Croskell (Employment) PSP

EMPLOYMENT MODELLING REVIEW ADDENDUM

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Prepared by

Geografia

Prepared for

vpa
Victorian Planning Authority

Geografia

• Demography • Economics • Spatial Analytics
Level 21, 15 Collins St Melbourne VIC 3000
+613 9329 9004 | info@geografia.com.au | www.geografia.com.au

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Executive Summary

- This report is an addendum to the Croskell PSP Employment Needs Assessment and Implementation Plan (Geografia, 2023).

- It summarises the findings of work commissioned to review the main study findings in light of revisions to the PSP's Land Use Budget.

- Specifically, it looks at estimated total employment capable of being supported by the Croskell (Employment) PSP and the adequacy of regional future demand to support these employment figures and corresponding allocations.

- The modelling shows that:

  - Croskell (Employment) PSP is expected to accommodate 6,532 jobs in the Regionally Significant Commercial Area and employment-zoned area outside of it.

  - There is sufficient future regional demand to support floorspace and employment estimates outlined in the revised Land Use Budget.

- As noted in the main report, there remain uncertainties around the existing and future floorspace provisions in planned or proposed Activity Centres in the Casey region. This impacts on the modelling assumptions and the capacity to quantify the potential impact on neighbouring locations.

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1.0   Introduction

This report outlines the findings of an assessment of the estimated total employment capable of being supported by the Croskell (Employment) Precinct Structure Plan (PSP). It is an addendum to an earlier land use needs assessment study.

1.1   PROJECT BACKGROUND

This study provides an updated estimate of employment forecasts for the Croskell (Employment) PSP following a revision to the PSP's Land Use Budget. The employment output incorporates modelling assumptions about post-pandemic impacts on employment to floorspace ratios, hybrid work arrangements, and region-specific home-based businesses in the Melbourne South East region.

Figures 1 and 2 show the employment study area and the boundary of the Regionally Significant Commercial Area (RCSA). Geografia was provided these plans on 25 June 2024 and understands these plans may change prior to Public Consultation.[1]
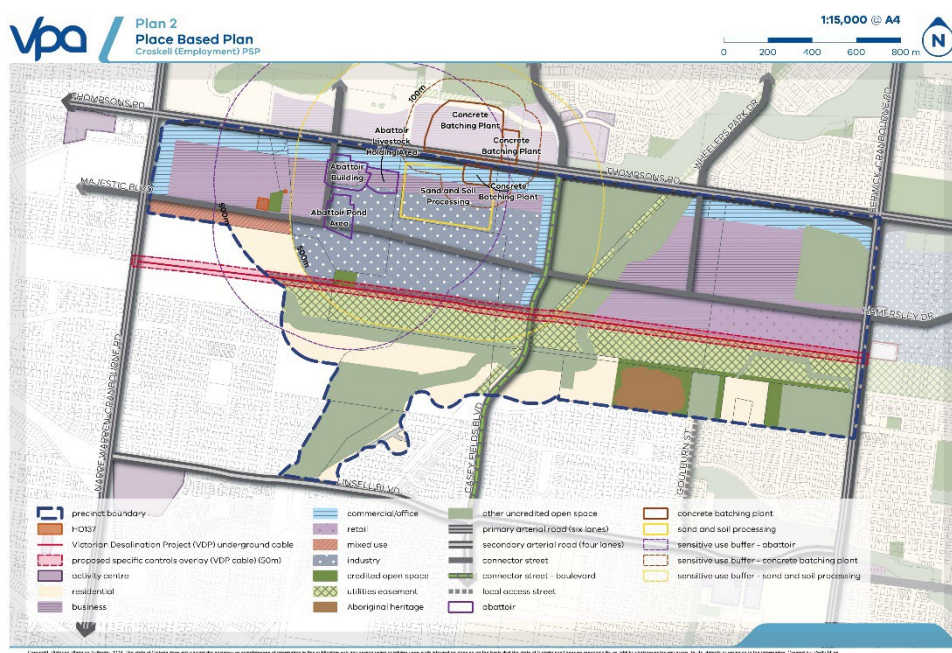
Figure 1: Study Area Map
Source: VPA, 25 June 2024.

