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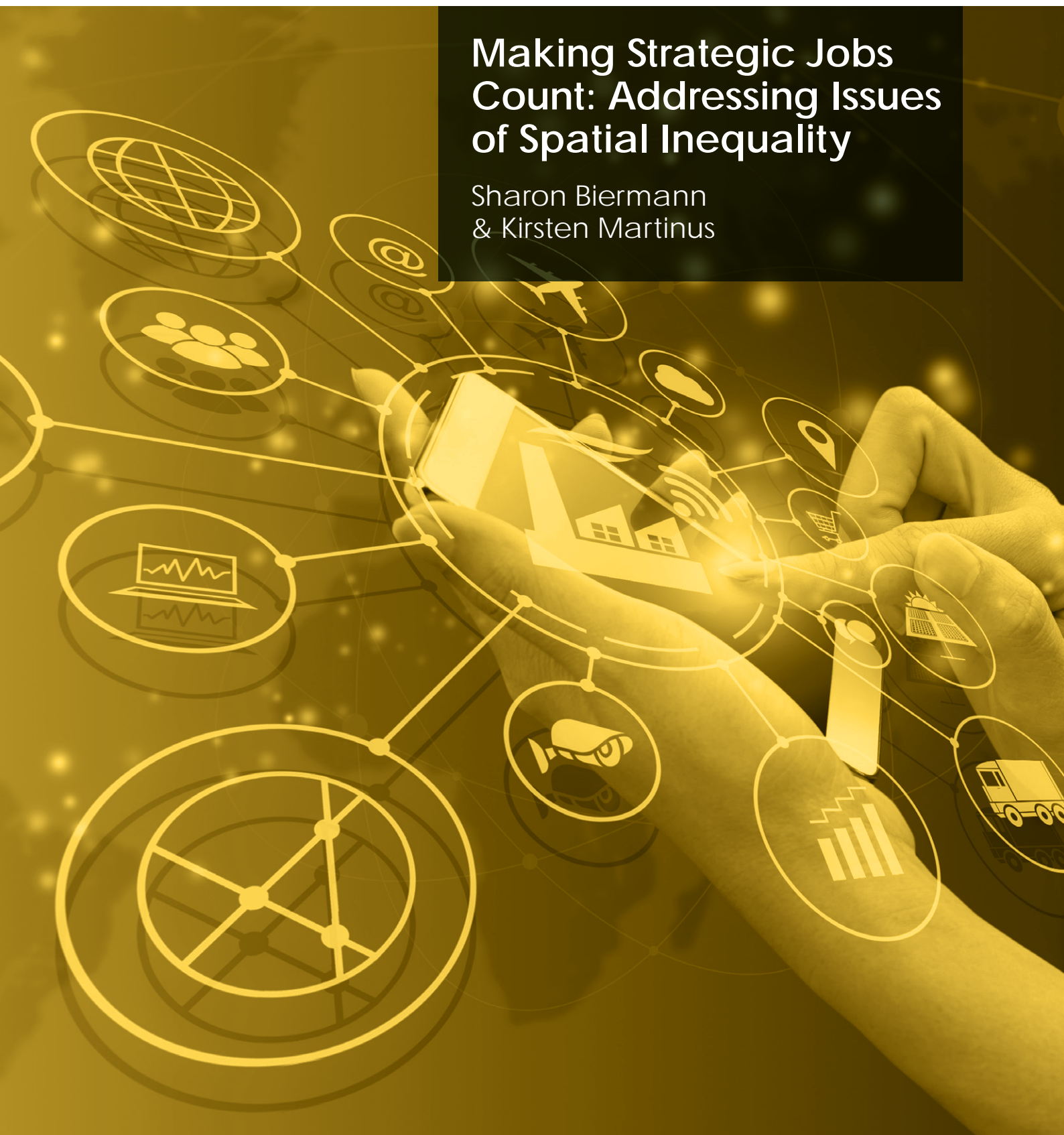


# FACTBase

Bulletin 73, February 2021

## Making Strategic Jobs Count: Addressing Issues of Spatial Inequality

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## Summary of Key Findings

- Planning to meet long-term State Government targets for job distribution within Greater Perth should differentiate between 'strategic' and 'population-following' job types.
- Of the 831,000 jobs in Greater Perth in 2016, 31% are classified as strategic and 69% as population-following.
- Population-following jobs are more likely to be evenly spread across a region due to their relationship with population growth, whereas strategic jobs are linked to key industries and may require focused planning support for development.
- Concentrating on strategic jobs ensures policy is adaptive enough to address both employment self-sufficiency and the reality of geographical concentrations of strategic industries.
- Targeting strategic job distribution across a city, as well as travel accessibility to job opportunities, means a focus on fewer, key jobs with a greater chance of success.
- Strategic jobs have complex location requirements but disruptive changes to how we work and travel are likely to alter the geography of jobs and travel in cities, making it more vital than ever to think strategically how we plan for work across a metropolitan area.



## Introduction

Planning of metropolitan and regional spatial economies is faced with the interesting task of (re)creating cities and regions along some idealised form of how a city might be organised. To do this, planners employ statutory and strategic tools to shape the aesthetic and functionality of places as urban clusters, balancing people (workers and residents), business and industry, government and the environment. The tools used to deliver specific outcomes are based on standardised and simplified assumptions to reduce real-life complexities (Albrechts, 2015), which in some cases (re) produce spatial 'bias' (Godet, 2000; Martinus & Biermann, 2018; Swyngedouw et al., 2002). Questions have arisen on the over-use of planning tools by authorities, such as employment-housing targets, to evenly distribute jobs and housing throughout a metropolitan region (cf. Bunker, 2015) or land use zones, which both protect property rights and set up exclusive zones (Watson, 2009).

This FACTBase Bulletin focuses on the employment planning target that has been used to shape job and housing distribution throughout Greater Perth for over 60 years – the self-sufficiency ratio of Greater Perth's (Metropolitan and Peel region) planning schemes. The ratio used is essentially a simple jobs-housing balance, and – as argued in FACTBase Bulletin 46 (Martinus & Biermann, 2016) – has worked to exacerbate spatial inequality, rather than reduce it (cf. Forster, 2006; Martinus & Biermann, 2018; Zhou et al., 2017). Indeed, as noted by Martinus and Biermann (2016), the value of using employment self-sufficiency (ESS) and employment self-containment (ESC) as planning targets “will be enhanced by



better understanding different types of jobs and, more specifically how to attract high-value high-skilled jobs ... to the sub-regions” (Martinus & Biermann, 2016, p. 7).

This FACTBase discusses a different approach to the current self-sufficiency target used by the Western Australian planning authorities by differentiating job types to encourage the spatial targeting of strategic jobs associated with high-skill, high-income and high-productivity jobs. It differs from current targets, which focus on the redistribution of job numbers, that is, it is a *quantity* based approach. This FACTBase first examines the overall distribution of jobs and housing across Greater Perth

