a train line with a higher frequency of services along a dedicated bus corridor albeit with less passenger capacity. Green Square residents have access to both a heavy rail and bus service that interchanges on the street. Footscray has access to both trams and train lines however the two modes are poorly integrated, requiring inter-modal commuters to walk over 100m between stops.

TABLE 16. KEY PUBLIC TRANSPORT CHARACTERITICS, SOPUA, NATIONAL CENTRES, 2012

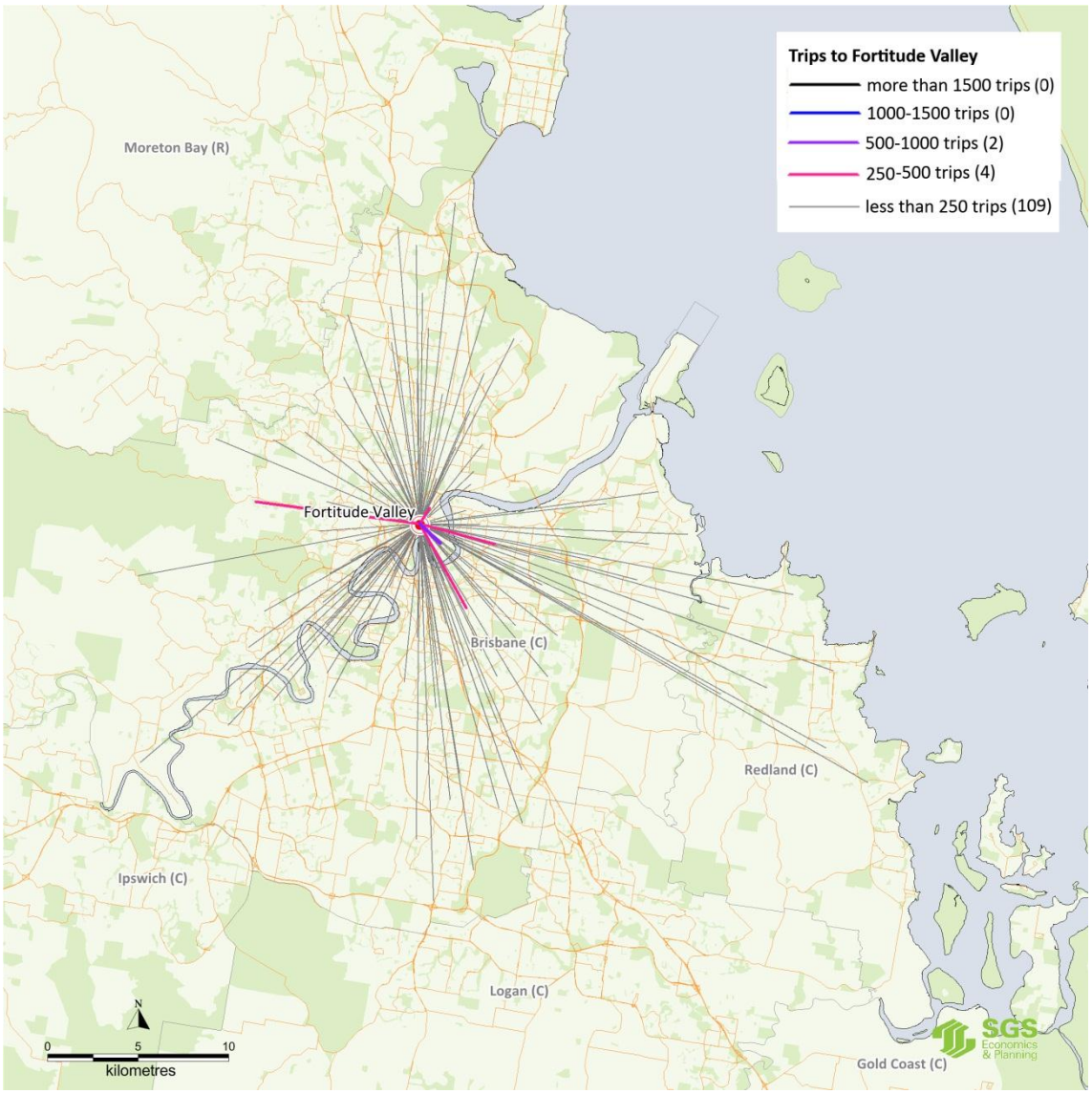
	Public Transport Available (within 500m)	Peak Rail Service Frequency (to CBD)	Rail/Busway Travel Time to CBD	Inter-modal Infrastructure
Stirling City Centre	Bus, heavy rail	3 - 15 min	13-14min	Busway overpass situated above heavy rail station
Osborne Park	Bus	N/A	N/A	None
Herdsman	Bus, heavy rail	4 - 15 min	10 min	None
Glendalough	Bus, heavy rail	4 - 15 min	10min	Bus stops directly beneath station
Fortitude Valley	Bus, heavy rail	3 - 9 min	2 min	Bus stop located outside of train station (60m walk)
Woolloongabba	Bus (via dedicated busway)	1-9 min	8-13min	None - Busway only
Green Square	Bus, heavy rail	3 – 12 min	5 mins	On street bus stop adjacent to train station
Footscray	Tram, heavy rail	3-7min	12 min	Tram stop 100m from train station

Source: Transperth, 2012

Journey to work travel patterns

Origins of workers employed in the Fortitude Valley centre were widely dispersed likely due to the central nature and strong transportation infrastructure located near the centre. The greatest number of trips in excess of 170 originated from inner to middle range suburbs.

