

Access and Connection



reliable transport

Overview



Indicator name Freight network accessibility

Indicator number 5 **Indicator type** Core

Objective To measure the efficiency of access for freight

Application guidance

Freight is the derived demand from people for goods and services. It most commonly manifests as trucks on the road. The economy, including the economy of successful places, relies on goods and services while the efficient and safe movement of goods reduces impact on other road users, the broader community, and the environment. Catering for the movement of high productivity vehicles to and from large freight generating locations such as logistics hubs and industrial areas needs to be considered as part of the delivery chain. High productivity vehicles travel on designated routes and are often restricted on other roads. These designated routes need to be protected, or alternatives identified if they are to be changed. Separating areas of place intensity and sensitive land uses from freight routes is desirable. Truck lanes or restricted access roads could be considered in and around important freight and logistics precincts like ports and intermodal facilities to separate high productivity vehicles from general traffic and improve reliability.

This indicator will support practitioners to understand the access and connectivity of high productivity vehicles across successful places including dedicated freight routes from land-use zones that are likely to produce higher volumes of freight traffic. Based on the outcome of the assessment, practitioners can determine whether the movement of goods across the network is adequately provided for or if additional road segments could be re-classified to provide alternate route options.

Practitioners can use the *target level of access on State roads for heavy goods vehicles* metric to measure the target level of freight access for the State road network.

Practitioners can use the *target level of access on roads connecting to industrial land for high productivity vehicles* metric to measure the connectivity of industrial zoned lands to the arterial heavy vehicle network.

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Metric



- Target level of access on State roads for heavy goods vehicles
- Target level of access on roads connecting to industrial land for high productivity vehicles

Related indicators



Access and Connection

- 6 Bus and strategic freight reliability



Amenity and Use

- 12 Transport node facilities
- 13 Places to stop and rest
- 14 Mix of uses
- 18 Economic development and regeneration



Comfort and Safety

- 23 Road safety
- 25 Safe speed for environment
- 27 Air quality and noise

Recommendation



- Analysis and metrics to cover last mile and urban freight should be incorporated into future iterations of this indicator to support a broader understanding of freight accessibility
- To improve the accuracy of the analysis of high freight locations and industrial areas, actual gate or entry points could be determined
- To enrich the analysis of heavy vehicle routes, telematics data or AANPR data could be considered

A target level of PBS 3 access applies to the following sections of state road:

- On and west of the Newell Highway
- roads east of the Newell Highway currently approved for Type 1 A-Double Road Trains
- Oxley Highway - between the Newell Highway and Tamworth
- Sturt Highway - between the Newell Highway and Hume
- Hume Highway - between the Victorian border and M5 Motorway
- Golden Highway - between the Newell Highway and New England Highway
- New England Highway - between the Golden Highway and Hunter Expressway and between John Renshaw Drive and the Pacific Highway
- Hunter Expressway
- M1 Pacific Motorway - between John Renshaw Drive and Wahroonga
- Pacific Highway - between the New England Highway and the Queensland border
- John Renshaw Drive - between the M1 Pacific Motorway and New England Highway

Reference



N/A



Metric – Target level of access on State roads for heavy goods vehicles

Metric unit	Yes/No
Description	To measure the target level of freight access for the State road network
Spatial coverage	Applicable to all NSW, State roads only
Spatial application	The metric is most suitable for link-based analysis based on the road network
Calculation methodology	Define and classify road corridors - Obtain road network data with classification attribute - Local road - State road - Regional road - Obtain freight network dataset - PBS GML 2B approved route - PBS GML 3A approved route - Transfer PBS classifications to the State road network Cross-reference with target levels of freight access - Check road classification against PBS or equivalent classification for each road segment - If State road has PBS 2 or 3 classification or equivalent, and is on the list provided below, then no gap in access level exists and the road can be assigned a “Yes” value - If State road does not have PBS 2 or 3 classification or equivalent (or both), and is on the list provided below, then a gap in access level exists and the road can be assigned a “No” value Data representation - Assign colour based on the classification below Unit: Yes / No - Yes = road has the desired level of PBS access approved - No = road does not have the desired level of PBS access approved Yes No
Assumption	- All roads on and west of the Newell Highway are PBS Level 3 access - Select roads east of the Newell Highway are PBS Level 3 access (see list below)
Limitation	Accuracy of assigning PBS class data into TfNSW routable network is low, and should be refined for the relevant study area
Data source	- TfNSW Road Track Path Network - TfNSW, PBS Level 1 GML, PBS Level 2A GML, 25/26 metre B-double GML, PBS Level 2B GML, PBS Level 3 GML, Type 1 A-double GML network data: roads-waterways.transport.nsw.gov.au/business-industry/heavy-vehicles/maps/nsw-load-carrying-network/map/index.html



Metric – Target level of access on roads connecting to industrial land for high productivity vehicles

Metric unit	Yes / No
Description	To measure the target level of freight access for the road network to assess the connectivity of high freight locations and industrial areas to the arterial heavy vehicle network
Spatial coverage	Applicable to all NSW
Spatial application	The metric is most suitable for link-based analysis based on the road network

Calculation methodology

Identify and classify road corridors

1. Obtain road classification data for all road segments from the TfNSW Road Track Path Network
2. Set up a network hierarchy table from TfNSW road functional types

Class	Hierarchy	Class	Hierarchy
Motorway	1	Collector Road	5
Highway	2	Local Road	6
Arterial Road	3	All Other	-1

1 is most preferable 6 is least preferable. -1 is not considered

Identify origin and destination locations

3. Based on the DPIE land zoning dataset, identify all network junctions within industrial zones (SYM_CODE in {IN1, IN2, IN3, IN4}). These junctions will be used as origin locations in the network analysis.
4. Identify all network junctions on PBS Level 2 or 25/26 metre B-double road segments. These junctions will be used as destination locations in the network analysis.

Perform Network Analysis

5. Perform a hierarchical network routing analysis to determine the routes from each industrially zoned junction to a PBS Level 2 or 25/26 metre B-double junction
6. If the route within the road rail area, "Yes" will be assigned. Otherwise, "No" will be assigned

Data representation

7. Assign colour based on the classification below in the table and scale provided

Unit: Yes / No

- Yes = road has the desired level of PBS access approved
- No = road does not have the desired level of PBS access approved



PBS 2B approval	PBS 3A approval	Heavy goods vehicles target level of access on State roads
Y	Y	Y
Y	N	Y
N	Y	Y
N	N	N



Metric – Connectivity to heavy vehicle network (Cont.)

Assumption	• Industrial zones consist of IN1, IN2, IN3, IN4 • PBS condition has not been considered in the analysis • Road rail approval area has been used to determine Y/N • Only PBS Level 2 or 25/26 metre B-double approved road junction is selected as destination location • All roads segments will be treated as having no connectivity in the industrial zone if not part of the road rail approval area • Because of lack of entry data from each individual industry, junction points in the industrial zone have been treated as origin points • Industrial type has been considered into analysis
Limitation	• Calculation of routes is solely based on road classification. In reality, infrastructure along routes such as bridges and tunnels have varying vehicle restrictions such as weight, height and content
Data Source	• TfNSW Road Track Path Network • TfNSW, PBS Level 1 GML, PBS Level 2A GML, 25/26 metre B-double GML, PBS Level 2B GML, PBS Level 3 GML, Type 1 A-double GML network data: roads-waterways.transport.nsw.gov.au/business-industry/heavy-vehicles/maps/nsw-load-carrying-network/map/index.html • DPIE Land Zoning: datasets.seed.nsw.gov.au/dataset/environment-planning-instrument-local-environmental-plan-land-zoning