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[1] For the most up to date plan set, see Croskell Employment project page at https://vpa.vic.gov.au/project/croskell
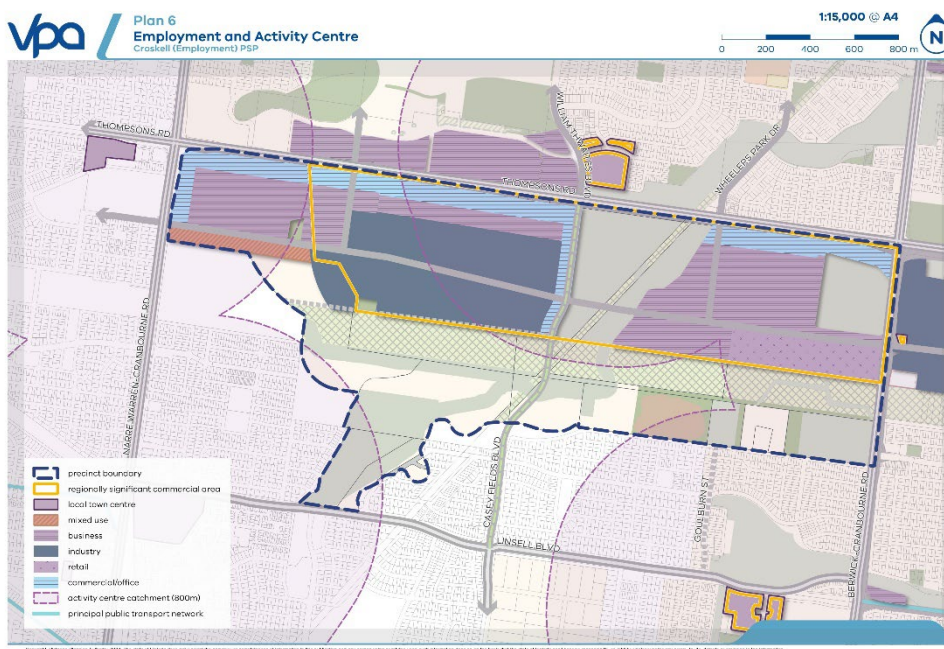
Figure 2: RCSA Boundary Map
Source: VPA, 25 June 2024.

The study area includes:

- The RSCA, encompassing commercial and industrial sub-precincts.

- The employment-zoned area outside the RSCA, including mixed use, commercial, industrial and residential sub-precincts.

There were four main steps to the modelling process:

1. Reviewing the revised Land Use Budget for the Croskell (Employment) PSP.

2. Estimating total jobs within the RSCA and the employment zone outside the RSCA, including its respective sub-precincts.

3. Estimating the effective total jobs per net developable hectare for each land use sub-precinct, i.e., commercial, industrial, mixed-use, and residential.

4. Conducting a regional capacity analysis to ensure that employment estimates align with previous employment forecasts at the regional level.[2]

When combined these with a review of the regional capacity assessment process, the exercise has generated robust employment estimates that are aligned with previous work[3], particularly in regional employment forecasts.

1.2 METHODOLOGY

The key steps in the methodology were:

1. **Converting land use types from the Land Use Budget into Land Use Employment Categories (LUECs) by Net Developable Area (NDA).** This ensures alignment and consistency with data definitions and output as outlined in the previous Croskell PSP – Final Employment Needs Assessment and Implementation Plan (Geografia, 2023) and the South East Economic Corridor (SEEC) Strategic Context Report to 2060 (SGS, 2020) (hereafter referred to as the SEEC Report). The key conversion matrix assumptions are provided in Appendix A.

2. **Estimating the Net Saleable Area (NSA) for the LUECS within the RSCA and land outside the RSCA.** This involves applying a 20% discount for non-leasable floorspace, such as laneways, car parks, non-leasable storage and common areas, and other non-leasable spaces.

3. **Estimating Imputed Net Leasable Floorspace (Table 1).** The estimated floorspace is determined by applying floor area ratio assumptions, which represent the ratio of floorspace to total land area, to the NSA. An additional 10% discount is applied to derive the net leasable floorspace from gross floorspace totals. The floor area ratio assumptions applied in this report are outlined in the table below, which is sourced from the SEEC Report (SGS, 2022). Low, medium, and high floor area ratio scenarios are used to estimate lower and upper ranges for land use and employment estimates. For this analysis, the medium scenario corresponds to the baseline output of this report.