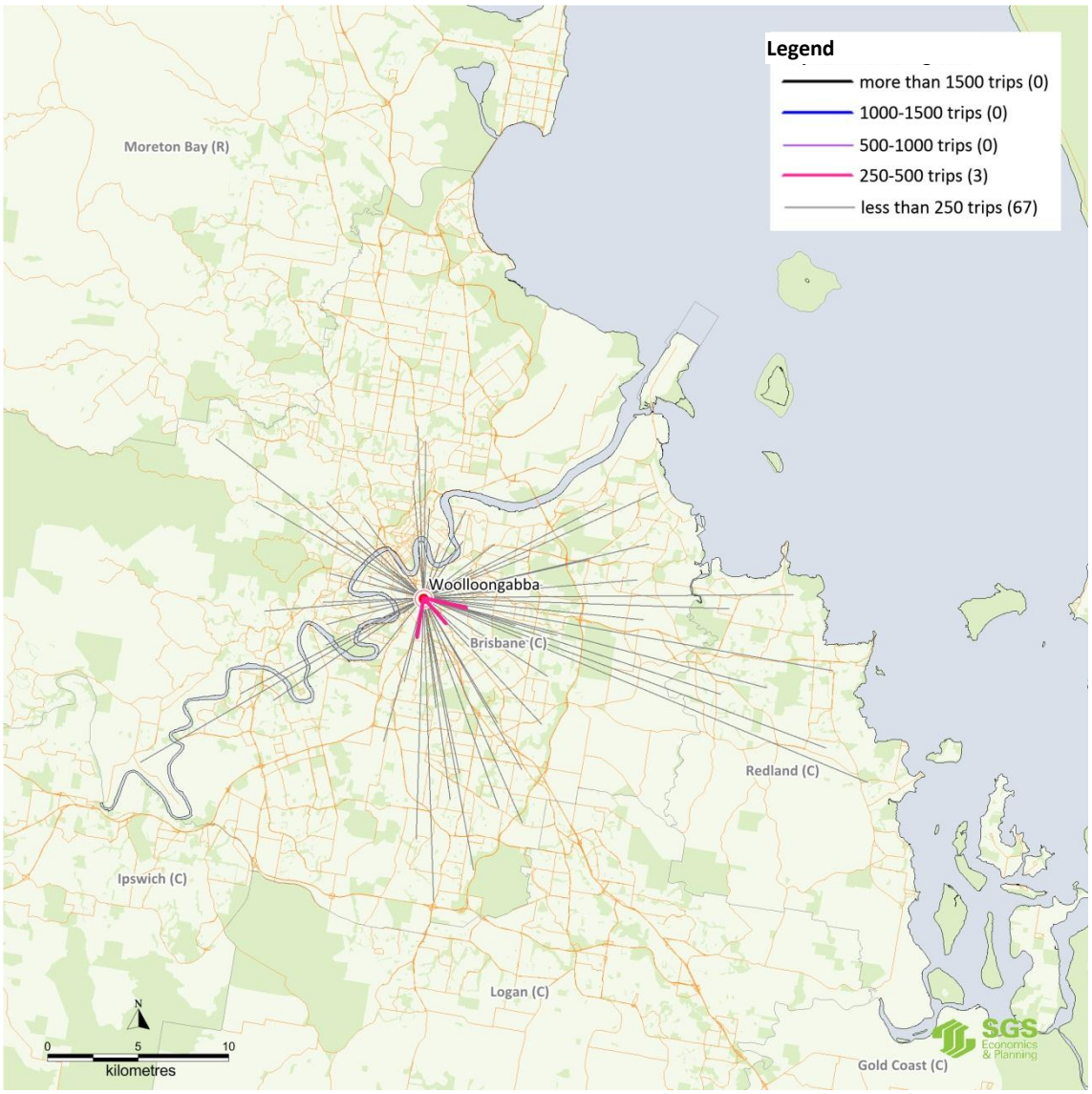
FIGURE 13. TRAVEL PATTERN TO JOBS LOCATED IN FORTITUDE VALLEY, 2011



Source: SGS Economics and Planning utilising ABS Journey to Work Data, 2011

Woolloongabba presented a slightly less even circular pattern which was more orientated towards the south of the City. Journey to work in both Brisbane and Perth is influenced by the river which is evident in the case of Woolloongabba, which causes most trips to originate from eastern and southern residential areas

