

Australian Government

Department of Infrastructure and Regional Development

Bureau of Infrastructure, Transport and Regional Economics



Traffic on the national road network, 2013–14

At a glance

- This Information Sheet presents 2013–14 road traffic volumes across the Australian National Land Transport Network (NLTN)—the integrated network of land transport linkages of strategic national importance. It is an update on estimates presented for 2011–12 in BITRE Information Sheet 63.
- The busiest intercapital corridor on the network is the Pacific Highway/Motorway, between Sydney and Brisbane, with average traffic volumes of 24 809 vehicles per day in 2013–14. This corridor links many large regional centres, which contribute significantly to overall average corridor traffic volumes. (*Corridor-average traffic volume* estimates reported herein are calculated as the length-weighted average of traffic across all segments of each corridor.)
- The Sydney–Melbourne corridor, comprising the Hume Highway/Freeway, is the second most heavily trafficked intercapital corridor on the national network, with average traffic volumes of 15 274 vehicles per day in 2013–14.
- These two corridors also have the highest volume of heavy vehicles of any intercapital corridor—heavy vehicle volumes on the Sydney–Melbourne corridor averaged approximately 4210 heavy vehicles per day in 2013–14, and on the Pacific Highway/Motorway 2823 heavy vehicles per day.
- The least trafficked intercapital corridor, in average traffic volume terms, is the Perth–Darwin corridor, with average traffic volumes of 772 vehicles per day in 2013–14.
- The busiest intrastate corridor is the Princes Highway between Sydney and Wollongong, which had average traffic volumes of over 45 000 vehicles per day in 2013–14.
- Other notable features include:
 - Average traffic volumes are highest on the outskirts of metropolitan areas, often several multiples higher than traffic in rural/regional areas.
 - In rural areas, traffic volumes on the NLTN are also higher in and around regional population centres. Average traffic volumes on rural sections between proximate regional population centres (e.g. between, Tailem Bend and Murray Bridge and Cloncurry and Mt Isa) can be higher than on the adjacent rural sections.
 - Traffic volumes on bypasses are typically lower than on adjacent sections, reflecting use of the corridor for access to regional population centres.
- The traffic volumes imply vehicle use across the non-urban NLTN corridors totalled approximately 42.8 billion vehicle kilometres in 2013–14—light vehicles comprising 35.2 billion vehicle kilometres and heavy vehicles 7.6 billion vehicle kilometres. This is equivalent to 17.5 per cent of total vehicle kilometres travelled (by all registered motor vehicles) across Australia in 2013–14, with light vehicle use equivalent to 15.7 per cent of total light vehicle travel across Australia and heavy vehicles approximately 38.3 per cent of total heavy vehicle use in Australia.

Introduction

The National Land Transport Network (NLTN) is a single, integrated network of land transport linkages of strategic national importance, which is funded by Federal, State and Territory Governments (DIRD 2014). It includes national and inter-regional transport corridors, including connections through urban areas and links to ports, airports, and rail and road terminals, that together are of critical importance to national and regional economic growth, development and connectivity.¹ The NLTN comprises 10 separate interstate corridors connecting capital cities and 9 intrastate corridors generally linking state capital and regional population centres. The Sydney–Brisbane corridor includes two separate routes between Sydney and Brisbane—via the Pacific Highway and via the New England Highway. Together these 19 corridors are designated the 'non-urban' corridors. In addition, the NLTN includes urban connections to ports and major transport hubs in each of the five mainland capital cities.

This Information Sheet presents estimates of traffic volumes across the NLTN in 2013–14, focusing on the non-urban corridors, and updates BITRE Information Sheet 63, *Traffic on the national road network*, 2011–12 (BITRE 2014). The traffic volumes are presented in terms of average annual daily traffic (AADT)—equal to total annual traffic divided by the number of days per year. This measure abstracts from daily and seasonal variations in traffic—for example, average total hourly traffic volumes are typically higher during daylight hours than at night time and average daily traffic volumes are significantly higher on parts of the non-urban network during peak holiday periods (e.g. Easter and Christmas) than at other times. Light and heavy vehicle traffic volumes are separately enumerated. (Heavy vehicles are defined as vehicles with a gross vehicle mass of 4.5 tonnes and above, typically rigid and articulated trucks and buses.)