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[2] As quantified in Croskell PSP – Employment Needs Assessment and Implementation Plan (Geografia, 2023).
[3] Namely, regional employment and floorspace demand forecasts generated from the Croskell PSP – Employment Needs Assessment and Implementation Plan (Geografia, 2023); and other employment land use categories and assumptions used in the South East Economic Corridor Strategic (SEEC) Strategic Context Report to 2060 (SGS, 2022).

Floor Area Ratios	Low	Medium	High
Local Services	0.3	0.4	0.6
Light Industrial	0.3	0.3	0.5
Office	0.4	0.6	1.0

Table 1: Floor Area Ratio Assumptions, Croskell (Employment) PSP
Source: Geografia, 2024.

Furthermore, floorspace assumptions for Retail and Bulky Goods land areas are sourced from floorspace allocation caps as determined in the Croskell (Employment) PSP Employment Needs Assessment and Implementation Plan (Geografia, 2023). In line with this previous report, the following allocations for the remaining land uses are assumed:

i. **Bulky Goods.** A floorspace allocation ranging from 15,000sqm (under a lower floorspace scenario, informed by the previous report) to 20,000sqm (under an upper floorspace scenario, as informed by the VPA under proposed planning scheme amendments). The average of 17,500sqm is considered as the baseline Bulky Goods floorspace scenario.

ii. **Retail.** A floorspace allocation ranging from 4,400sqm (lower floorspace scenario) to 7,700sqm (upper floorspace scenario). The average of 6,050sqm is considered the baseline Retail floorspace scenario.

4. **Estimating Total Full-Time Equivalent (FTE) Jobs from Floorspace to Employment Ratio Assumptions.** The floorspace to employment ratios for 2023 (Table 2) are applied to the floorspace allocations to determine the estimated number of FTE jobs by land use category. These updated 2023 assumptions also account for important post-pandemic changes to floorspace assumptions, including impacts from hybrid/work-from-home arrangements. Lower, medium, and upper ratio scenarios are provided. The medium scenario is the baseline output for this report.

Floorspace to Employment Ratios	Local Services	Light Industrial	Office	Retail	Bulky Goods
Upper	50	50	35	25	20
Baseline	75	100	45	35	60
Lower	200	300	50	60	80

Table 2: Croskell Floorspace to Employment Ratio Assumptions
Source: Geografia, 2024. Ratios are internally determined using a combination of Melbourne Census for Land Use and Employment (CLUE) datasets adjusted to represent outer Metropolitan Melbourne land use metrics using Geografia's database of building footprint and microeconomic datasets.

5. **Estimating Jobs Generated in Residential Areas.** Employment in the Croskell (Employment) PSP's residential areas were estimated as follows:

   i. Estimating dwellings using dwelling to NDA ratios. The assessment assumes a 30 dwellings/ha development rate in amenity areas (including mixed used zones) and 20 dwellings/ha in all remaining residential areas, as informed by VPA (2024).

   ii. Using ratio assumptions on the number of HBB jobs to dwellings to estimate home-based business (HBB) jobs. These were sourced from the ABS 2021 Census, using actual HBB jobs to dwelling ratios for the Melbourne South East SA4 region.

   iii. Applying FTE-equivalent work-from-home rates by Industry of Employment (Melbourne Institute, 2023)[4] to the 2021 Census employment data for Melbourne South East SA4 to estimate jobs generated from Work-from-Home employees. Using ABS Place of Enumeration 2021 Data, the employment data is converted to a ratio of Work-from-Home jobs to dwellings representative of the Melbourne South East SA4 region.

6. **Regional Capacity Analysis.** Using forecast excess floorspace demand for 2021 to 2041, derived by employment forecasts from

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[4] Working from home, COVID-19 and job satisfaction (Lab, Vera-Toscano and Wooden, March 2023). Specifically average FTE-equivalent working-from-home rates were applied to ABS data to determine the ratio of working-from-home employees to dwellings.

the previous report[5], a sense check was undertaken to determine whether employment estimates for the Croskell (Employment) PSP are consistent with future regional employment capacity.

The methodology outlined above provides a systematic approach for assessing the capacity for employment within the Croskell (Employment) PSP.