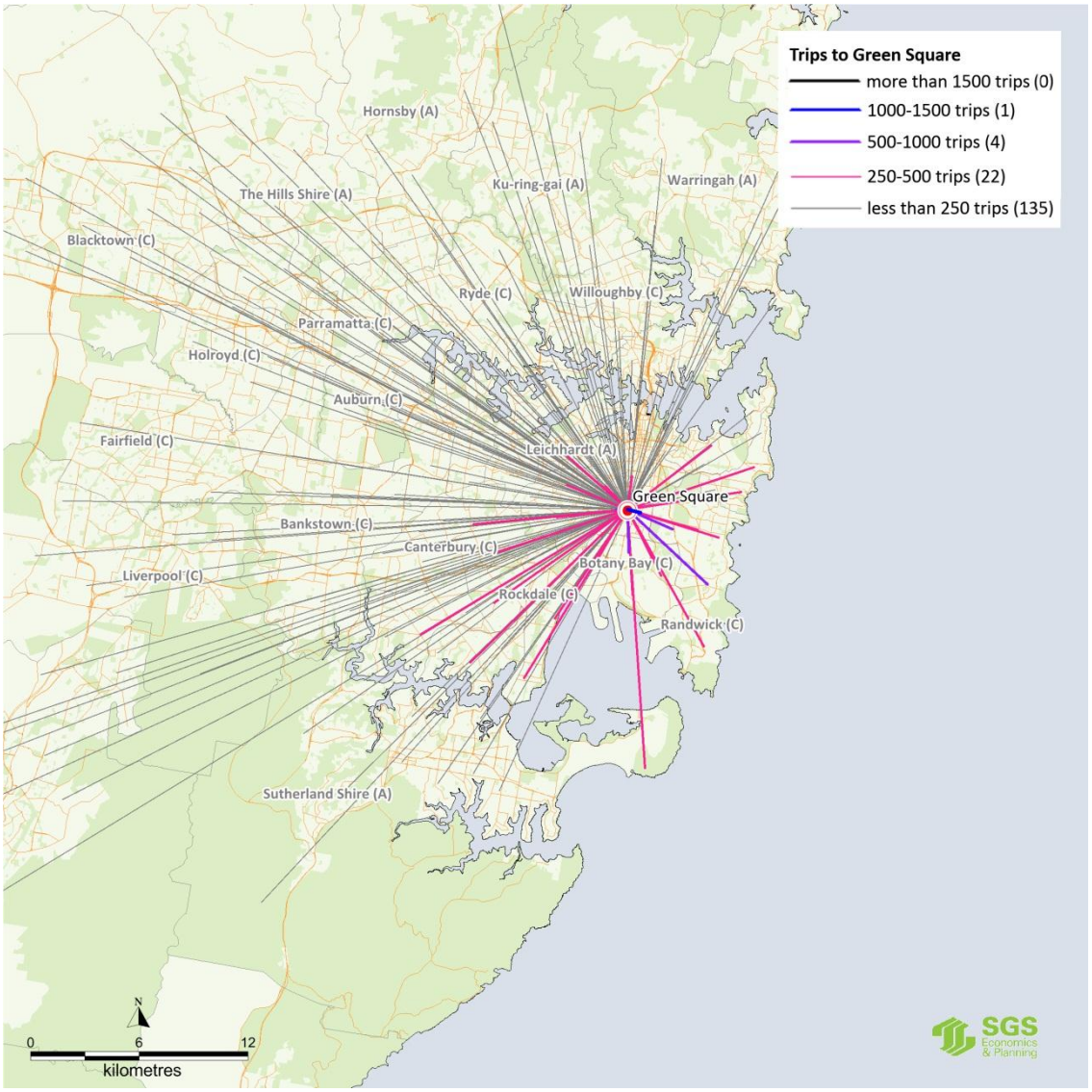
FIGURE 14. TRAVEL PATTERN TO JOBS LOCATED IN WOOLOONGABBA, 2011



Source: SGS Economics and Planning utilising ABS Journey to Work Data, 2011

Similarly Green Square attracted a far greater number of trips from areas immediately to the east and south west of the centres as well as around and over Botany Bay. This pattern can be seen below in Figure 15.

