

# Project 5 – Understanding Perth road freight

Research Forum  
6 November 2017

# Project Aims

- To investigate the quality various data series available to measure and describe road freight usage in metropolitan Perth
- To define the industrial areas of Perth according to industry type and freight-generation characteristics
- To develop a taxonomy of industry supply chain types and the nature of freight usage for each

# Data series evaluated

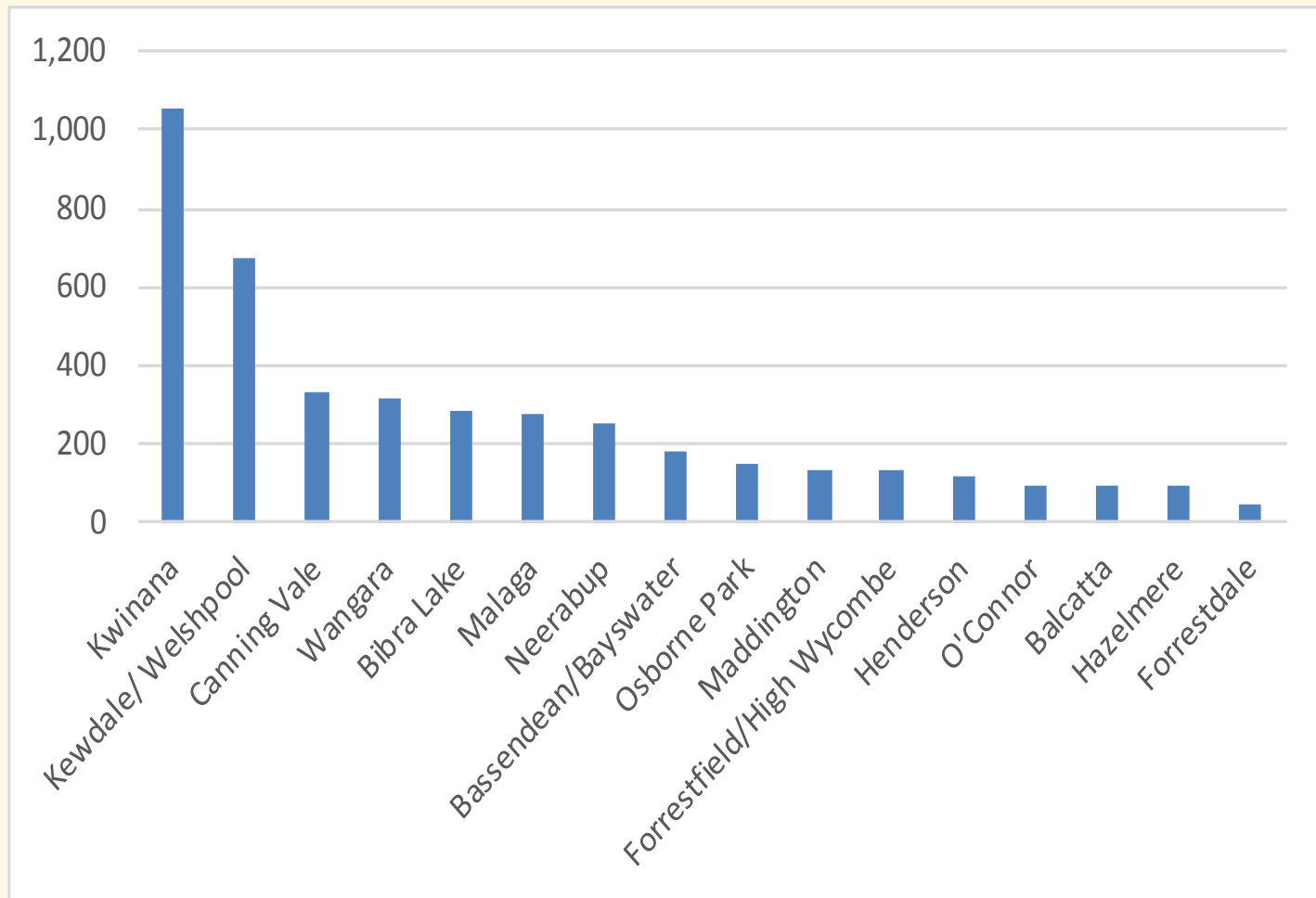
- ABS Business Enterprise counts
- Dun and Bradstreet commercial enterprise database
- DoP Land Use and Employment Survey 2008
- ABS Community Profiles and 2011 Census data on workplace
- Dept of Transport vehicle licensing database
- MRWA traffic counts