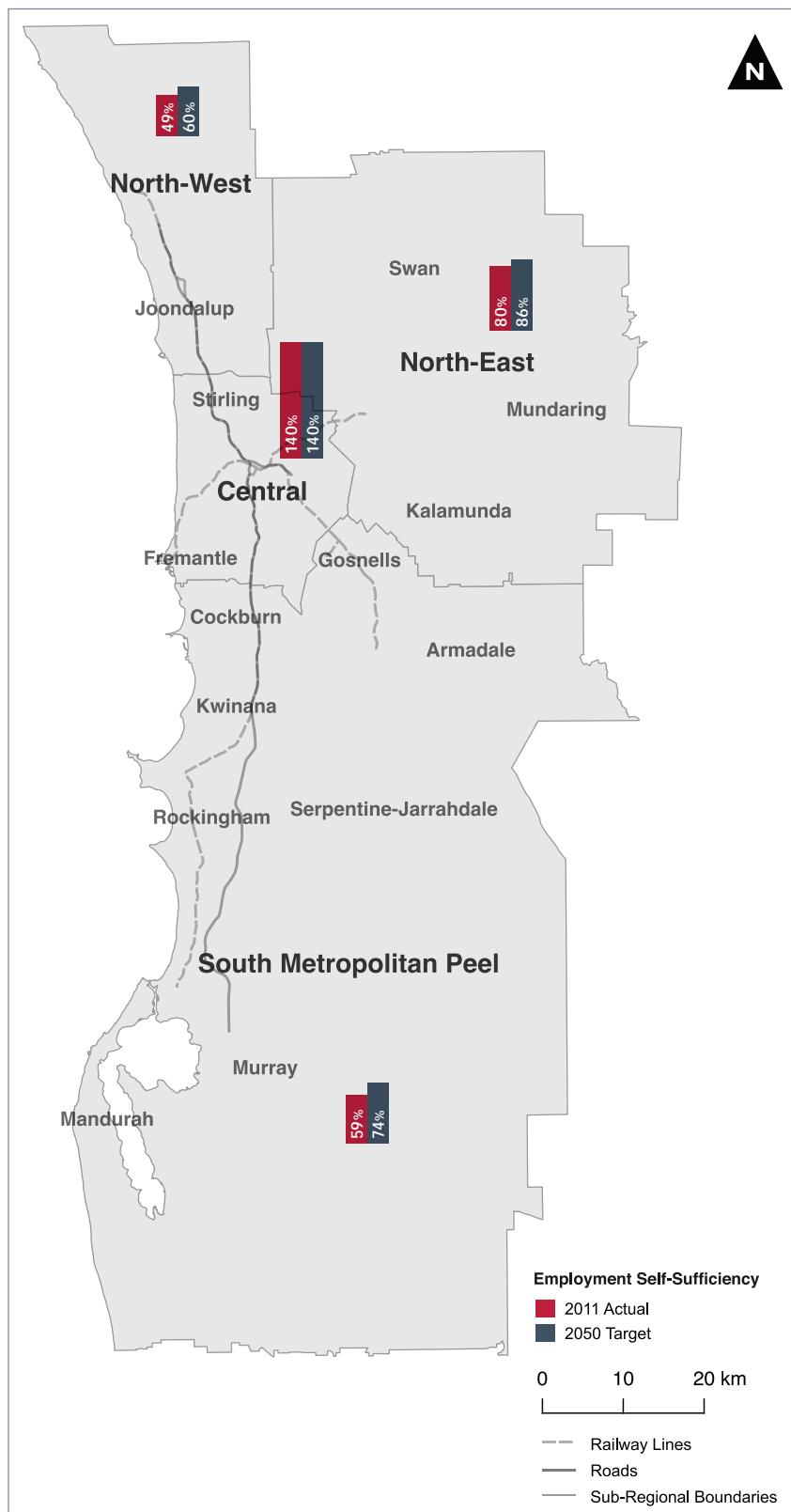
and highlights four key influential factors. It then distinguishes strategic and population-following employment types and presents their spatial occurrence across the region. Finally, conclusions in relation to policy implications are provided, with a call for a revised approach to employment targeting, particularly in the context of COVID-19 where work location is no longer clearly defined.

## Spatial Planning for Employment and Housing Balance in Greater Perth

Successive plans for Greater Perth, from the 1955 Stephenson Hepburn Plan to the 2010 Directions 2031 and Beyond (Curtis & Olaru, 2007; Western Australian Planning Commission [WAPC], 2010) have promoted the equitable distribution of jobs and housing. Reflecting planning ideologies of their time, each plan aimed to accommodate predicted population increases by providing land for employment in close proximity to residential neighbourhoods that were increasingly better linked through public transport systems (Martinus & Biermann, 2018). A core strategy of the current plan, Perth and Peel @ 3.5 million (hereinafter referred to as P&P@3.5m), is to provide “greater employment opportunities close to where people live – employment self-sufficiency ... reduc[ing] the need for long and costly commutes and increas[ing] the economic sustainability of individual sub-regions” (WAPCa, 2018, p. 44). As in previous plans, the ratio used in P&P@3.5m to target and monitor the achievement of this strategic objective is termed ESS but is in fact a simple jobs–housing ratio.

P&P@3.5m acknowledges limited success in achieving its targets to date and in the challenge of meeting new targets, especially in the North-West and South Metropolitan Peel sub-regions where only 49% and 59% self-sufficiency rates respectively were attained by 2011 (WAPC, 2018b).<sup>1</sup> This is the lowest in the metropolitan region, and a stretch target of 59.5% has been set for 2050 (WAPC, 2018b, p. 24). The second lowest ESS rate for 2011 occurs in South Metropolitan Peel at 59%, which is targeted to increase to 74% by 2050 (Figure 1). Sub-regions, used across Greater

**Figure 1: Greater Perth Sub-Regional P&P@3.5m ESS Actuals (2011) and Targets (2050)**



Source: Adapted from WAPC (2018)

<sup>1</sup> 2011 was the most recent data at the time P&P@3.5m was published.

Perth for strategic land use and infrastructure planning purposes, are the spatial unit for calculating jobs-housing distribution ratios (or, as referred to in Perth planning documents, ESS ratios).

To meet these 2050 targets, almost 834,000 jobs need to be added across all the Greater Perth sub-regions, almost doubling the 2011 job numbers (Table 1). An additional 143,560

and 293,760 jobs will be required in the North-West and South Metropolitan Peel regions respectively to reach their target by 2050, which is equivalent to 3,681 jobs to be added per year.

**Table 1: Job Increase Required to Achieve 2050 Target and P&P@3.5m ESS Actual (2011) and Target (2050) Ratios by Sub-Region**

| Greater Perth sub-region | 2011 jobs      | Total number of jobs needed by 2050 to meet target | Number of jobs to be added between 2011 and 2050 | Number of new jobs to be added by 2050 as a % of 2011 jobs |
|--------------------------|----------------|--|--|--|
| Central                  | 546,120        | 831,960  | 285,840  | 52%  |
| North-West               | 80,570         | 224,130  | 143,560  | 178%   |
| North-East               | 82,380         | 192,950  | 110,570  | 134%   |
| South Metropolitan Peel  | 143,970        | 437,730  | 293,760  | 204%   |
| <b>TOTAL</b>             | <b>853,040</b> | <b>1,686,770</b>                                   | <b>833,730</b>                                   | <b>98%</b>   |

Source: Adapted from WAPC (2018a, p. 43, Table 3)

Table 2 shows the sub-region where people live and where they work for 2016. The greatest number of jobs are in the Central region (520,963), with just over half of these jobs occupied by workers who also live there (303,671 or 58%). A substantial proportion of Central workers (41%) flow in from the North-West (68,930 workers),

South Metropolitan Peel (98,644 workers) and North-East (45,666 workers) regions. In contrast, other sub-regions experience higher levels of outward flows of resident workers to other sub-regions for work. For example, in North-West, the situation is reversed with only 41% of resident workers remaining in the sub-region and the

remaining 59% leaving the sub-region to work, predominantly in the Central region (68,930 workers). This pattern is similar for other outer metropolitan regions and emphasises the unequal way in which workers move across the region.

**Table 2: Number of Workers Living and Working in Sub-Regions of Greater Perth and Regional Western Australia**

| Living: Place of residence<br>Working: Place of work | Regional Western Australia | South Metropolitan Peel | North-East     | Central        | North-West     | Total            |
|--|----------------------------|-------------------------|----------------|----------------|----------------|------------------|
| Regional Western Australia                           | 213,961                    | 12,740                  | 4,952          | 9,194          | 5,983          | 246,830          |
| South Metropolitan Peel                              | 1,367                      | 128,114                 | 4,826          | 21,858         | 2,900          | 159,065          |
| North-East   | 1,550                      | 7,825                   | 41,714         | 17,019         | 10,211         | 78,319           |
| Central  | 4,052                      | 98,644                  | 45,666         | 303,671        | 68,930         | 520,963          |
| North-West   | 723                        | 1,713                   | 4,981          | 13,541         | 68,915         | 89,873           |
| Other*   | 10,704                     | 13,854                  | 5,377          | 13,858         | 10,240         | 54,033           |
| <b>Total</b>   | <b>232,357</b>             | <b>262,890</b>          | <b>107,516</b> | <b>379,141</b> | <b>167,179</b> | <b>1,149,083</b> |

\*Other includes migratory, offshore, shipping (Western Australia) and no fixed address (Western Australia)

Source: Australian Bureau of Statistics (2016) journey-to-work data and 2016 local government area boundaries

A more detailed assessment of the jobs–housing dynamic at a finer spatial scale (local government area (LGA)) and over time (2006, 2011 and 2016), further highlights the challenges faced across Greater Perth. Table 3 presents the changes in the excess jobs to resident work force between 2006, 2011 and 2016. In comparing the number

of residents to the numbers of jobs, there is an employment deficit in many LGAs containing higher order activity centres in outer metropolitan areas; namely, Joondalup, Yanchep (Wanneroo), Mandurah, Rockingham and Armadale. For example, in 2016, Armadale had a deficit of around –18,684 jobs, Gosnells of –28,632 and

