Revision History

Version	Date	Comments	Author
V1.0	08 April 2021		Open Data & Innovation Transport for NSW

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1. Background

The Regional Day Return indicator is measure of regional centre connectivity under the Future Transport outcome: A Strong Economy.

Future Transport Statewide Outcomes	Performance focus	Measures and indicators
A Strong Economy	Provide efficient public transport and road connections for passengers and freight	**Metropolitan 30 minute city** > Monitor the % of population within Greater Sydney with 30 minute or less access to their nearest strategic centre by public or active transport **Regional centre connectivity** > Monitor the % of towns and centres with day return public transport services to the nearest regional city **Freight movement efficiency** > Develop efficiency and productivity measurements for freight under the Freight and Ports Plan.

The Regional Day Return indicator is often quoted in the Regional NSW Services and Infrastructure Plan, a supporting document to the Future Transport Strategy 2056.

Extracts of the document are shown below:

Providing more transport choices for regional communities. Our vision for regional NSW is a future with greater choice for regional travellers. This will be achieved through initiatives such as:

- Integrated timetables enabling better connections and day return services

Trials of day-return public transport options between regional hubs.
Starting in March 2018, NSW TrainLink proposes to trial new coach connections to better connect regional communities. The proposed services would provide new links between:

- Tamworth to Newcastle coach & rail day return
- Tamworth to Dubbo coach day return
- Tamworth to Port Macquarie coach day return

Currently there are no direct services between Tamworth and Dubbo and Tamworth and Port Macquarie. The current rail/coach services from Tamworth to Newcastle do not provide a day return option.

Each trial aims to provide easy connections between regional hubs for better access to medical and health providers, business, shopping, recreational activities or to catch up with family and friends.

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Greater coverage
A transport system that provides greater coverage across NSW including day return regional centre connectivity for an expanded geographical catchment.

Bourke/Brewarrina to Dubbo day return trial
People from Bourke, Brewarrina and towns along the way will be able to travel safely and comfortably to Dubbo, spend up to four hours in town and return home later that afternoon. Currently, people travelling from Bourke or Brewarrina to Dubbo, have to stay overnight or organise their own return travel as there's no day return option.

Growing the Economy
Provide efficient public transport and road connections for passengers and freight. Monitor the % of towns and centres with day return public transport services to the regional city.

2. Methodology

The process included:

- stakeholder engagement with the TfNSW Regional Planning team and Office of the Secretary
- creation of the conceptual measurement
- prototype of a process to generate the metric
- delivery of the final outputs

The methodology calculates the number of people who have day return access using public transport to Global Gateways, Regional Hubs and Regional Centres (collectively called a centre) defined by the Regional Transport Planning team. The day return measure uses the published timetable and calculates for each transit stop the ability to use public transport to travel to a centre, spend 4 hours within the centre and then return to the originating transit stop using public transport on the same day.

To determine the population catchment, all ABS Census 2016 SA1s were selected that contained a transit stops with day return access. A buffer was calculated around the transit stops with a radius dependant on the ABS Remoteness category that the transit stop is located within. The radius for each Remoteness category as agreed by the TFNSW Regional Transport Planning team are:

- Major Cites – 5km
- Inner Regional – 10km
- Outer Regional – 15km
- Remote – 25km
- Very Remote – 50km

The buffer around the selected transit stops was used to select the centroids of all SA1 populations to determine the population catchment that has day return access by Remoteness category.

Datasets

The datasets used in the calculation are:

- Public transport timetable in General Transit File Specification (GTFS) format from the TfNSW Open Data Hub (https://opendata.transport.nsw.gov.au/dataset/public-transport-timetables-realtime) September 2018 and April 2019
- Australian Bureau of Statistics (ABS) Census 2016 SA1 population counts (http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2033.0.55.0012016?Open Document)
- ABS Remoteness spatial data (http://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.005)
- TfNSW defined Global Gateway Cities, Satellite Cities and Regional City Transport Hubs spatial boundaries specified using ABS Urban Centres and Localities (UCL) data (http://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.004)

Assumptions

1. Public transport travel includes direct services only (i.e. no interchange), with the only exception being the Brewarrina to Dubbo trial service which links with the Bourke to Dubbo trial service at Coolabah This process may change in future revisions to capture interchange day-return access as the hub and spoke model of transport service provision as defined in the Regional NSW Services and Infrastructure Plan is implemented.
2. There is no estimation of travel time to, or wait time at, the first transit stop.
3. The GTFS timetable is processed for a full week, Sunday to Saturday, during school term. If day return capability is provided by services on any one day in the week then this is sufficient for the service to be included as providing a day return service.
4. Populations are from the ABS August 2016 Census of Population and Housing and will be updated every 5 years.

Processing

The processing of the data is using Microsoft Access and ArcGIS software. There are 8 stages of processing:

1. Create the centre spatial layer from the ABS UCL data
2. Spatial join the GTFS timetable routes and stops to identify routes that service a centre
3. Analyse the GTFS timetable data to identify services that have a minimum 4 hours wait time between the first service of the day arrival in the centre and the last return service of the day departure from the centre
4. Create the list of transit stops that have day return services
5. Select the SA1s that the transit stops fall within
6. Assign Remoteness Area to the SA1s and transit stops
7. Create 5-50km buffers around each of the transit stops based on the Remoteness Area
8. Select all SA1 centroids that fall within the buffer to identify the population that has day return access