The data presented in this Information Sheet are based on traffic volume estimates provided by state and territory government road agencies, which, in turn, are based on traffic counts measured at various points along the road network. Traffic count data variously includes a mix of permanent and temporary count sites, providing a mix of fully enumerated and partial survey count information, the latter scaled to full-year equivalent estimates. However, traffic counts are not collected at all sites every year. Where this is the case, traffic volumes are based either on previous traffic count information or (count-based) modelled estimates.² Consequently, estimated traffic can vary significantly from year-to-year, due to one or more factors, including sampling error, modelling methods or a combination of the two.

Data and definitions

A note on regional terms and definitions used in this publication—the National Land Transport Network (NLTN) Determination differentiates between urban and non-urban NLTN corridors. This publication adheres to that terminology in distinguishing between the urban and non-urban network corridors. The non-urban NLTN corridors, however, include both heavily trafficked sections within peri-urban areas of capital cities and large regional population centres, and generally less-heavily trafficked sections in rural areas. Accordingly, this Information Sheet reports separate estimates of average vehicle traffic volumes across rural sections of each non-urban NLTN corridor, in addition to total average traffic volumes on each non-urban corridor. The rural average traffic volume estimates include traffic only on road sections lying outside urban areas, defined here based on the 2011 Significant Urban Area (SUA) geographical boundaries (ABS 2012).³

 Publicly available traffic count data can be found at: <u>http://www.rms.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/index.html</u>, <u>https://www.vicroads.vic.gov.au/traffic-and-road-use/road-network-and-performance/road-use-and-performance, http://vicroadsopendata.vicroadsmaps.opendata.arcgis.com/datasets/147696bb47544a209e0a5e79e165d1b0_0, https://data.qld.gov.au/dataset/traffic-census-for-the-queensland-state-declared-road-network, https://www.mainroads.wa.gov.au/OurRoads/Facts/TrafficData/Pages/default.aspx, http://dpti.sa.gov.au/traffic_volumes
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The National Land Transport Network used here is that defined in AusLink (National Land Transport) Act National Land Transport Network Determination 2005 as of 10 February 2009 (URL: www.comlaw.gov.au/Details/F2009C00116, Accessed: October 2015).

Significant Urban Areas (SUAs) are geographical units that represent concentrations of urban development with a population of 10 000 or more. They can also include related peri-urban and satellite development and the area into which the urban development is likely to expand. SUAs are part of the Australian Statistical Geography Standard (ABS 2012).

Corridor traffic volumes

Figure I shows average daily total traffic volumes across the NLTN network in 2013–14 and Table I presents estimates of average traffic volumes across each of the NLTN corridors in 2013–14.⁴

The estimates show that the Pacific Highway/Motorway, between Sydney and Brisbane, is the busiest intercapital corridor on the network, with average traffic volumes of approximately 24 809 vehicles per day in 2013–14. This corridor also connects many large regional centres in northern New South Wales, and traffic within and surrounding these centres contribute significantly to overall average corridor traffic volumes. Average traffic volumes across the rural parts of the corridor were around 13 685 vehicles per day in 2013–14.

The Sydney–Melbourne corridor, comprising the Hume Highway/Freeway, is the second most heavily trafficked intercapital corridor on the national network, with average traffic volumes of 15 274 vehicles per day in 2013–14. The Sydney–Melbourne corridor also has the highest average volume of heavy vehicles of all intercapital corridors, with approximately 4210 heavy vehicles per day in 2013–14—approximately 27.6 per cent of all vehicles on the corridor. (The Pacific Highway/Motorway has the second highest, with 2823 heavy vehicles per day in 2013–14—equivalent to 11.4 per cent of all vehicles across the corridor in that year.)

Average daily traffic volumes on the Sydney–Brisbane (inland), Melbourne–Adelaide and Melbourne–Brisbane corridors were around 13 007, 10 008 and 3935 vehicles per day, respectively, in 2013–14. Heavy vehicle traffic volumes averaged 13.2 per cent of all vehicles on the Sydney–Brisbane (inland) corridor, 22.8 per cent of all vehicles on the Melbourne–Adelaide corridor and 25.5 per cent of all vehicles on the Melbourne–Brisbane corridor in 2013–14.