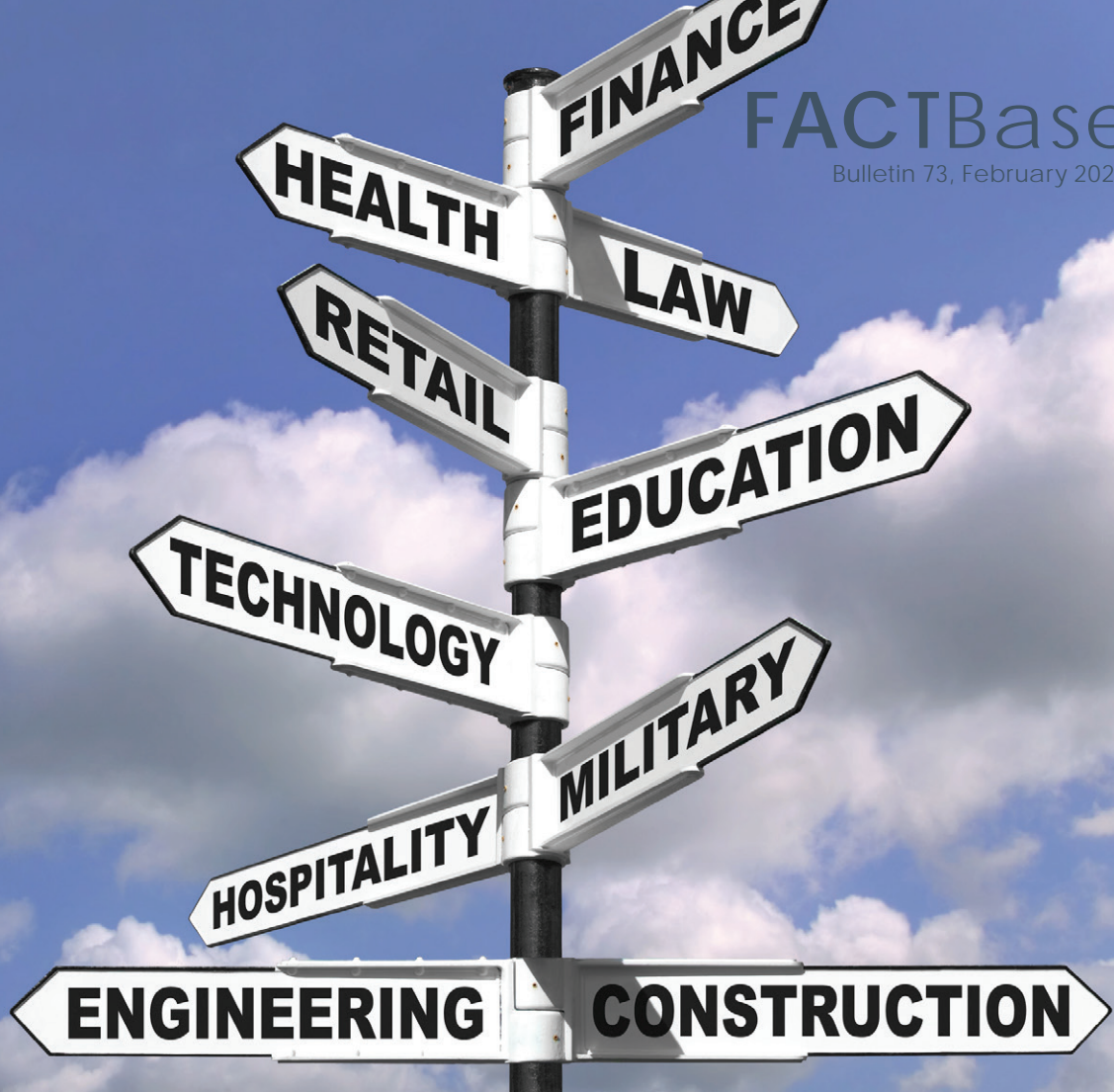
Wanneroo of –45,089 jobs. LGAs including secondary centres such as Serpentine-Jarrahdale and Cockburn also have large commuting populations where they supply labour to other LGAs. The drivers of this spatial imbalance are discussed in the next section.

**Table 3: Changes in Excess Jobs to Resident Work Force Between 2006, 2011 and 2016**

| LGA                        | 2006    | Difference<br>2006–2011 | 2011     | Difference<br>2011–2016 | 2016    | Difference<br>2006–2016 |
|----------------------------|---------|-------------------------|----------|-------------------------|---------|-------------------------|
| Armadale                   | –12,110 | –4,490                  | –16,600  | –2,084                  | –18,684 | –6,574                  |
| Bassendean                 | –1,347  | –205                    | –1,552   | 247                     | –1,305  | 42                      |
| Bayswater                  | –10,194 | –3,342                  | –13,536  | 1,327                   | –12,209 | –2,015                  |
| Belmont                    | 13,868  | 2,448                   | 16,316   | 3,497                   | 19,813  | 5,945                   |
| Cambridge                  | –2,383  | 98                      | –2,285   | 2,469                   | 184     | 2,567                   |
| Canning                    | 8,724   | 522                     | 9,246    | 3,508                   | 12,754  | 4,030                   |
| Claremont                  | 1,094   | 261                     | 1,355    | 910                     | 2,265   | 1,171                   |
| Cockburn                   | –14,838 | –1,696                  | –16,534  | 6,443                   | –10,091 | 4,747                   |
| Cottesloe                  | –1,471  | 167                     | –1,304   | 303                     | –1,001  | 470                     |
| East Fremantle             | –1,561  | 16                      | –1,545   | –375                    | –1,920  | –359                    |
| Fremantle                  | 11,902  | –520                    | 11,382   | –484                    | 10,898  | –1,004                  |
| Gosnells                   | –25,609 | –4,617                  | –30,226  | 1,594                   | –28,632 | –3,023                  |
| Joondalup                  | –48,597 | 4,144                   | –44,453  | 11,524                  | –32,929 | 15,668                  |
| Kalamunda                  | –14,167 | 176                     | –13,991  | 1,221                   | –12,770 | 1,397                   |
| Kwinana                    | 1,926   | –3,133                  | –1,207   | –2,935                  | –4,142  | –6,068                  |
| Mandurah                   | –6,055  | –4,800                  | –10,855  | 1,133                   | –9,722  | –3,667                  |
| Melville                   | –17,281 | 589                     | –16,692  | 10,108                  | –6,584  | 10,697                  |
| Mosman Park                | –1,948  | –189                    | –2,137   | 503                     | –1,634  | 314                     |
| Mundaring                  | –9,720  | –106                    | –9,826   | 1,172                   | –8,654  | 1,066                   |
| Murray                     | –218    | –472                    | –690     | –327                    | –1,017  | –799                    |
| Nedlands                   | 6,745   | 1,615                   | 8,360    | 2,201                   | 10,561  | 3,816                   |
| Peppermint Grove           | –79     | 348                     | 269      | 137                     | 406     | 485                     |
| Perth                      | 104,311 | 10,842                  | 115,153  | 1,847                   | 117,000 | 12,689                  |
| Rockingham                 | –17,108 | –6,761                  | –23,869  | –904                    | –24,773 | –7,665                  |
| Serpentine-Jarrahdale      | –3,722  | –1,925                  | –5,647   | –2,641                  | –8,288  | –4,566                  |
| South Perth                | –8,720  | –989                    | –9,709   | 1,812                   | –7,897  | 823                     |
| Stirling                   | –25,545 | –4,762                  | –30,307  | 2,371                   | –27,936 | –2,391                  |
| Swan                       | 11,365  | 3,808                   | 15,173   | 1,804                   | 16,977  | 5,612                   |
| Subiaco                    | –6,367  | 439                     | –5,928   | –2,008                  | –7,936  | –1,569                  |
| Vincent                    | 6,098   | 821                     | 6,919    | 3,583                   | 10,502  | 4,404                   |
| Victoria Park              | 223     | 279                     | 502      | 1,375                   | 1,877   | 1,654                   |
| Wanneroo                   | –27,602 | –13,959                 | –41,561  | –3,528                  | –45,089 | –17,487                 |
| Waroona                    | 469     | –8                      | 461      | 83                      | 544     | 75                      |
| Regional Western Australia | –89,927 | –25,413                 | –115,340 | 45,908                  | –69,432 | 20,495                  |