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[5] Specifically, this refers to previous regional capacity analysis undertaken in Table 4, Croskell PSP – Employment Needs Assessment and Implementation Plan (Geografia, 2023).

2.0 Employment Impacts

Modelling indicates that the Croskell (Employment) PSP may accommodate 6,532 jobs, comprising 5,271 jobs in the RSCA and 1,261 outside the RSCA (including 36 jobs in the residential area). Taking into account both the upper and lower employment scenarios, the regional capacity analysis reveals sufficient regional demand in 2041 to absorb the employment and floorspace allocations determined by modelling and the Land Use Budget.

2.1 LAND USE BUDGET

The employment model used the Land Use Budget (Table 3) for the Croskell (Employment) PSP as the baseline assumption. Employment estimates were derived from an NDA area of 118.9 ha for the RSCA and 57.89 ha for the land outside the RSCA, including 35.13 ha designated for residential and mixed-use purposes.

Land Use Class	Land Use Sub Type	Area (ha)
RSCA	Business	45.47
	Office	18.56
	Retail	11.92
	General Industrial	42.95
	Total RSCA	**118.9**
Other land uses outside the RSCA	Business	13.74
	General Industrial	2.72
	Office	6.3
	Mixed Use	4.74
	Residential	30.39
	Total Non-RSCA	**57.89**

Table 3: Summary Land Use Budget, Croskell (Employment) PSP
Source: VPA, 2024.

2.2 BASELINE EMPLOYMENT MODELLING OUTPUT

Table 4 outlines the estimated number of jobs assumed by the Croskell (Employment) PSP's Land Use Budget. The precinct is expected to accommodate 6,532 jobs, comprising 5,271 jobs within the RSCA and 1,261 outside the RSCA (including 36 jobs in the surrounding residential area).

When considering various employment output scenarios, the model indicates a range of 3,113 to 15,606 jobs within the Croskell (Employment) PSP. This broad range accounts for long-term uncertainty in modelling assumptions and reflects the variation in the size of similar employment precincts in outer Metropolitan Melbourne.

Land Use Class	Land Use Type	Land Use Sub Type	Area (ha)	LUEC or Other Categories	NDA (sqm)	NSA or Est. No of Dwellings	Net Floorspace Area (sqm) or Dwellings	Estimated No. of Jobs	Estimated No. of Jobs/NDHA
RSCA	Commercial	Business (80% Local Services)	45.47	Local Services	363,760	291,008	104,763	1,397	38.4
		Business (20% Office)		Office	90,940	72,752	39,286	873	96.0
		Office	18.56	Office	185,600	148,480	80,179	1,782	96.0
		Retail	11.92	Bulky Goods	119,200	95,360	17,500	292	24.5
	Industrial	General Industrial	42.95	Light industrial	429,500	343,600	92,772	928	21.6
Non-RSCA	Commercial	Business (80% Local Services)	13.74	Local Services	20,610	16,488	5,936	79	38.4
		Business (20% Office)		Office	27,480	21,984	11,871	264	96.0
		Office	6.30	Office	63,000	50,400	27,216	605	96.0
	Industrial	General Industrial	2.72	Light industrial	27,200	21,760	5,875	59	21.6
	Mixed use	Mixed Use (25% Local Services)	4.74	Local Services	11,850	9,480	3,413	46	38.4
		Mixed Use (25% Retail)		Retail	11,850	9,480	6,050	173	145.9

Land Use Class	Land Use Type	Land Use Sub Type	Area (ha)	LUEC or Other Categories	NDA (sqm)	NSA or Est. No of Dwellings	Net Floorspace Area (sqm) or Dwellings	Estimated No. of Jobs	Estimated No. of Jobs/NDHA
		Residential (50% Residential)		WfH/Hybrid Workers and HBB workers	23,700	71	–	3	–
	Residential		30.39	WfH/Hybrid Workers and HBB workers	303,900	889	–	34	–
Total RSCA Employment			118.90		1,189,000	951,200	334,500	5,271	44.3
Total Non-RSCA Employment			25.13		591,490	473,192	153,133	1,225	48.7
Total Non-RSCA Residential (including in Mixed Use)l			32.76		327,600	960	0	36	1.1
Total			176.79		2,108,090	1,425,352	487,633	6,532	36.9

Table 4: Job Forecasts, Croskell (Employment) PSP
Source: Geografia, 2024.
Note the following:
1. An 80%-20% allocation between Local Services and Office LUEC categories for Business land use sub-type.
2. A 25%-25%-50% allocation for Mixed Use land use sub-type between Local Services, Retail and Residential LUEC categories.
3. The Imputed Jobs to NDA ratios are calculated by dividing the estimated FTE jobs with NDA (ha) as provided by the Land Use Budget.
4. Values in this table are calculated using decimal precision and may differ slightly from rounded whole number values.