SA2	Madelley - Darch - Landsdale	Malaga	Osborne Park Industrial	Balcatta - Hamersley	Bassendean - Eden Hill - Ashfield	Bayswater - Embleton - Bedford	Hazelmere - South Guildford
Industrial area	Wangara	Malaga	Osborne Park	Balcatta	Bassendean	Bayswater	Hazelmere
<b>Total Residential Population</b>	18,979	14	6	14,975	14,405	21,210	3,636
Area (sq km)	20.4	6.4	3.4	10.4	10.3	13.8	17.0
pop density (persons/sq km)	933	2	2	1,445	1,393	1,536	214
industrial area (sq km)	6.3	6.0	3.4	2.2	1.9	1.9	3.9
industrial area / total area (%)	31.0%	93.7%	98.7%	21.2%	18.3%	13.9%	22.9%
<b>Census 2011 Employment</b>							
<b>ANZSIC - 1 Digit Level</b>							
Agriculture, Forestry and Fishing	0.4%	0.1%	0.8%	0.3%	0.2%	0.1%	0.3%
Mining	2.1%	2.1%	1.6%	1.3%	1.2%	0.8%	11.7%
Manufacturing	27.3%	32.3%	10.5%	15.8%	32.1%	23.0%	12.2%
Electricity, Gas, Water and Waste Services	0.5%	2.1%	0.2%	5.1%	0.8%	1.3%	0.5%
Construction	19.8%	14.9%	15.9%	14.8%	6.4%	14.0%	13.1%
Wholesale Trade	7.4%	12.8%	9.4%	10.0%	7.5%	7.0%	13.5%
Retail Trade	11.4%	8.8%	12.7%	10.1%	5.9%	5.9%	1.1%
Accommodation and Food Services	2.8%	1.8%	1.3%	3.6%	3.8%	3.1%	0.9%
Transport, Postal and Warehousing	4.3%	3.4%	1.6%	1.6%	5.1%	3.8%	21.6%
Information Media and Telecommunications	0.4%	0.8%	5.4%	0.7%	0.5%	0.8%	0.1%
Financial and Insurance Services	0.7%	0.8%	3.1%	3.7%	4.0%	0.6%	0.6%
Rental, Hiring and Real Estate Services	1.5%	1.1%	1.1%	0.7%	3.0%	2.3%	2.2%
Professional, Scientific and Technical Services	3.5%	5.2%	8.5%	9.4%	3.7%	4.1%	1.1%
Administrative and Support Services	1.5%	2.2%	3.0%	4.7%	3.6%	2.4%	1.1%
Public Administration and Safety	0.9%	1.0%	6.0%	2.2%	2.1%	2.4%	0.8%
Education and Training	4.2%	0.9%	2.4%	4.2%	7.3%	6.9%	0.2%
Health Care and Social Assistance	2.8%	1.0%	8.0%	5.0%	8.2%	10.1%	0.4%
Arts and Recreation Services	0.5%	0.5%	2.6%	0.5%	0.7%	1.5%	0.5%
Other Services	6.5%	6.2%	4.9%	4.8%	2.5%	8.0%	16.6%
Inadequately described	1.5%	2.0%	1.0%	1.4%	1.3%	1.8%	1.2%
Not stated	0.1%	0.0%	0.0%	0.0%	0.2%	0.0%	0.2%
Not applicable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total employment</b>	<b>13,636</b>	<b>15,422</b>	<b>20,977</b>	<b>10,826</b>	<b>5,697</b>	<b>7,384</b>	<b>4,659</b>
<b>Freight sensitive employment total</b>	<b>8,364</b>	<b>10,440</b>	<b>8,209</b>	<b>5,260</b>	<b>3,020</b>	<b>3,686</b>	<b>3,386</b>
<b>Freight-sensitive category % of total</b>	<b>61.3%</b>	<b>67.7%</b>	<b>39.1%</b>	<b>48.6%</b>	<b>53.0%</b>	<b>49.9%</b>	<b>72.7%</b>