Source: Adapted from Australian Bureau of Statistics (2011, 2016)





## What Causes Spatial Inequality?

This spatial imbalance can be related to four key factors. First, there is a natural reproduction of the same types of industry and businesses that are already strong in any particular area. This may be associated with particular strategic locational advantages for the businesses (Martinus et al., 2016). For example, there tends to be more energy and mineral companies in the City of Perth than other LGAs in Greater Perth, which in turn attracts more of the same types of companies as well as related sectors in finance, legal and professional services. Whereas areas like Belmont, which is close to Perth, the airport and other major transport infrastructure, typically attract a high number of manufacturing companies or smaller companies serving the energy and mining sector. Around the Queen Elizabeth II Medical Centre and the University

of Western Australia a precinct of medical research and businesses has emerged; Henderson has attracted boat building and related fabrication businesses; and Swan has attracted tourism and firms related to food and beverages. Issues may arise as there may be job-skill matching associated with the assumption that the residents of an area also work there. Given that not all industry employment types are found evenly across a region, and that some industries may 'cluster' more strongly than others (cf. Sigler et al., 2018), some areas may have jobs with higher (or lower) skill needs. Industries that tend to cluster more strongly are those needing high knowledge or specialised inputs, such as high tech, finance, and advanced business or professional services (Asheim & Coenen, 2005; Ballard et al., 2016). However, other employment types are

typically more evenly distributed across a region, such as retail and recreation. These different employment types vary in wages, skill needs and knowledge levels, with research finding that those working in high-skilled occupations are more likely to commute greater distances (Zhou et al., 2018; Bill et al., 2007). As such, these same scholars argue that targets which more evenly distribute jobs should account for occupation types.

Second, industry and employment types will be established over different time horizons. Some jobs may 'follow people' or population growth, and some may be developed more slowly over time as amenity and infrastructure is put into place (Hoogstra et al., 2017). People-following jobs can be a range of skilled and unskilled labour, from doctors, police

and trades to retail workers, labourers and hospitality workers. Industry specialisation around specific infrastructure may take longer to develop. Examples include the development of the Australian Marine Complex at Henderson, or in the clusters of artists or entertainment, found scattered in districts of a city centre. One way of thinking about this growth is through a layering of a metropolitan area; first residents, then jobs to service those residents and finally wealth-creating employment (Garreau, 1992). These job types can also be split into population-following employment and strategic employment (Martinus & Biermann, 2018).

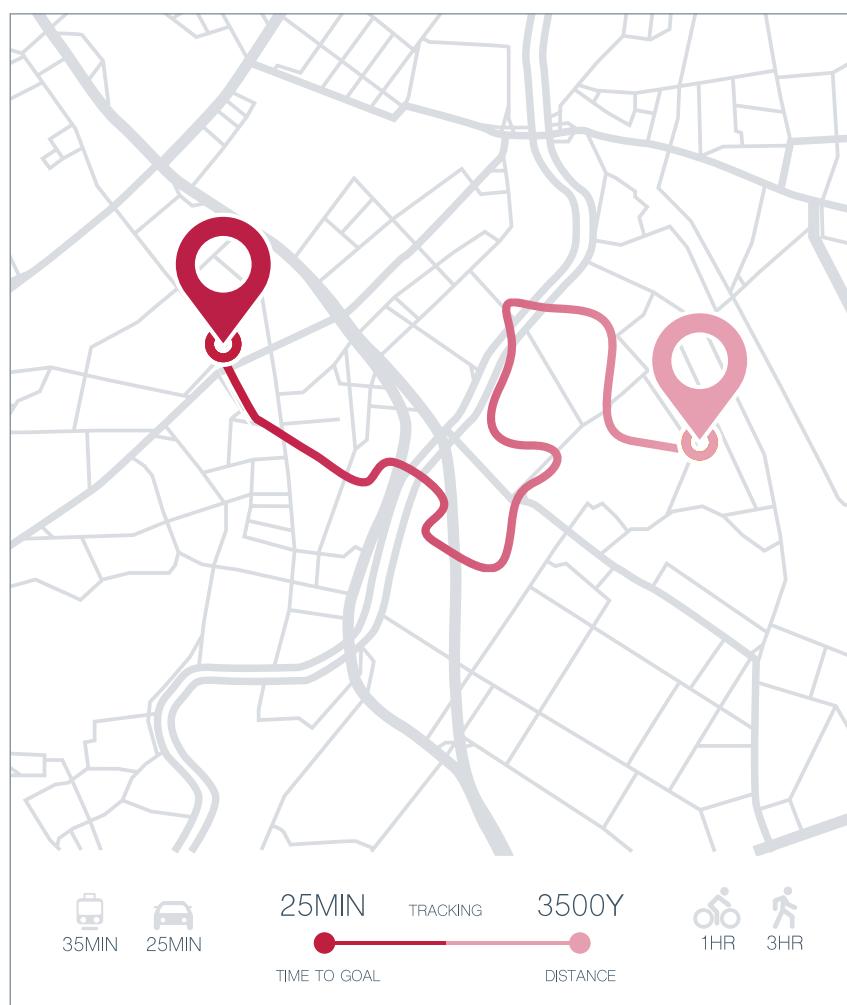
Third, the targets most often used to redistribute employment across a metropolitan area are ESS, ESC and jobs-housing

balance targets. They are quantitative aggregate measures and do not distinguish between job type in any way (Martinus & Biermann, 2018). Given the first point above relating to the spatial unevenness of employment opportunities, we can also assume that other attributes of jobs will also vary, such as skill or income level. Bhalla (2007) noted that a government approach where any employment growth is fine will add to spatial socioeconomic inequality. That is, can we really say the growth of low-productivity or low-skill jobs is equal to the growth of high-productivity and high-skilled jobs? Therefore, if the underlying rationale is to improve strategic job access across a metropolitan area, then the targets need to focus on disaggregating job types. If the government is seeking to simply distribute job

numbers across a metropolitan area, then contemporary ESS, ESC and jobs-housing balance ratios can do this, but at the expense of spatial inequality (Martinus & Biermann, 2018).

Fourth, household and work decisions are highly complex and depend on work and travel considerations, as well as individual attitudes, behaviours, education, income differentials, occupation and employment opportunities (Bill et al. 2007; Li et al., 2012; Suárez et al., 2016; Yigitcanlar et al., 2007). Other decisions that play a role may also relate to changing family sizes in a household (growing larger or smaller), double-income parents, school runs, further education, and additional or shift work (Forster, 2006; Mulder, 2007; Sang et al., 2011). Recent work and lifestyle changes also have an impact, such as the gig and sharing economies, workforce casualisation and increased flexibility (in hours and location). It is therefore extremely difficult to plan how a metropolitan area should best accommodate its workers, and allow for their 'commute', as well as facilitate this through contemporary targets to optimise the productiveness of a metropolitan area.

Given the issues with the reproduction of spatial inequality through current measures, it is timely and relevant to investigate alternative ways of assessing employment redistribution.







## Strategic Jobs and Population-Following Jobs

In recognition of the issue with current jobs–housing targets in balancing growth, P&P@3.5m deviates slightly from previous plans by specifically distinguishing between two broad employment types: strategic and population-following. It provides a strategic economic imperative to “encourage employment opportunities, particularly strategic employment” (WAPC, 2018a, p. 47). For the North-West sub-region in particular, the plan acknowledges that “its economy is primarily population-following” and that “collaboration ... is required to facilitate economic development and improved employment self-sufficiency within the sub-region, particularly to attract strategic economic and employment land uses” (WAPC, 2018b, p. 26). Strategic and population-following employment is not, however, described empirically in the plan in terms of current and expected future employment in these categories. Also, ESS targets remain the same as in previous plans. The key issue arises in an ESS target that treats all employment as generically the