The least trafficked intercapital corridors, in average traffic volume terms, include the Brisbane–Darwin corridor—which extends from Toowoomba (Queensland) to the intersection of the Barkly and Stuart Highways (at Three Ways, Northern Territory)—with average traffic volumes of approximately 1170 vehicles per day in 2013–14, the Perth–Darwin corridor, with average total traffic volumes of 772 vehicles per day in 2013–14 (with the Karratha connector links a much higher 1489 vehicles per day), the Perth–Adelaide corridor, with average traffic volumes of approximately 1751 vehicles per day in 2013–14, and the Adelaide (Port Augusta)–Darwin corridor—which extends from Port Augusta to Darwin—with average traffic volumes of 900 vehicles per day in 2013–14. Heavy vehicles comprised around 42 per cent of vehicles on the Perth–Darwin corridor, 25 per cent of all vehicles on the Perth–Adelaide corridor, and 20 per cent of vehicles on the Adelaide (Port Augusta)–Darwin corridor.

The busiest intrastate corridor is the Princes Highway between Sydney and Wollongong, which had average traffic volumes of 45 290 vehicles per day in 2013–14. Vehicle kilometres travelled on urban sections account for nearly three quarters of all traffic on the corridor, while heavy vehicles comprise around 7 per cent of total vehicle kilometres travelled. Average traffic volumes on most other intrastate corridors are also relatively high, principally due to traffic volumes on road sections on the periphery of state capitals. The notable exception is the Townsville–Mt Isa corridor—which comprises the Flinders Highway between its intersections with the Bruce Highway near Townsville and the Landsborough Highway near Cloncurry—where average traffic volumes are less than 1000 vehicles per day.

^{4.} Corridor-average traffic volumes presented herein are equal to the length-weighted average of traffic across all segments of the corridor.





Source: Traffic volumes provided by state and territory road agencies.

Table 1: Average traffic volumes on non-urban national network corridors, 2013–14

Corridor	Roads	Average AADT					
	-	All sections		Rural sections ^a			
	-	Light vehicles	Heavy vehicles	All vehicles	Light vehicles	Heavy vehicles	All vehicles
Interstate corridors							
Sydney–Melbourne	Hume Highway, Hume Freeway	11 063	4 210	15 274	8 788	3 974	12 762
Sydney–Brisbane (inland)	MI (F3), John Renshaw Drive, Weakleys Drive, New England Highway, Cunningham Highway	294	7 3	13 007	6 674	1 226	7 901
Sydney–Brisbane (coastal)	Pacific Highway, Pacific Motorway	21 985	2 823	24 809	666	2018	13 685
Sydney–Adelaide	Sturt Highway (incl. Gawler Bypass)	2 404	715	3 1 1 9	2 42	683	2 825
Canberra Connectors	Federal Highway, Barton Highway	12 259	I 276	13 535	11 707	I 247	12 953
Melbourne–Brisbane	Goulburn Valley Highway, Newell Highway, Cunningham Highway, Leichhardt Highway, Gore Highway, Warrego Highway	2 930	I 005	3 935	2 59	898	3 057
Melbourne–Adelaide	Western Freeway/Highway, Dukes Highway, Princes Highway, South Eastern Freeway	7 728	2 280	10 008	3 951	I 833	5 783
Brisbane–Darwin	Warrego Highway, Landsborough Highway, Flinders Highway, Barkly Highway	817	353	170	714	339	I 053
Perth–Adelaide	Great Eastern Highway, Coolgardie– Esperance Highway, Eyre Highway, Princes Highway	3	440	75	984	394	378
Adelaide (Port Augusta)–Darwin	Stuart Highway, Berrimah Road	719	181	900	547	162	709
Perth–Darwin	Great Northern Highway, Victoria Highway	450	322	772	393	307	700
	Karratha connector: North West Coastal Highway, Karratha Dampier Road	I 074	415	I 489	742	368	0
Intrastate corridors							
Sydney–Wollongong	Princes Highway, Southern Freeway (F6), Mt Ousley Road	41 966	3 324	45 290	37 077	3 463	40 539
Sydney–Dubbo	Western Motorway (M4), Great Western Highway, Mitchell Highway	12 097	I 372	13 469	4 886	821	5 707
Melbourne-Sale	Princes Freeway/Highway	20 046	4 009	24 055	14 501	3 450	17 951
Melbourne–Colac	Princes Freeway/Highway	31 466	5012	36 478	4 808	56	6 369
Melbourne–Mildura	Calder Freeway/Highway	5 947	0	7 058	2 668	821	3 489
Brisbane–Cairns	Bruce Highway	7 839	I 420	9 259	4 967	1 1 2 6	6 094
Townsville–Mt Isa	Flinders Highway	658	232	890	642	226	868
Perth–Bunbury⁵	Kwinana Freeway, Forrest Highway, Old Coast Road, Australind Bypass, Willinge Drive, Estuary Drive	16 182	2 188	18 370	13 399	I 843	15 242
Hobart–Burnie	Tasman Highway, Brooker Highway, Midland Highway, Bass Highway	9 565	2 9	10 784	5 777	1 021	6 798
Launceston–Bell Bay	Midland Highway, East Tamar Highway, Bell Bay Road	5 904	696	6 600	4212	569	4 781
All corridors		4 450	962	5 412	2 393	727	3 1 2 0