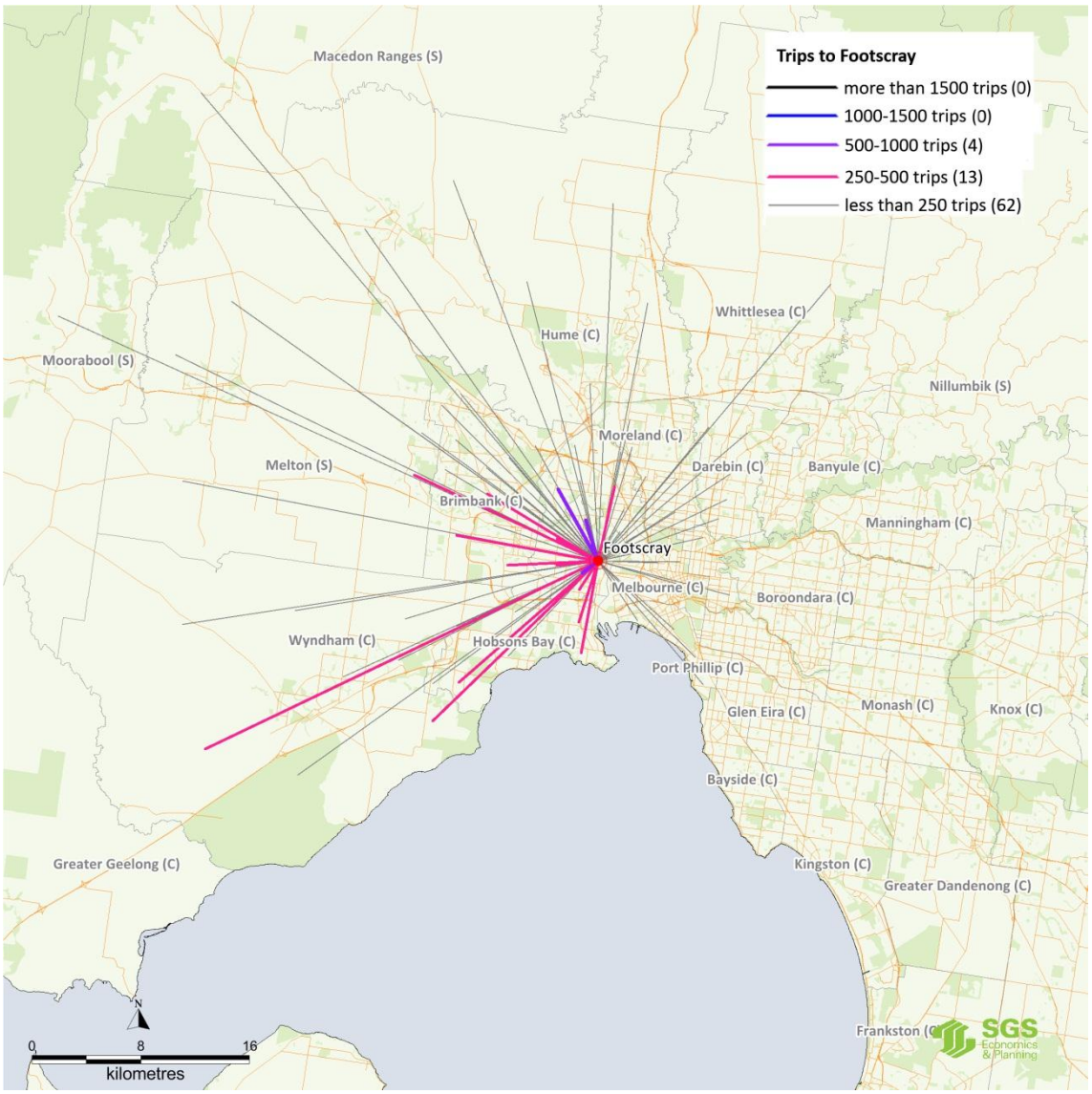
FIGURE 15. TRAVEL PATTERN TO JOBS LOCATED IN GREEN SQUARE, 2011



Source: SGS Economics and Planning utilising ABS Journey to Work Data, 2011

However this pattern is probably most evident in Footscray which demonstrated a vast majority of origins in the western suburbs of greater Melbourne with no origins that generated more than 80 trips being located on the eastern side of greater Melbourne. Footscray also attracted in excess of 225 worker trips from nearby origins as well as more distanced suburbs toward Geelong including Werribee.

FIGURE 16. TRAVEL PATTERN TO JOBS LOCATED IN FOOTSCRAY, 2011



Source: SGS Economics and Planning utilising ABS Journey to Work Data, 2011

Employment

Number of jobs

Table 17 below outlines the absolute job numbers contained with the SOPUA and the selected national centres. In 2011, Green Square contained the highest number of jobs at 28,792 followed by the SOPUA and Fortitude Valley at 20,991. Woolloongabba and Footscray demonstrated considerably lower numbers of jobs at 19,922 and 12,291 respectively. As a very approximate indication, the ratio of jobs to site area has been provided below in Table 16. This is a rough guide as the area used is not of the zones of employment land but rather the total site area which incorporates no employment land area and should be interpreted with this in mind. This data indicates the Fortitude Valley as having the highest job to site area ratio at 154.6 jobs per hectare.