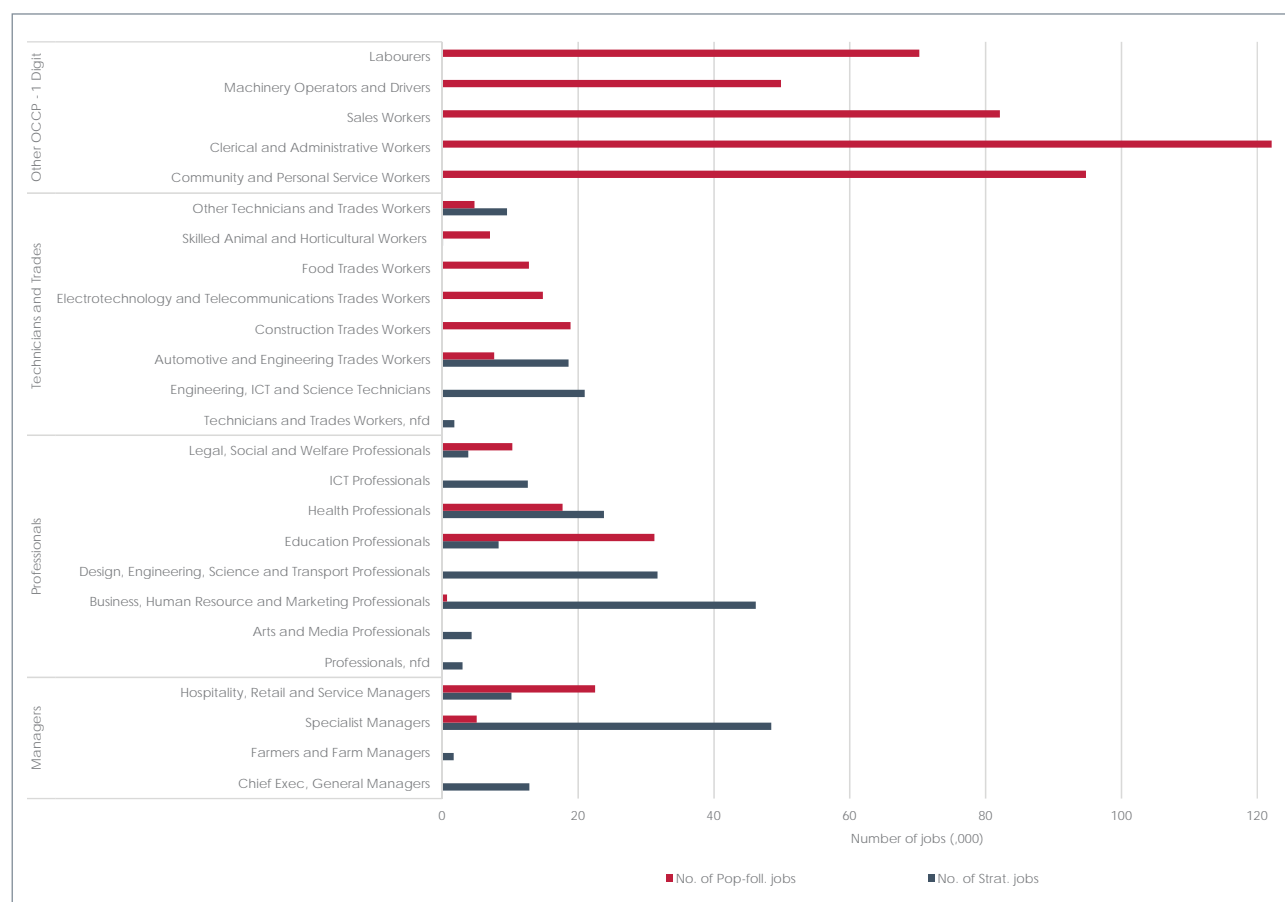
same, as the core metropolitan areas (central business district and inner ring) are privileged over the outer metropolitan areas. In this section, an approach to classify and quantify *strategic* and *population-following* employment types in the Greater Perth context is demonstrated.

Strategic employment can be related to globally competitive industries driving the Greater Perth economy; largely the materials, energy and knowledge sectors. Strategic employment assumes that increasing global market demand for Western Australian exports creates more jobs for engineers and geologists. Whereas population-following jobs are related to local demand and population growth, such as teachers and police. Applying these definitions to the Australian Bureau of Statistics (ABS) Census of Population and Housing four-digit level occupation of employment data, 474 occupations were organised into either strategic or population-following employment.

Four guiding questions, extracted from the literature relating to the key factors influencing spatial imbalance and summarised above in the section discussing the causes of spatial inequality, were used to classify occupations:

- Was the job likely to cluster with other jobs in a specific area or is it evenly dispersed across the Perth metropolitan area?
- Does the job entail high levels of knowledge, specialisation and/or networking?
- Is the job associated with specialised industry infrastructure (for example, a port-based marine research complex or a bio-medical hub close to a hospital or university) or the creation of specialised urban enclaves (for example, of artists or entertainment districts)?
- Does the job service people and businesses in an area or does it create new jobs as the industry establishes itself?

**Figure 2: Number of Strategic Jobs and Population-Following Jobs in Greater Perth**



Source: Adapted from ABS (2016)

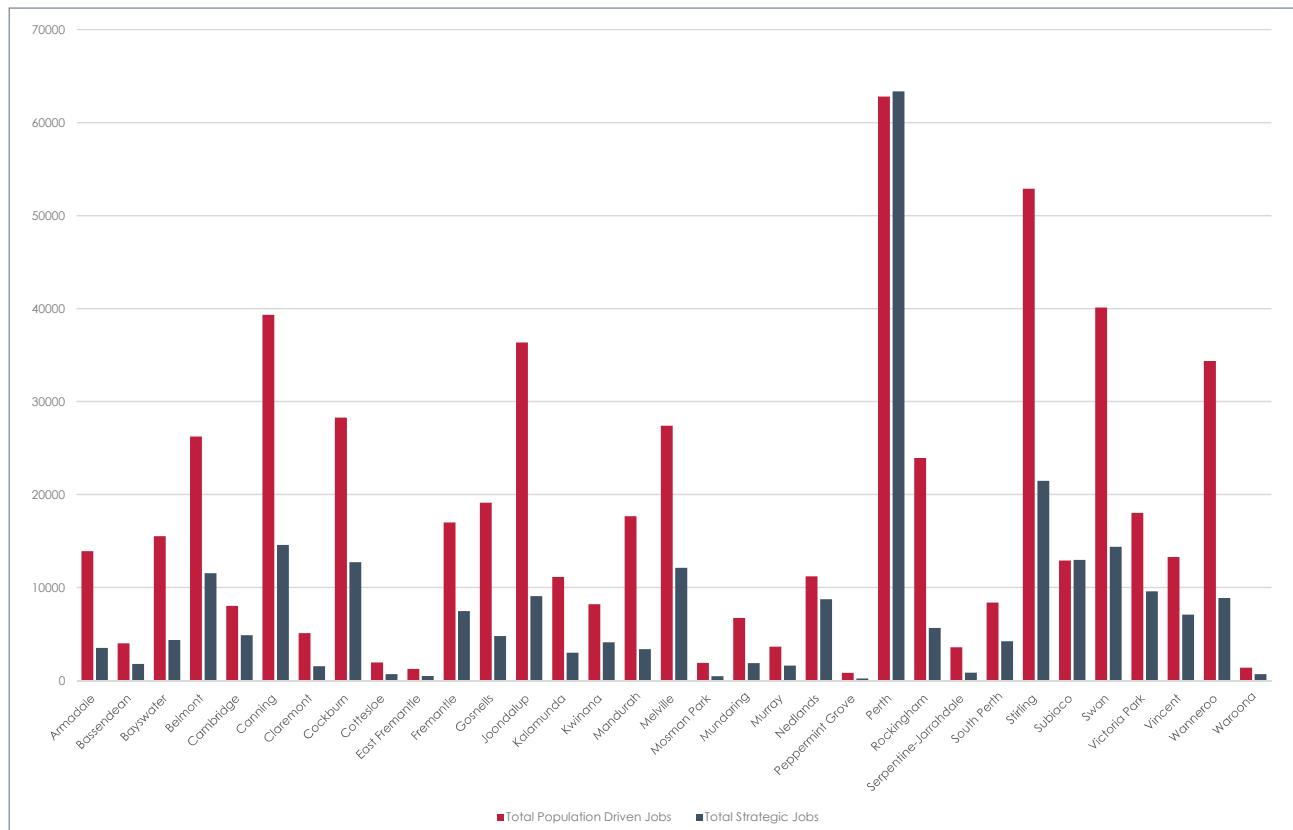
Of the almost 831,000 jobs in the Greater Perth area in 2016, 31% were classified as strategic and 69% as population-following (see Figure 2 for a breakdown of population-following and strategic job types). The greatest number of strategic jobs occurred in the occupation of Professionals (133,830), followed by Managers (73,173). Clerical and Administrative Workers had the most population-following jobs (122,119), followed by Community and Personal Service Workers (94,771). Some population-following jobs are also found in Technicians and Trades (highest levels here were in Construction Trades), Professionals (notably Education) and Managers in Hospitality, Retail and Service. Strategic employment occurred primarily in the occupations

of Managers (Specialist) and Professionals (Business, Human Resource and Marketing; and Design, Engineering, Science and Transport).