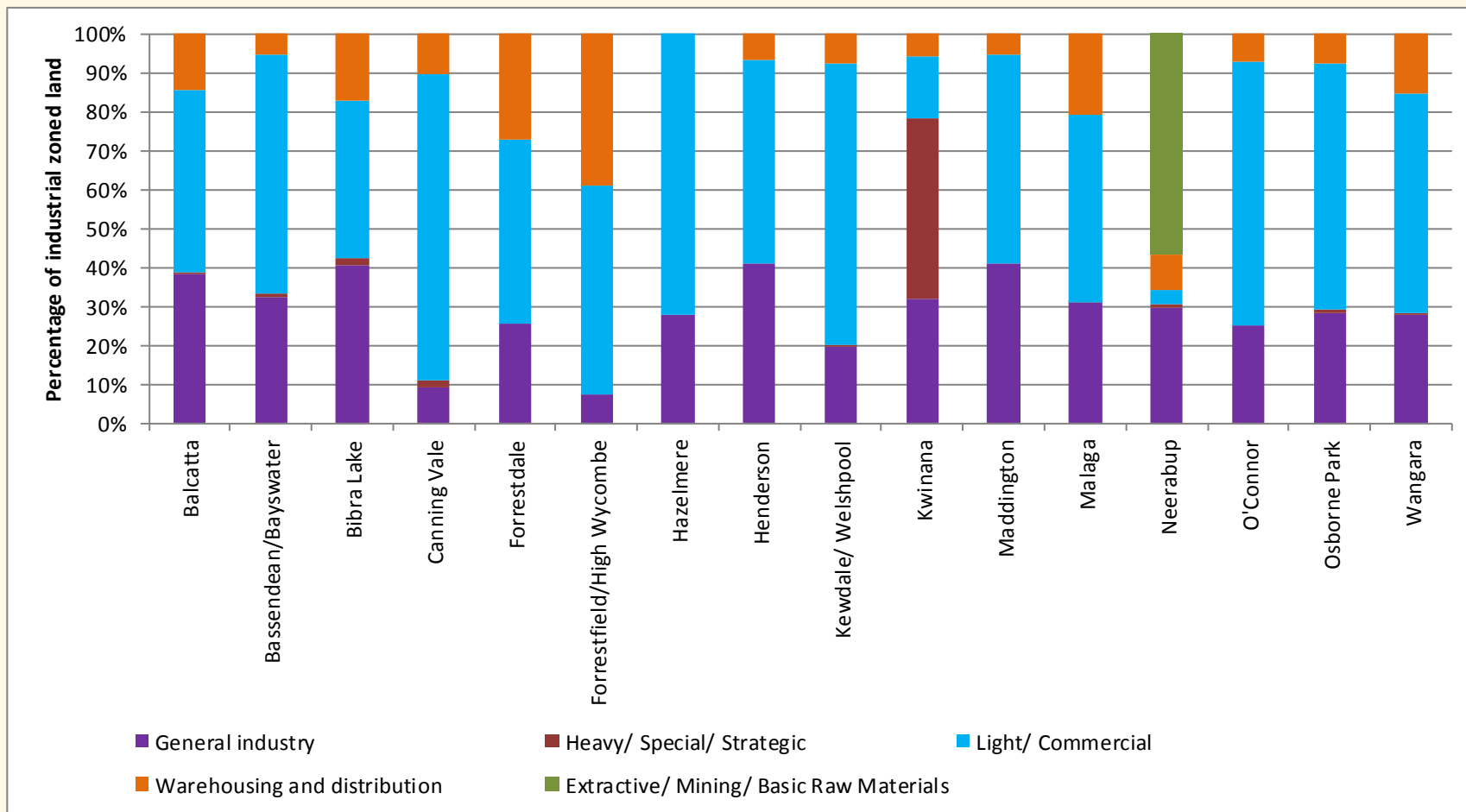
SA2	Forrestfield - Wattle Grove	Perth Airport	Kewdale Commercial	Welshpool	Canning Vale Commercial	Maddington - Orange Grove - Martin	Janda kot Airport
Industrial area	Forrestfield	Perth Airport	Kewdale	Welshpool	Canning Vale	Maddington	Janda kot Airport
<b>Total Residential Population</b>	15,936	51	-	18	-	11,797	222
Area (sq km)	26.9	20.4	4.8	8.3	6.6	53.3	7.5
pop density (persons/sq km)	593	3	-	2	-	221	30
industrial area (sq km)	2.6	2.0	4.7	8.2	6.5	5.0	2.6
industrial area / total area (%)	9.7%	9.8%	98.3%	98.5%	98.0%	9.4%	34.7%
<b>Census 2011 Employment</b>							
<b>ANZSIC - 1 Digit Level</b>							
Agriculture, Forestry and Fishing	1.0%	0.0%	0.1%	0.2%	0.3%	0.6%	0.3%
Mining	3.9%	7.5%	2.4%	4.5%	3.4%	1.8%	0.6%
Manufacturing	20.3%	4.3%	27.5%	27.3%	25.7%	19.3%	15.0%
Electricity, Gas, Water and Waste Services	2.1%	0.7%	3.4%	1.8%	2.0%	0.9%	0.6%
Construction	6.9%	1.1%	7.4%	7.3%	10.8%	14.5%	3.0%
Wholesale Trade	4.8%	4.4%	15.3%	14.8%	23.3%	3.9%	7.9%
Retail Trade	8.0%	9.4%	6.7%	6.8%	7.0%	13.8%	5.5%
Accommodation and Food Services	4.2%	6.0%	1.4%	0.9%	1.0%	3.5%	1.1%
Transport, Postal and Warehousing	24.6%	47.0%	20.9%	16.1%	6.7%	5.2%	13.9%
Information Media and Telecommunications	0.2%	0.1%	2.4%	0.5%	0.4%	0.2%	0.0%
Financial and Insurance Services	0.4%	0.5%	0.9%	1.2%	0.9%	1.1%	0.0%
Rental, Hiring and Real Estate Services	1.8%	1.2%	1.2%	2.6%	1.2%	1.4%	1.2%
Professional, Scientific and Technical Services	1.9%	4.0%	2.3%	2.9%	6.6%	5.5%	10.8%
Administrative and Support Services	2.3%	2.1%	2.3%	2.6%	1.5%	2.2%	2.0%
Public Administration and Safety	2.9%	8.7%	0.1%	1.4%	2.0%	6.7%	4.5%
Education and Training	5.9%	0.4%	0.2%	0.4%	0.5%	4.9%	18.6%
Health Care and Social Assistance	4.1%	0.3%	0.9%	1.3%	1.6%	5.7%	12.4%
Arts and Recreation Services	0.3%	0.0%	0.0%	0.5%	0.2%	0.4%	0.0%
Other Services	3.5%	1.6%	3.1%	5.1%	3.2%	6.4%	1.5%
Inadequately described	0.9%	0.7%	1.4%	1.7%	1.7%	1.9%	1.0%
Not stated	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%
Not applicable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total employment</b>	<b>6,306</b>	<b>10,004</b>	<b>7,499</b>	<b>17,947</b>	<b>14,764</b>	<b>8,355</b>	<b>1,150</b>
Freight sensitive employment total	3,948	6,499	5,769	12,884	10,618	3,812	472
Freight-sensitive category % of total	62.6%	65.0%	76.9%	71.8%	71.9%	45.6%	41.0%