TABLE 17. SIZE OF EMPLOYMENT OF THE STUDY AREA PRECINCTS AND PERTH AND PEEL STRATEGIC METROPOLITAN CENTRES, 2011

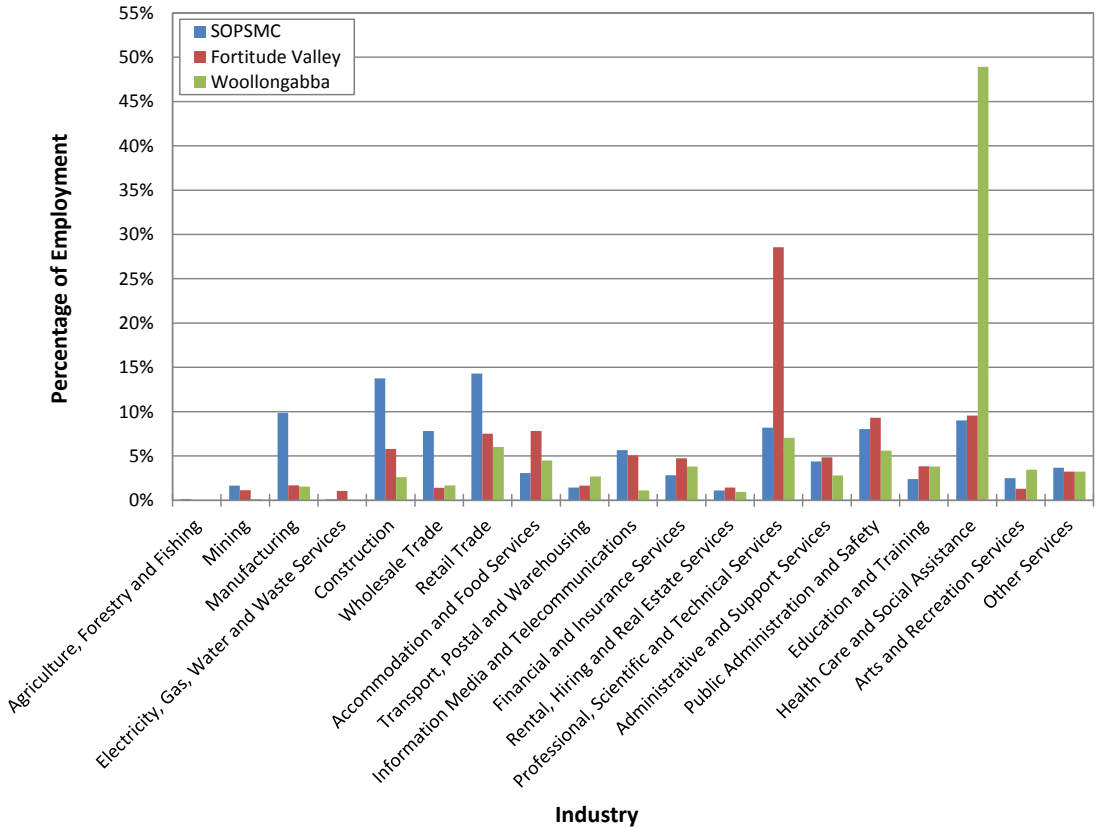
Name	Number of Jobs	Area (Ha)	Job Density (Job to Site Area Ratio)
SOPUA	22,656	353.8	64.0
Fortitude Valley	20,991	135.8	154.6
Woollongabba	12,922	238.5	54.2
Green Square	28,792	689.7	41.7
Footscray	12,391	553	22.4

Source: ABS Journey to Work (JTW) data, 2011

Jobs by industry

A comparison of census employment by industry data based on place of work provided in Figure 17 below reveals significant differences in the industry structure of the SOPUA compared to the two Brisbane centres. Generally speaking the SOPUA contained higher proportions of industrial employment, driven largely by jobs located in Osborne Park, with manufacturing, construction, wholesale trade and retail trade jobs all recording higher levels that the same industries in the Queensland centres. Despite the contribution made to professional, scientific and technical services made by the Herdsman precinct, jobs in this industry were far higher in Fortitude Valley at 28.5 percent compared to 8.2 percent due to the presence of a number of large consulting firms located in the northern end of the Fortitude Valley area. In Woolloongabba, the presence of the Mater hospital to the north and Greenslopes private hospital to the south means a larger representation of health care and social assistance jobs in the area.