Figure 3 shows the number of strategic and population-following jobs across all LGAs within Greater Perth. The City of Perth has by far the most jobs of both types, as well as being most evenly spread. Most LGAs have many more population-following than strategic jobs, although those in the inner LGAs have record a lower number of jobs overall as well as more strategic jobs in general. A greater proportion of those on the outermost fringe of the metropolitan area have significantly more population-following than strategic jobs.

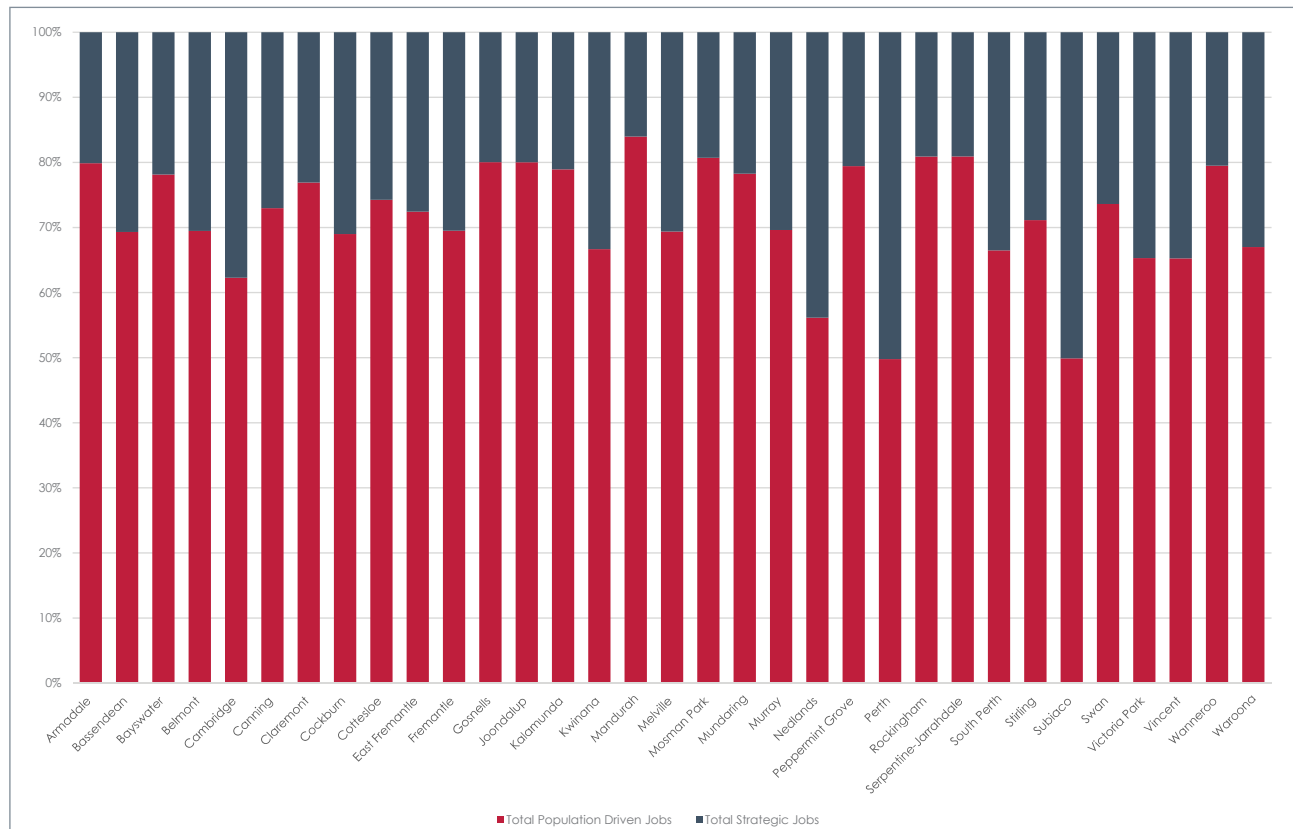
Spatially, the more central LGAs of Greater Perth not only have the highest number of jobs in total but also the highest proportion of strategic jobs. This is seen in Figure 4. In contrast, the outer LGAs have a disproportionately high relative number of population-following jobs.

**Figure 3: Number of Strategic Jobs and Population-Following Jobs in each LGA**



Source: Adapted from ABS (2016)

**Figure 4: Percentage Proportion of Strategic Jobs and Population-Following Jobs in each LGA**



Source: Adapted from ABS (2016)



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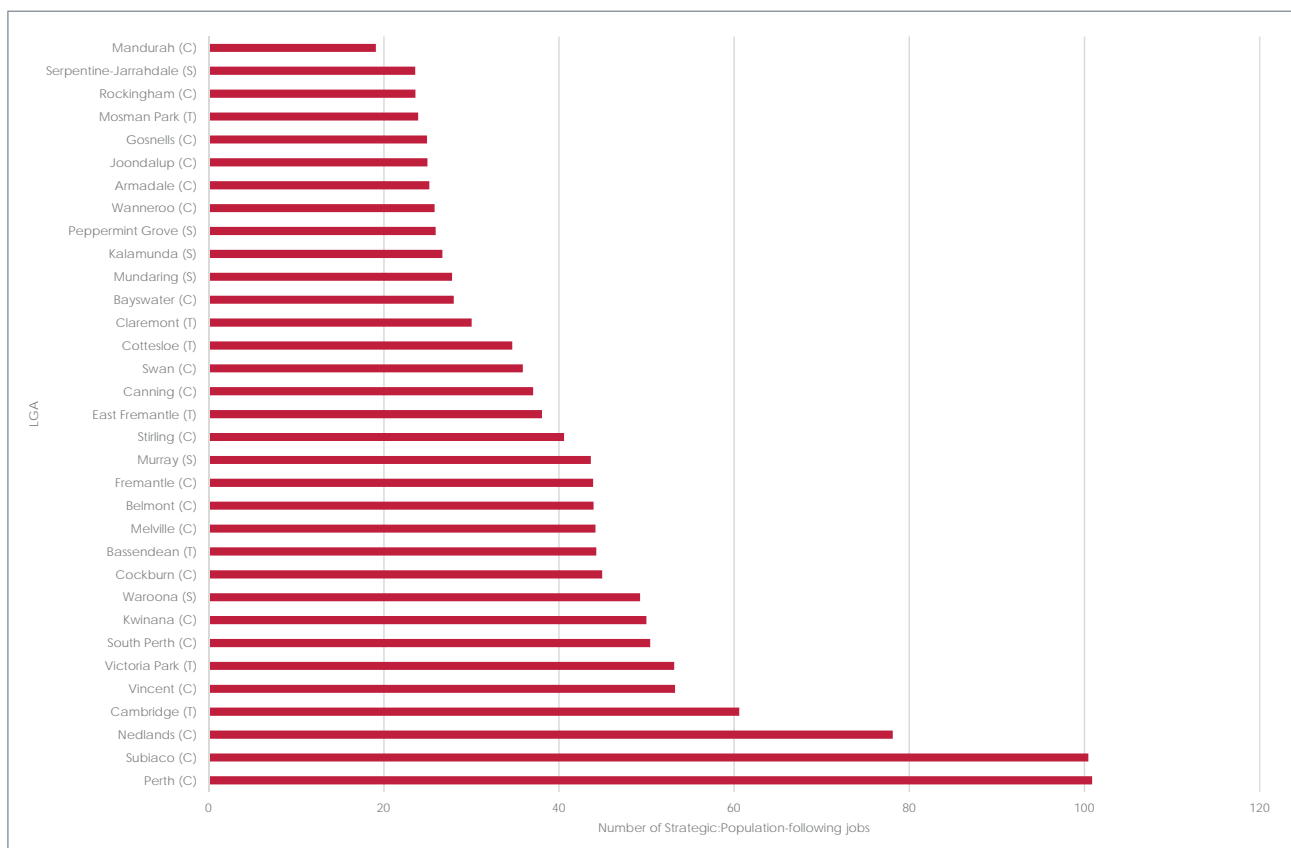
The ratio of strategic to population-following jobs (the number of strategic jobs divided by the number of population-following jobs multiplied by 100) was calculated across all LGAs; this provides a useful indicator of the relative balance of job types that can be used to better inform targeting. The City of Perth has about the same number of strategic and population-following jobs and accordingly has a ratio of just over 100 (there are a few more strategic jobs than population-following jobs). This is demonstrated in Figure 5, which also shows the other extreme where Mandurah has five times the number of population-following jobs than

strategic jobs. This is derived from its low score of just under 20. South Perth returns a ratio of 50, which means that it has half the number of strategic jobs as population-following.