2.3   REGIONAL CAPACITY ANALYSIS

Table 5 presents the results of the regional capacity analysis. It details the employment modelling output as a percentage of the excess employment-generated floorspace demand at the Casey (C) regional level from 2021 to 2041. These figures are derived from previous forecasts undertaken in the Croskell PSP Employment Needs Assessment and Implementation Plan (Geografia, 2023).

The total excess demand denotes the remaining future capacity available within the region to support the proposed land use allocation. The analysis identifies sufficient demand to support floorspace and employment estimates in the Croskell (Employment) PSP for all scenarios.

Land Use Sub Type	% of Excess Floorspace Demand 2021 to 2041 - Casey (C)		
	Lower	Baseline	Upper
Local Services	20%	26%	39%
Office	31%	46%	77%
Bulky Goods	26%	31%	35%
Light industrial	18%	22%	36%
Retail	2%	3%	4%

Table 5: Employment Capacity Assessment, City of Casey
Source: Geografia, 2024.

2.4   CONCLUSION

The Croskell (Employment) PSP is expected to accommodate 6,532 jobs, encompassing 5,271 jobs within the RSCA and 1,261 jobs outside the RSCA. The regional capacity analysis indicates sufficient future demand to support floorspace and employment estimates outlined in the revised Land Use Budget.

It is important to note that the relatively large range in the estimates results from the uncertainties surrounding the existing and future floorspace provisions for planned or proposed Activity Centres (ACs) in the region. This uncertainty limits the capacity to quantify the potential impact of Croskell (Employment) PSP on neighbouring locations. Although the regional capacity analysis identifies sufficient *theoretical* future demand at the broader region (including, for example, Bulky Goods), the land use allocation may potentially draw on surrounding residential catchments and expenditure from other work locations and proposed ACs.[6]

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[6] This was also identified in the previous study, Croskell PSP Employment Needs and Implementation Plan (Geografia, 2023).

3.0 Appendix

APPENDIX A: ANZSIC INDUSTRY TO LUEC CATEGORIES

Land Use Employment Categories (LUECs)	Local Services	Freight & Logistics	Light Industrial	Heavy Industrial	Office	Retail	Bulky Goods
Administrative and Support Services	5%	2%	5%	5%	55%	2%	2%
Agriculture, Forestry and Fishing		30%	30%	25%	10%		5%
Arts and Recreation Services	30%		25%		5%	10%	
Construction	10%	5%	50%	30%	5%		
Education and Training	50%				10%		
Electricity, Gas, Water and Waste Services		5%	5%	85%	5%		
Financial and Insurance Services	2%	2%	2%	2%	65%	25%	
Health Care and Social Assistance	35%		10%		10%	5%	
Information Media and Telecommunications	10%		10%	30%	40%	5%	
Manufacturing		5%	30%	45%	20%		
Mining		30%	30%	30%	10%		
Other Services	5%	10%	45%		15%	25%	
Professional, Scientific and Technical Services		2%	2%	1%	85%	5%	
Public Administration and Safety	30%				40%		
Rental, Hiring and Real Estate Services	5%				65%	30%	
Retail Trade		5%	2%		5%	70%	18%
Transport, Postal and Warehousing		95%	3%		2%		
Wholesale Trade		90%	3%	2%			5%

Table 6: ANZSIC Industry to LUEC Categories
Source: Geografia, 2024. LUEC Categories are derived from SGS definitions as outlined in the SEEC report. These definitions are retained to ensure consistency and comparability with previous work undertaken for Croskell (Employment) PSP.