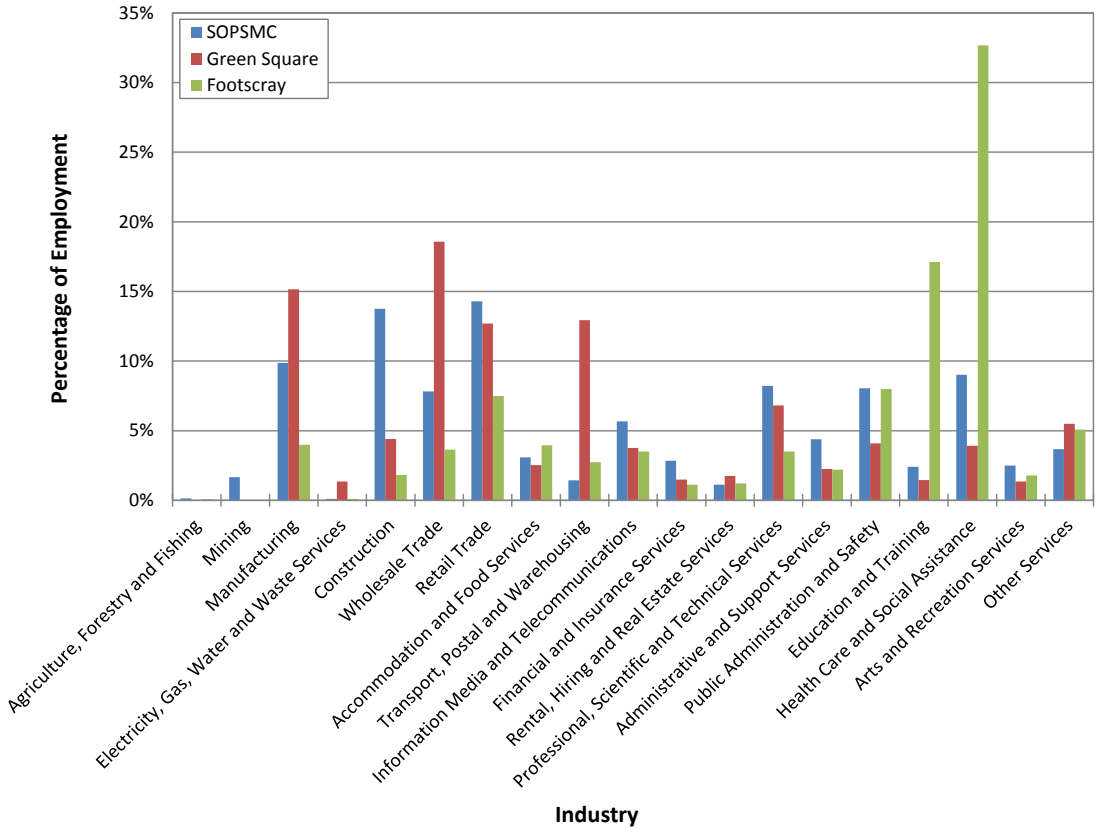
FIGURE 17. EMPLOYMENT BY INDUSTRY, SOPUA, FORTITUDE VALLEY, WOOLLOONGABBA, 2011



Source: ABS Journey to Work (JTW) data, 2011

Unlike the Queensland centres, the job structure of Green Square was similar to the SOPUA with levels of employment in manufacturing and retail trade. Footscray showed much higher share of overall jobs in education and training as well as health care and social assistance due to the presence of the Footscray campus of the Victoria University and the Western Private Hospital.

FIGURE 18. EMPLOYMENT BY INDUSTRY, SOPUA, FORTITUDE VALLEY, WOOLLOONGABBA, 2011



Source: ABS Journey to Work (JTW) data, 2011

Self sufficiency

The rate of self sufficiency of the national centres was high compared to average suburbs in each respective state but was far lower than the SOPUA due to the greater presence of employed residents. Fortitude Valley demonstrated the highest rate of self-sufficiency at 5.8 times the number of jobs to residents followed by Woolloongabba at 5.1 times, Green Square at 1.8 and Footscray at 1.7. It is difficult to say what is the optimal rate of employment self-containment given the varying circumstances of each centre, however 200 percent or a ratio of 2 jobs to every 1 resident is used as an approximate measure of a health job to resident mix. The rate of employment self-sufficiency for each area compared to the SOPUA is contained in Table 18 below.

TABLE 18. NATIONAL CENTRE RATES OF EMPLOYMENT SELF SUFFICIENCY

	Employed Residents	Jobs in Area	Rate of Employment Self Sufficiency
SOPUA	1,400	22,656	1618.0 percent
Fortitude Valley	3,630	20,991	578.2%
Woollongabba	2,540	12,922	508.7%
Green Square	15,976	28,792	180.2%
Footscray	7,095	12,391	174.7%

Source: ABS Census of Population and Housing, 2011, ABS Journey to Work (JTW), 2011

Self-containment

The rate of employment self-containment was similar to that of the national centres. Compared to the SOPUA rate of 15.4%, the rate in Fortitude Valley was slightly less and the rate in Footscray slightly higher at 16.7 percent. This similarity is due to the nature of these centres and the abundance of external employment opportunities, the small scale of the centre and the ease of transport available to residents to move to and from work.

TABLE 19. RATE OF EMPLOYMENT SELF-CONTAINMENT, SOPUA, NATIONAL CENTRES, 2011

	Employed Residents	Residents Employed Locally	Rate of Employment Self-containment
SOPUA	1,428	220	15.4%
Fortitude Valley	3,661	490	13.4%
Woollongabba	2,551	359	14.1%
Green Square	16,168	2,329	14.4%
Footscray	7,172	1,197	16.7%

Source: ABS Census of Population and Housing, 2011, ABS Journey to Work (JTW), 2011

Housing

Households and dwellings

The table below shows the total dwelling numbers for all the national centres as counted in the 2011 Census of Population and Housing. Green Square (15,117 dwellings) has the highest number of dwellings followed by Footscray. The table also estimates a very broad level indicative density figure for each centre. All of the national centres showed a greater dwelling density than the Stirling City Centre, with Fortitude Valley showing the highest dwelling per hectare result of 25.5 followed by Green Square in Sydney and 12.7 in Footscray in Melbourne.

TABLE 20 TOTAL DWELLING NUMBERS

Centre	Number of Dwellings	Area (hectares)	Indicative Density (dwelling per hectare)
Stirling City Centre[5]	1,518	353.8	4.3
Fortitude Valley	3,464	135.8	25.5
Woollongabba	2,173	238.5	9.1
Footscray	7,019	553	12.7
Green Square	15,117	689.7	21.9

Source: ABS Census of Population and Housing, 2011

Housing targets

The Woolloongabba Urban Development Area (UDA) occupies a 10.25 hectare sit 2 kilometres from the CBD. The UDA has been identified as the preferred location for a new underground station as part of the Cross River Rail project. Existing development on the UDA is predominantly low intensity development.

The Woolloongabba UDA will provide housing choices catering for a wide spectrum of the community through a variety of designs and price points as well as home ownership and rental options. The Woolloongabba UDA will accommodate in the order of 2,000 new dwellings. These could include housing for key workers in the precinct, accommodation for hospital patients and their families, housing for young professionals, student accommodation and apartments for local residents[6].