Indicative employee characteristics from a scan of the data, summarised in Table 4, show that population-following jobs across Greater Perth are associated with a higher proportion of younger workers, females, lower level qualifications (Year 10+), part-time employment, lower paid incomes and less travel distance between home and work. This has obvious implications as to the more disadvantaged

workforce profile of the outer regions, given the significantly higher level of population-following jobs found there. This points to a need to increase strategic jobs as an employment strategy for balancing growth and development across Greater Perth, and to ensure that the outer regions have access to strategic jobs. An employment increase using an indiscriminate targeting approach is more likely to result in increases in population-following jobs, which may exacerbate the socioeconomic differences between the inner and outer regions of Greater Perth.

**Figure 5: The Ratio of Strategic Jobs to Population-Following Jobs in each LGA**



**Table 4: Indicative Employee Characteristics of Strategic Jobs and Population-Following Jobs in Greater Perth, 2016**

|   | Characteristic    | Strategic   | Population-following  |
|---|-------------------|---|---|
| <b>Managers</b>                               | Age               | 40–69 with younger cohort in Hospitality, Retail and Service and older cohort in Farming  | 50–59 for Specialists and 30–39 in Hospitality, Retail and Service  |
|   | Gender            | Mostly male   | Mostly female   |
|   | Qualifications    | Bachelors/Yr 10+  | Bachelors/Yr 10+  |
|   | Labour status/hrs | Full time   | Full time   |
|   | Income            | Wide range – highest for Executives (>\$156k/annum), Specialists (\$104–156k/annum); lowest for Farming (\$34–65k/annum) and some Hospitality, Retail and Service (\$52–156k/annum) | Lower overall than Strategic – no Executives; Specialists same (\$104–156k/annum); Hospitality, Retail and Service much lower (\$52–65k/annum)  |
|   | Distance to work  | 10–30km   | 10–30km   |
| <b>Professionals</b>                          | Age               | Mostly 30–39<br><br>Health older cohort (30–59); Education, and Legal, Social and Welfare older cohort (40–59)  | Older than strategic counterparts<br><br>Business, Human Resource and Marketing Professionals (55–59);<br><br>Younger than strategic counterparts Education (30–49), Health (20–39) and Legal, Social and Welfare (30–39) |
|   | Gender            | Mixed   | Mostly female   |
|   | Qualifications    | Bachelors   | Bachelors   |
|   | Labour status/hrs | Full time, except for Arts and Media (part time 1–15hrs/week)   | Full time   |
|   | Income            | Mostly \$104–156+k/annum; Art and Media (<\$65k/annum)  | Mostly lower than Strategic counterparts: \$65–156k/annum but Legal, Social and Welfare less at <\$65k/annum  |
|   | Distance to work  | 10–30km but Health and Legal, Social and Welfare less with some at 2.5–10km   | 10–30km with Legal, Social and Welfare less than 2.5–10km   |
| <b>Technicians and Trades</b>                 | Age               | 30–49   | 20–39   |
|   | Gender            | Mostly male   | Mostly male   |
|   | Qualifications    | Cert 3/4; Yr10+   | Cert 3/4  |
|   | Labour status/hrs | Full time   | Mostly full time; some part time in the case of Skilled Animal and Horticultural Workers  |
|   | Income            | Varies – \$52–156+k/annum for Engineering, ICT and Science Technicians and Automotive and Engineering Trades; otherwise <65k/annum  | Varies – \$52–156+k/annum for Automotive and Engineering Trades and Electrotechnology and Telecommunications Trades; otherwise, <\$65k/annum  |
|   | Distance to work  | Mostly 10–30km; some 2.5–10km   | 10–30km   |
| <b>Community and Personal Service Workers</b> | Age               | N/A   | 20–39   |
|   | Gender            |   | Mostly female   |
|   | Qualifications    |   | Cert 3/4; Yr10+   |
|   | Labour status/hrs |   | Part/Full time  |
|   | Income            |   | <\$65k/annum  |
|   | Distance to work  |   | 2.5–10km; 10–30km   |



|                                     | Characteristic    | Strategic | Population-following  |
|-------------------------------------|-------------------|-----------|---|
| Clerical and Administrative Workers | Age               | N/A       | 20–49   |
|                                     | Gender            |           | Mostly female   |
|                                     | Qualifications    |           | Yr10+   |
|                                     | Labour status/hrs |           | Full time   |
|                                     | Income            |           | <\$65k/annum  |
|                                     | Distance to work  |           | 10–30km   |
| Sales Workers                       | Age               | N/A       | 20–29   |
|                                     | Gender            |           | Mostly female   |
|                                     | Qualifications    |           | Yr10+   |
|                                     | Labour status/hrs |           | Part/Full time  |
|                                     | Income            |           | <\$65k/annum  |
|                                     | Distance to work  |           | 2.5–10km; 10–30km   |
| Machinery Operators and Drivers     | Age               | N/A       | 20–59   |
|                                     | Gender            |           | Mostly male   |
|                                     | Qualifications    |           | Yr10+   |
|                                     | Labour status/hrs |           | Full time   |
|                                     | Income            |           | \$52–156+k/annum  |
|                                     | Distance to work  |           | 10–30km   |
| Labourers                           | Age               | N/A       | 20–29   |
|                                     | Gender            |           | Mostly male   |
|                                     | Qualifications    |           | Yr10+   |
|                                     | Labour status/hrs |           | Part/Full time  |
|                                     | Income            |           | \$32–156+k/annum (high values are in construction and mining) |
|                                     | Distance to work  |           | 2.5–10km; 10–30km   |

Source: Adapted from ABS (2016)

## Discussion

This FACTBase highlights the difficulties in using jobs–housing targets as a means of distributing employment more evenly across Greater Perth. The paper shows that a key challenge is that jobs–housing targets typically do not adequately distinguish between job type and industry sector. Further, employment predictions often have underlying assumptions that ultimately do not play out in reality. There are a number of reasons for this, including the dynamic nature of economic development, changing employee preferences and rapidly shifting workplace requirements and practices.

One of the ongoing difficulties in achieving jobs–housing targets in Greater Perth is that industry requirements and job types are diverse. Different sectors require different skill levels, educational attainment, experience and workforce practices, which means that measures based on this assumption tend to be biased towards the more competitive and productive areas of a metropolitan region. This places some regions, such as outer metropolitan sub-regions, at a disadvantage in competing for strategic jobs and workers against the greater amenity and infrastructure of core urban areas. Forster (2006), Martinus and Biermann (2018) and Zhou et al. (2017) all argue that the relatively easy successes gained in indiscriminately targeting overall job growth may be a risk to socioeconomic spatial equality.

We argue that one means of promoting job creation across Greater Perth is through a differentiation in strategies based on population-following employment and strategic employment. This has the potential to develop jobs for strategic industries in key locations while still providing for broader employment across Greater Perth. This differentiated approach incorporates the notion that population-following employment may naturally be more evenly spread across a region. In contrast, strategic jobs may take longer to develop as they are dependent on targeted industry development and require specific or significant support. Our analysis shows that most employment growth in the outer regions of Greater Perth is population-following. Such jobs will emerge naturally and follow market demand.

Of more benefit is a policy approach targeting an increase in strategic jobs, particularly in outer metropolitan areas as these may not be as attractive as core urban areas. This should be focused on leveraging the unique and competitive economic advantages of a specific region to generate new jobs, such that regions collaborate rather than compete in industry development. The role of the government is to enhance transport access to locations where strategic jobs currently cluster to enable more equitable participation in job opportunities across the whole of Greater Perth.

This approach was adopted in the Smart Cities and Suburbs program of the RailSmart Planning Support System (<https://railsmart.patrec.org/>), which is an open-source proof-of-concept dashboard used to support the decision-making processes for the development of three outer suburban Wanneroo LGA railway stations. The dashboard introduced an Enhanced Employment Self Sufficiency Tool, which uses strategic and population-following jobs. Along with a Dynamic Accessibility Planning Tool, this was used to calculate accessibility by travel time of both private and public transport to employment locations and residential areas (Robson et al., 2019).