a. Average traffic volumes on rural sections include only traffic outside of Significant Urban Areas (ABS 2012).

b. The Perth–Bunbury corridor includes separate links connecting to Bunbury Port, the Koombana Drive/Robertson Drive Roundabout and the Bunbury Outer Ring Road. Traffic volumes shown here follow the route to Bunbury Port following Willinge Drive and Estuary Drive.

Source: Traffic volume data supplied by state and territory road authorities.

Figures 2 to 23 show detailed light, heavy and total traffic volumes, in 2013–14, across each intercapital and interstate corridor of the NLTN. The inland and coastal routes between Sydney and Brisbane are shown separately in Figures 3 and 4, respectively. The Perth–Darwin corridor is shown in Figures 12 (main corridor) and 13 (Karratha connector, which links Karratha to the Great Northern Highway). Several notable features are readily apparent:

- Average traffic volumes are highest on the outskirts of metropolitan areas, often several multiples higher than traffic in rural and regional areas.
- In rural areas, traffic volumes on the NLTN are also higher around regional population centres. Average traffic volumes on some rural sections between closely-proximate regional population centres are higher than on surrounding rural sections. Notable examples of this include between Cloncurry and Mt Isa (Brisbane–Darwin corridor) and between Tailem Bend and Murray Bridge (Melbourne–Adelaide corridor).
- Traffic volumes on town bypasses are typically lower than on adjacent sections, reflecting use of the corridor for access to regional population centres. Conversely, traffic volumes are higher on sections either located within or surrounding rural towns where there is no bypass.
- Light vehicle traffic volumes generally exhibit more variation than heavy vehicle volumes across most NLTN corridors, largely due to significantly higher light vehicles traffic volumes on sections near capital cities and major regional population centres.

The low traffic volume point on each corridor provides an upper bound on the average daily end-to-end traffic (i.e. vehicles travelling the entire length of the corridor). The low traffic volume point on the Sydney–Melbourne corridor, for example, occurs in southern New South Wales, between Holbrook and Tarcutta. Average traffic volumes were around 5000 vehicles per day at this point in 2013–14—including 1900 heavy vehicles per day.



Figure 2: Sydney–Melbourne corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by Roads and Maritime Services, New South Wales, and VicRoads.



Figure 3: Sydney–Brisbane corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by Roads and Maritime Services, New South Wales, and the Queensland Department of Transport and Main Roads.

Figure 4: Sydney–Brisbane (coastal) corridor average daily traffic volumes, 2013–14



Source: Traffic volumes provided by Roads and Maritime Services, New South Wales, and the Queensland Department of Transport and Main Roads.



Figure 5: Sydney–Adelaide corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by Roads and Maritime Services, New South Wales, VicRoads and the South Australian Department of Planning, Transport and Infrastructure.

Figure 6: Canberra Connectors average daily traffic volumes, 2013–14



Source: Traffic volumes provided by Roads and Maritime Services, New South Wales, and Roads ACT.

Information sheet



Figure 7: Melbourne–Brisbane corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by Roads and Maritime Services, New South Wales, VicRoads and the Queensland Department of Transport and Main Roads.

Figure 8: Melbourne-Adelaide corridor average daily traffic volumes, 2013-14



Source: Traffic volumes provided by VicRoads and the South Australian Department of Planning, Transport and Infrastructure.



Figure 9 : Brisbane–Darwin corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by the Queensland Department of Transport and Main Roads and the Northern Territory Department of Transport.

Figure 10: Perth-Adelaide corridor average daily traffic volumes, 2013-14



Source: Traffic volumes provided by the South Australian Department of Planning, Transport and Infrastructure and Main Roads Western Australia.