The City of Sydney's official website states that Green Square is a 278 hectare area south of the city centre which includes Beaconsfield and Zetland and parts of Rosebury, Alexandria and Waterloo and is just 3.5km from the city centre and 4km to the airport.

About 5,700 new dwellings have been built since the year 2000 bringing in approximately 11,000 new residents. By 2030, Green Square is projected to house about 40,000 residents and attract about 22,000 workers.

The City of Maribyrnong in conjunction with ID Consulting has constructed population forecast to 2031 for the City of Maribyrnong based on new population and land development projections. Table 21 below shows the projected households for Footscray. Footscray is expected to experience an increase of 8,979 households from 2006 to 2031 with the majority of these being lone person. Couple families with dependents, Couple families without dependents and Group households are also expected to increase significantly from 2006 to 2031.

[5] Stirling City Centre was the only precinct to contain households

[6] Urban Land Development Authority, Woolloongabba Urban Development Area Development Scheme, April 2011

TABLE 21 HOUSEHOLD PROJECTIONS - FOOTSCRAY

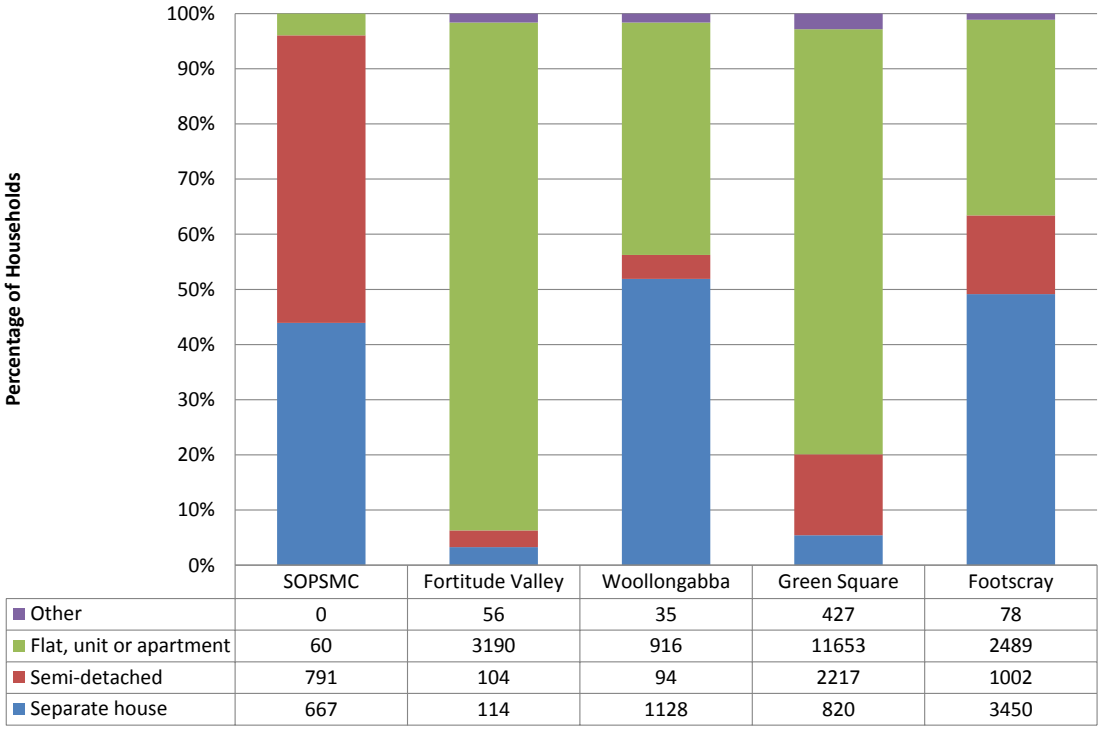
	2006		2021		2031	Change	
Household Type	**Number**	**%**	**Number**	**%**	**Number**	**% 2006 to 2031**	
Couples without dependents	1,087	21.4	2,131	19.9	2,378	16.9	1,291
Couple families with dependents	961	18.9	1,915	17.9	2,381	16.9	1,420
One parent family	596	11.7	1,108	10.4	1,408	10.0	812
Other families	266	5.2	599	5.6	727	5.2	461
Lone person households	1,584	31.2	3,581	33.5	5,550	39.5	3,966
Group households	585	11.5	1,360	12.7	1,614	11.5	1,029
Total households	5,079	100	10,694	100	14,058	100	8,979

Source: Id Consulting, 2011

Housing mix

Dwelling type data from the ABS show a very different dwelling structure between the SOPUA and the national centres being used for comparison. Whilst Woolloongabba and Footscray both show comparable levels of separate dwellings at 52 percent and 29 percent compared to the level in the SOPUA at 44 percent, Fortitude Valley and Green Square both demonstrated very high shares of higher density flat, unit and apartment dwellings. This dwelling type dominated the dwelling structure of these centres at 92 percent and 77 percent of all occupied dwellings. Interestingly few semi-detached dwellings were present in the Queensland centres however these were more common in Green Square and Footscray, accounting for 15 percent and 14 percent respectively.