SA2	Bibra Industrial	Henderson	Fremantle	O'Connor	Kwinana Industrial	Rockingham
Industrial area	Bibra Lake	Henderson	Fremantle	O'Connor	Kwinana	Rockingham
<b>Total Residential Population</b>	16	14	13,245	3	11	14,826
Area (sq km)	6.5	8.7	29.2	1.7	16.7	35.7
pop density (persons/sq km)	2	2	453	2	1	415
industrial area (sq km)	6.4	8.0	7.0	1.6	16.6	8.3
industrial area / total area (%)	97.8%	91.5%	24.0%	95.9%	99.3%	23.2%
<b>Census 2011 Employment</b>						
<b>ANZSIC - 1 Digit Level</b>						
Agriculture, Forestry and Fishing	0.5%	0.0%	0.4%	0.4%	0.1%	0.2%
Mining	1.9%	4.8%	0.6%	2.1%	5.9%	0.6%
Manufacturing	32.4%	50.0%	6.0%	35.1%	49.1%	9.3%
Electricity, Gas, Water and Waste Services	1.8%	1.3%	0.3%	0.9%	4.6%	0.2%
Construction	16.3%	16.3%	2.9%	10.7%	17.6%	5.3%
Wholesale Trade	12.0%	4.1%	2.4%	11.8%	3.4%	2.0%
Retail Trade	5.7%	1.5%	8.9%	14.2%	1.9%	17.4%
Accommodation and Food Services	0.9%	0.5%	10.5%	1.9%	0.5%	7.0%
Transport, Postal and Warehousing	7.2%	4.9%	11.0%	4.6%	6.3%	3.2%
Information Media and Telecommunications	0.3%	0.1%	0.9%	0.3%	0.0%	1.1%
Financial and Insurance Services	0.2%	0.3%	1.7%	0.3%	0.2%	2.0%
Rental, Hiring and Real Estate Services	0.9%	0.9%	1.7%	1.5%	1.9%	2.1%
Professional, Scientific and Technical Services	5.2%	7.8%	6.2%	3.3%	2.7%	2.8%
Administrative and Support Services	3.5%	1.3%	2.2%	1.0%	1.9%	2.6%
Public Administration and Safety	1.4%	1.2%	7.7%	0.8%	0.5%	24.6%
Education and Training	1.3%	0.8%	7.2%	0.6%	0.2%	5.8%
Health Care and Social Assistance	0.3%	0.1%	23.8%	3.8%	0.2%	7.7%
Arts and Recreation Services	1.6%	0.0%	2.4%	0.7%	0.0%	0.9%
Other Services	4.3%	1.4%	2.2%	4.7%	1.5%	4.2%
Inadequately described	2.4%	2.7%	1.1%	1.4%	1.4%	0.8%
Not stated	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Not applicable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Total employment</b>	<b>7,222</b>	<b>4,396</b>	<b>17,574</b>	<b>4,094</b>	<b>7,219</b>	<b>11,990</b>
<b>Freight sensitive employment total</b>	<b>5,174</b>	<b>3,578</b>	<b>4,053</b>	<b>2,669</b>	<b>6,279</b>	<b>2,475</b>
<b>Freight-sensitive category % of total</b>	<b>71.6%</b>	<b>81.4%</b>	<b>23.1%</b>	<b>65.2%</b>	<b>87.0%</b>	<b>20.6%</b>