Figure 11: Adelaide (Port Augusta)-Darwin corridor average daily traffic volumes, 2013-14

Source: Traffic volumes provided by the South Australian Department of Planning, Transport and Infrastructure and the Northern Territory Department of Transport.

Figure 12: Perth–Darwin corridor average daily traffic volumes, 2013–14



Source: Traffic volumes provided by the Main Roads Western Australia and the Northern Territory Department of Transport.



Figure 13: Perth–Darwin corridor (Karratha connector) average daily traffic volumes, 2013–14

darratha Airpor Burrup Rd

Karratha Rd

200

Source: Traffic volumes provided by the Main Roads Western Australia.

Figure 14: Sydney–Wollongong corridor average daily traffic volumes, 2013–14



Light vehicles Heavy vehicles

Source: Traffic volumes provided by Roads and Maritime Services, New South Wales.



Figure 15: Sydney–Dubbo corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by Roads and Maritime Services, New South Wales.





Source: Traffic volumes provided by VicRoads.



Figure 17: Melbourne–Colac corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by VicRoads.





Source: Traffic volumes provided by VicRoads.



Figure 19: Brisbane–Cairns corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by the Queensland Department of Transport and Main Roads.





 $\label{eq:source: Traffic volumes provided by the Queensland Department of Transport and Main Roads.$

Information sheet



Figure 21: Perth–Bunbury corridor average daily traffic volumes, 2013–14

Source: Traffic volumes provided by Main Roads Western Australia.

Notes: The Perth–Bunbury corridor includes separate links connecting to Bunbury Port, the Koombana Drive/Robertson Drive Roundabout and the Bunbury Outer Ring Road. Traffic volumes shown here follow the route to Bunbury Port following Willinge Drive and Estuary Drive.

Figure 22: Hobart-Burnie corridor average daily traffic volumes, 2013-14



Source: Traffic volumes provided by the Tasmanian Department of State Growth.

Information sheet



Figure 23: Launceston–Bell Bay average daily traffic volumes, 2013–14

Source: Traffic volumes provided by the Tasmanian Department of State Growth.

Total network use

Based on the traffic volume data, BITRE estimates total vehicle use on the non-urban NLTN corridors was approximately 42.8 billion vehicle kilometres in 2013–14—with light vehicle use approximately 35.2 billion vehicle kilometres and heavy vehicle use approximately 7.6 billion vehicle kilometres. These estimates imply that vehicle use across the intercapital and interregional NLTN accounts for approximately 17.5 per cent of estimated total vehicle road use across Australia—244.4 million vehicle kilometres in 2013–14⁵ (ABS 2015)—with light vehicle travel on the NLTN around 15.7 per cent of total light vehicle road use in Australia and heavy vehicle travel on the NLTN somewhat higher at around 38.3 per cent of total heavy vehicle⁶ road use across Australia.

NLTN urban section traffic volumes

For completeness, Figures 24 to 28 show traffic volumes on NLTN links within and surrounding each of the five mainland capital cities. It should be noted that the NLTN urban links comprise only a very small subset of the urban road network in each capital city and therefore account for only a fraction of total traffic volumes in capital cities.

^{5.} The NLTN road volumes are as of 30 September 2014 while the ABS *Survey of Motor Vehicle Use* (SMVU) covers the 12 months ending 31 October 2014.

^{6.} The NLTN road volumes define trucks weighing 4.5 tonnes GVM (gross vehicle mass) or more as heavy vehicles while the ABS SMVU uses 3.5 tonnes GVM or more. Buses are also included in heavy vehicles.





Source: Traffic volumes provided by Roads and Maritime Services, New South Wales.





Source: Traffic volumes provided by VicRoads.



Figure 26: Brisbane urban NLTN link traffic volumes, 2013–14

Source: Traffic volumes provided by the Queensland Department of Transport and Main Roads.

Figure 27: Adelaide urban NLTN link traffic volumes, 2013–14



Source: Traffic volumes provided by the South Australian Department of Planning, Transport and Infrastructure.







Traffic volumes provided by Main Roads Western Australia. Source:

Concluding remarks

This Information Sheet presents recent road traffic volumes across the Australian National Land Transport Network—the integrated network of land transport linkages of strategic national importance. The estimates are based on data supplied by state and territory road transport agencies. They highlight the continuing significance of the NLTN to the movement of people and goods between capital cities, regional population centres and rural areas linked by the NLTN.

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