FIGURE 19 DWELLING STRUCTURE – NATIONAL CENTRES



	SOPSMC	Fortitude Valley	Woollongabba	Green Square	Footscray
Other	0	56	35	427	78
Flat, unit or apartment	60	3190	916	11653	2489
Semi-detached	791	104	94	2217	1002
Separate house	667	114	1128	820	3450

Source: ABS Census of Population and Housing, 2011

APPENDIX 3: DATA TABLES

TABLE 22. EMPLOYMENT BY INDUSTRY, SOPUA, PERTH AND PEEL STRATEGIC METROPOLITAN CENTRES, 2011

	SOPUA	All SMC (excl. SOPUA)	Armadale	Cannington	Fremantle	Joondalup	Mandurah	Morley	Midland	Rockingham	Yanchep
Agriculture, Forestry and Fishing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Mining	2%	1%	0%	1%	0%	0%	0%	0%	1%	1%	0%
Manufacturing	10%	8%	1%	15%	3%	2%	7%	8%	9%	12%	3%
Electricity, Gas, Water and Waste Services	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%
Construction	14%	7%	0%	10%	1%	4%	7%	3%	5%	6%	22%
Wholesale Trade	8%	4%	0%	7%	2%	1%	2%	3%	3%	2%	1%
Retail Trade	14%	20%	41%	19%	11%	19%	25%	35%	24%	23%	7%
Accommodation and Food Services	3%	7%	15%	3%	10%	6%	12%	9%	6%	9%	9%
Transport, Postal and Warehousing	1%	3%	1%	6%	4%	2%	4%	2%	3%	4%	1%
Information Media and Telecommunications	6%	2%	2%	1%	1%	1%	2%	1%	1%	1%	0%
Financial and Insurance Services	3%	2%	3%	1%	2%	3%	3%	3%	2%	2%	1%
Rental, Hiring and Real Estate Services	1%	2%	3%	2%	2%	2%	4%	3%	1%	3%	3%
Professional, Scientific and Technical Services	8%	5%	1%	3%	7%	3%	4%	5%	4%	3%	4%
Administrative and Support Services	4%	3%	2%	2%	2%	4%	3%	2%	2%	3%	6%
Public Administration and Safety	8%	10%	18%	9%	10%	9%	9%	5%	20%	11%	3%
Education and Training	2%	6%	2%	5%	8%	17%	4%	5%	3%	4%	11%
Health Care and Social Assistance	9%	13%	6%	9%	31%	22%	9%	8%	9%	10%	23%
Arts and Recreation Services	3%	2%	1%	1%	3%	2%	1%	2%	1%	1%	3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: ABS journey to work (JTW), 2011

TABLE 23. RATE OF EMPLOYMENT SELF SUFFICIENCY BY INDUSTRY, SOPUA, PERTH AND PEEL SMCS, 2011

Self Sufficiency	SOPUA	Armadale	Cannington	Fremantle	Joondalup	Mandurah	Morley	Midland	Rockingham	Yanchep	All SMC (excl. SOPUA)
Agriculture, Forestry and Fishing	N/A	N/A	119%	52%	28%	23%	0%	133%	90%	50%	86%
Mining	592%	0%	38%	17%	17%	6%	10%	130%	57%	0%	59%
Manufacturing	2881%	63%	180%	163%	209%	158%	121%	338%	298%	56%	262%
Electricity, Gas, Water and Waste Services	153%	0%	113%	23%	146%	231%	0%	228%	38%	0%	98%
Construction	2396%	22%	137%	55%	237%	115%	43%	186%	161%	161%	218%
Wholesale Trade	3195%	25%	195%	193%	395%	253%	83%	198%	274%	23%	323%
Retail Trade	2397%	1761%	218%	430%	911%	400%	397%	771%	649%	130%	531%
Accommodation and Food Services	701%	1105%	64%	392%	348%	266%	179%	295%	392%	210%	259%
Transport, Postal and Warehousing	600%	59%	102%	489%	322%	221%	46%	130%	229%	36%	164%
Information Media and Telecommunications	4240%	1388%	86%	199%	301%	447%	76%	255%	319%	0%	458%
Financial and Insurance Services	1327%	562%	54%	440%	465%	486%	126%	517%	420%	71%	315%
Rental, Hiring and Real Estate Services	1321%	1306%	248%	377%	493%	442%	214%	492%	399%	285%	409%
Professional, Scientific and Technical Services	1273%	160%	54%	174%	235%	184%	90%	353%	171%	178%	214%
Administrative and Support Services	2008%	188%	56%	224%	858%	146%	72%	197%	295%	227%	228%
Public Administration and Safety	2007%	1529%	184%	505%	919%	427%	88%	964%	390%	56%	481%
Education and Training	454%	226%	113%	215%	1232%	140%	107%	172%	270%	237%	266%
Health Care and Social Assistance	4712%	5256%	756%	3299%	6543%	2025%	649%	2875%	2316%	3893%	2513%
Arts and Recreation Services	329%	33%	14%	54%	95%	23%	26%	17%	40%	33%	47%
Other Services	1688%	669%	156%	362%	582%	364%	217%	473%	506%	262%	346%
Total	**1618%**	**523%**	**130%**	**313%**	**605%**	**226%**	**136%**	**376%**	**319%**	**147%**	**304%**

Source: ABS Census of Population and Housing, 2011, ABS Journey to Work (JTW), 2011

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