APPENDIX B: JOB FORECASTS, LOWER RANGE

Land Use Type	Land Use Sub Type	Area (ha)	LUEC or Other Categories	NDA (sqm)	NSA or Est. No of Dwellings	Net Floorspace Area (sqm) or Dwellings	Estimated No. of Jobs	Estimated No. of Jobs/NDHA
RSCA — Commercial	Business (80% Local Services)	45.47	Local Services	363,760	291,008	78,572	393	10.8
	Business (20% Office)		Office	90,940	72,752	26,191	524	57.6
	Office	18.56	Office	185,600	148,480	53,453	1,069	57.6
	Retail	11.92	Bulky Goods	119,200	95,360	15,000	188	15.7
RSCA — Industrial	General Industrial	42.95	Light industrial	429,500	343,600	77,310	258	6.0
Outside the RSCA — Commercial	Business (80% Local Services)	13.74	Local Services	20,610	16,488	4,452	22	10.8
	Business (20% Office)		Office	27,480	21,984	7,914	158	57.6
	Office	6.30	Office	63,000	50,400	18,144	363	57.6
Outside the RSCA — Industrial	General Industrial	2.72	Light industrial	27,200	21,760	4,896	16	6.0
Outside the RSCA — Mixed use	Mixed Use (25% Local Services)	4.74	Local Services	11,850	9,480	2,560	13	10.8
	Mixed Use (25% Retail)		Retail	11,850	9,480	4,400	73	61.9
	Residential (50% Residential)		WfH/Hybrid Workers and HBB workers	23,700	71	–	3	–
Outside the RSCA — Residential		30.39	WfH/Hybrid Workers and HBB workers	303,900	889	–	34	–
Total RSCA Employment		118.90		1,189,000	951,200	250,526	2,431	20.4
Total Non-RSCA Employment		25.13		591,490	473,192	119,676	646	25.7
Total Non-RSCA Residential		32.76		327,600	960	0	36	1.1
Total		176.79		2,108,090	1,425,352	370,201	3,113	17.6

Table 7: Job Forecasts, Lower Range, Croskell (Employment) PSP
Source: Geografia, 2024. Values in this table are calculated using decimal precision and may differ slightly from rounded whole number values.

APPENDIX C: JOB FORECASTS, UPPER RANGE

Land Use Class	Land Use Type	Land Use Sub Type	Area (ha)	LUEC or Other Categories	NDA (sqm)	NSA or Est. No of Dwellings	Net Floorspace Area (sqm) or Dwellings	Estimated No. of Jobs	Estimated No. of Jobs/NDHA
RSCA	Commercial	Business (80% Local Services)	45.47	Local Services	363,760	291,008	157,144	3,143	86.4
		Business (20% Office)		Office	90,940	72,752	65,477	1,871	205.7
		Office	18.56	Office	185,600	148,480	133,632	3,818	205.7
		Retail	11.92	Bulky Goods	119,200	95,360	20,000	1,000	83.9
	Industrial	General Industrial	42.95	Light industrial	429,500	343,600	154,620	3,092	72.0
Outside the RSCA	Commercial	Business (80% Local Services)	13.74	Local Services	20,610	16,488	8,904	178	86.4
		Business (20% Office)		Office	27,480	21,984	19,786	565	205.7
		Office	6.30	Office	63,000	50,400	45,360	1,296	205.7
	Industrial	General Industrial	2.72	Light industrial	27,200	21,760	9,792	196	72.0
	Mixed use	Mixed Use (25% Local Services)	4.74	Local Services	11,850	9,480	5,119	102	86.4
		Mixed Use (25% Retail)		Retail	11,850	9,480	7,700	308	259.9
		Residential (50% Residential)		WfH/Hybrid Workers and HBB workers	23,700	71	–	3	–
	Residential		30.39	WfH/Hybrid Workers and HBB workers	303,900	889	–	34	–
Total RSCA Employment			118.90		1,189,000	951,200	530,873	12,924	108.7
Total Non-RSCA Employment			25.13		591,490	473,192	251,280	2,646	105.3
Total Non-RSCA Residential			32.76		327,600	960	0	36	1.1
Total			176.79		2,108,090	1,425,352	782,153	15,606	88.3

Table 8: Job Forecasts, Upper Range, Croskell (Employment) PSP
Source: Geografia, 2024. Values in this table are calculated using decimal precision and may differ slightly from rounded whole number values.