# Perth industrial areas (ha)



# Perth industrial areas make-up (DoP)





# Freight streams - sample

Stream	Description	Origins	Destinations	Annual Volume (tonnes)	Truck type
Imported goods	Goods from overseas and interstate into DCs and smaller storage units for distribution to stores and households. Includes small volumes to east coast. Includes groceries, consumer goods, furnishings, industrial equipment etc	Port of Fremantle container berths; Rail terminals	DCs – Forrestfield, Hazelmere Distributors – all areas Stores – all areas Households – all areas Railyards – to east coast	Fremantle – 3.5m Railyards - 1.5m	Semi-trailers with containers (sea freight and domestic);
Rural exports	Grains, livestock, timber products, mineral sands to port via intermediate staging or processing.	Wheatbelt, South-west, Great Southern, Pilbara,	Grain – CBH Forrestfield & Inner Harbour packers; Livestock – Wellard, Hazelmere & Inner Harbour; Timber – forests to Inner Harbour Wool – farm to Bibra Lake stores & Inner Harbour Mineral sands – mines to warehouses Henderson & Inner Harbour	Grain – 200,000 Livestock – 100,000 Timber – 65,000 Wool – 100,000 Mineral Sands – 650,000	Grain – bulk tippers to CBH and packers, then semi-trailers and B-Doubles with containers to port; Livestock carriers; Timber – specialist log carriers Wool – vans to stores, then container trucks Mineral sands – B-doubles with specialist containers

# Researching freight activity

- Freight activity patterns are unique to each geographical / economic unit
- Industrial location decisions generally consider land value, proximity to labour and markets, connectivity, freight costs & convenience, in measures relevant to core business
- Freight is increasingly cheap and comprises only a small part of the supply chain cost for many industries
- Data is weak, and most information is held by private firms, each with their own unique set of operating circumstances

## Researching freight (2)

- New trends in retail distribution are having an impact on the nature of freight services along the supply chain
  - Regional vs national distribution
  - Atomisation of last mile urban deliveries
- Clustering activity is not significant in Perth, other than in the Kwinana heavy industrial zone, and of logistics companies in the eastern industrial belt.
- Attempts to influence freight activity through regulation can be problematic