Concentrating on job type means policy shifts from the limiting objective of travel reduction of the self-sufficiency ratio to one of access to job opportunities. That is, targeting job type distribution across a city, as well as *travel accessibility* to job opportunities, means a focus on generating fewer, but more strategic jobs. Indeed, as Cervero (1996) argued, a reduction in car travel may be more influenced by demand-side (road use fees and parking restrictions) and supply-side (increases in transit level and quality) factors than land use targets (jobs–housing ratios).



## Conclusion

Given the complex and divergent geographies of residence, employment and industry development overlaid with a transport system trying to maximise efficiency, spatial planners continue to face a challenging balancing act. To assist in addressing this challenge, this FACTBase argues for planning targets that improve both population-following and strategic job outcomes across Greater Perth. However, whereas *population-following* jobs need limited intervention as they naturally increase with population growth, *strategic* jobs need targeted intervention and policy support. This FACTBase shows that the latter is driven by more complex dynamics and likely to be more unevenly distributed across a metropolitan region. It is proposed that a

strategic to population-following job ratio across LGAs would provide a useful indicator of the relative balance of job types to better inform targeting.

Such an approach is particularly salient in the face of COVID-19, where the locations of some jobs are no longer as fixed as they once were, with a significant increase in employees working from home. Indications are that working from home trends, at least to some degree, will be perpetuated post COVID-19 and change the spatial arrangement of activities and movement between them. Concurrently, disruptions from emerging transport technologies (for example, autonomous, electric, connected, sharing and demand responsive transport) will also change the way we live, work

and move, which will require land use and transport policy responses to COVID-19 induced changes to be integrated with those induced by disruptive transport technologies (Biermann et al., 2020). While population-following jobs are more likely to be evenly spread across a region and require little intervention, strategic jobs are linked to key industries and competitive advantage and may require focused planning support for development. Strategic jobs have complex location requirements but disruptive changes to how we work and travel are likely to alter the geography of jobs and travel in cities, making it more vital than ever to think strategically about how we plan for work across a metropolitan area.



## References

- Albrechts, L. (2015). Ingredients for a more radical strategic spatial planning. *Environment and Planning B*, 42(3), 510–525.
- Asheim, B., & Coenen, L. (2005). Knowledge bases and regional innovation systems: comparing Nordic clusters. *Research Policy*, 34(8), 1173–1190.
- Australian Bureau of Statistics. (2011). *The Census of Population and Housing*. Canberra: Australian Bureau of Statistics.
- Australian Bureau of Statistics. (2016). *The Census of Population and Housing*. Canberra: Australian Bureau of Statistics.
- Ballard, P., Belso-Martinez, J., & Morrison, A. (2016). The dynamics of technical and business knowledge networks in industrial clusters: embeddedness, status, or proximity?. *Economic Geography*, 92(1), 35–60.
- Bhalla, S. (2007). Inclusive growth? Focus on employment. *Social Scientist*, 35(7/8), 24–43.
- Biermann, S., Chi, S., & Reed, T. (2020). *Impacts of COVID-19 on Travel in Perth*. Perth: Planning and Transport Research Centre. Retrieved from <https://patrec.org/impacts-of-covid-19-on-travel-in-perth/>
- Bill, A., Mitchell, B., & Watts, M. (2007, November). The occupational dimensions of local labour markets in Australian cities. *Proceedings of the 3rd State of Australian Cities Conference, Adelaide, Australia*.
- Bunker, R. (2015). Can we plan too much? The case of the 2010 metropolitan strategy for Adelaide. *Australian Journal of Public Administration*, 74(3), 381–389.
- Cervero, R. (1996). Jobs-housing balance revisited: trends and impacts in the San Francisco Bay Area. *Journal of the American Planning Association*, 62(4), 492–511.
- Curtis, C., & Olaru, D. (2010). The relevance of traditional town planning concepts for travel minimization. *Planning and Practice and Research*, 25(1), 49–75.
- Forster, C. (2006). The challenge of change: Australian cities and urban planning in the new millennium. *Geographical Research*, 44(2), 173–182.
- Garreau, J. (1992). *Edge City: Life on the New Frontier*. New York: Anchor Books.
- Godet, M. (2000). The art of scenarios and strategic planning: tools and pitfalls. *Technological Forecasting and Social Change*, 65(1), 3–22.
- Hoogstra, G., van Dijk, J., & Florax, R. (2017). Do jobs follow people or people follow jobs? A meta-analysis of Carlino–Mills studies. *Spatial Economic Analysis*, 12(4), 357–378.
- Li, T., Corcoran, J., & Burke, M. (2012). Disaggregate GIS modelling to track spatial change: exploring a decade of commuting in South East Queensland, Australia. *Journal of Transport Geography*, 24, 306–314.
- Martinus, K., & Biermann, S. (2016). *FACTBase Bulletin 46: Commuting across Perth and Peel: Unpacking Patterns, Measures and Policy Implications*. Perth: University of Western Australia and Committee for Perth.
- Martinus, K., & Biermann, S. (2018). Strategic planning for employment self-containment in metropolitan sub-regions. *Urban Policy and Research*, 36(1), 35–47.
- Martinus, K., Sigler, T., Tonts, M., & Hickey, S. (2016). *FACTBase Bulletin 47: The Attraction of Perth and Peel Centres for Global Firms and Local Commuters*. Perth: The University of Western Australia and Committee for Perth.

Mulder, C. (2007). The family context and residential choice: a challenge for new research. *Population, Space and Place*, 13(4), 265–278.

Robson, L., Biermann, S., Cardell-Oliver, R., Olaru, D., Martinus, K., Smith, B., ... Parsons, C. (2019). *RailSmart Planning Wanneroo Technical Report*. Perth: Planning and Transport Research Centre. Retrieved from <https://resources.patrec.org/reports/projects2019/RailSmart-TechnicalReport.pdf>

Sang, S., O'Kelly, M., & Kwan, M.-P. (2011). Examining commuting patterns: results from a journey-to-work model disaggregated by gender and occupation. *Urban Studies*, 48(5), 891–909.

Sigler, T., Searle, G., & Martinus, K. (2018). Industrial location and global restructuring in Australian cities. *Australian Geographer*, 49(3), 365–381.

Suárez, M., Murata, M., & Campos, J. (2016). Why do the poor travel less? Urban structure, commuting and economic informality in Mexico City. *Urban Studies*, 53(12), 2548–2566.

Swyngedouw, E., Moulaert, F., & Rodriguez, A. (2002). Neoliberal urbanization in Europe: large scale urban development projects and the new urban policy. *Antipode*, 34(3), 542–577.

Watson, V. (2009). 'The planned city sweeps the poor away ...': Urban planning and the 21st century urbanisation. *Progress in Planning*, 72(3), 151–193.

Western Australian Planning Commission. (2010). *Directions*. Perth: Department of Planning.

Western Australian Planning Commission (2018a). *Perth and Peel@3.5 Million*. Perth: Western Australian Planning Commission.

Western Australian Planning Commission (2018b). *North-West Sub-Regional Planning Framework*. Perth: Western Australian Planning Commission.

Yigitcanlar, T., Dodson, J., Gleeson, B., & Sipe, N. (2007). Travel self-containment in master planned estates: analysis of recent Australian trends. *Urban Policy and Research*, 25(1), 129–149.

Zhou, J., Wang, Y., Cao, G., & Wang, S. (2017). Jobs housing balance and development zones in China: a case study of Suzhou Industry Park. *Urban Geography*, 38(3), 363–380.

Zhou, X., Yeh, A., & Yue, Y. (2018). Spatial variation of self-containment and jobs-housing balance in Shenzhen using cellphone big data. *Journal of Transport Geography*, 68, 102–108.

## About FACTBase

FACTBase is a collaborative research project between the Committee for Perth and The University of Western Australia. It aims to benchmark the liveability of Perth and its global connectedness through an examination of Perth's economic, social, demographic and political character.

The FACTBase team of academics and researchers condense a plethora of existing information and databases on the major themes, map what is happening in Perth in pictures as well as words, and examine how Perth compares with, and connects to, other cities around the world.

The Committee for Perth is a member-funded organisation and we acknowledge our Gold Members:



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Biermann, S. & Martinus, K. (2021). *Making Strategic Jobs Count: Addressing Issues of Spatial Inequality*, FACTBase Bulletin 73, The University of Western Australia and the Committee for Perth, Perth.

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