



# WA bike counter network overview

## An overview of bike counter network implementation, placement and data outputs

We collect data from permanent bicycle counters strategically placed across the metropolitan and regional bicycle networks. This data is used to monitor bike riding trends and inform decision making, especially for key projects arising from the [WA Bicycle Network \(WABN\) Plan](#) and [WABN Grants Program](#).

The strategic intent for monitoring the network using counters and other techniques is described in the [Western Australian Bicycle Network Data and Monitoring Strategy](#).

## Counter numbers and placement

The counters are positioned based on two main considerations:

- 1) Strategic merit
- 2) The physical characteristics of a location

### Strategic merit

- Is this location expected to, or has been known to service a substantial amount of people riding bikes?
- Would it be beneficial for this location to be analysed to investigate an expected change in bike riding movements, possibly due to a recent or planned intervention, or extension of the route?
- Is the location representative of the corridor or route in question?

### Physical location characteristics

- Is this location preceded and succeeded by enough flat and straight terrain to allow cruising speed?
- Does this location have access to full sunlight for the solar panel, or to an underground power source?
- Does this location have enough space to allow access for site installation and maintenance?

See the most recent [Making Tracks Report](#) for the number and location of active bike counters. Counter locations and some high-level statistics can also be viewed on the [Trafficmap](#) website.

## Bike counter technology explained

Each counter site consists of two piezoelectric sensor strips embedded into the path which detect passing bicycles, as well as a logger to collect and store the information, a modem to send the data remotely, and a small solar panel for power.

The counters can determine:

- day and time of the bike riding event
- speed and direction of travel
- time between two isolated bike riding events (headway)
- number of front and back axles
- distance between each axle (wheelbase)

Events are stored in the logger and sent wirelessly to the technical providers for initial analysis and cleaning to create a usable dataset out of the correlated wheel events. The data is then delivered to the Main Roads WA record management team which publishes the information to an internal

database, shares the raw data with the Department of Transport (DoT) cycling team, and distributes an aggregated summary to the [Trafficmap](#) website.

## Data outputs

The data for a selected site is visually summarised using descriptive statistics (such as graphs of average daily traffic) and can also be downloaded as a tabulated Excel spreadsheet with the data aggregated to 15-minute increments.

[Trafficmap](#) is a useful resource for all stakeholders to gain an understanding of bike riding movements at specific sites. DoT uses the complete dataset to undertake detailed analyses of movement trends across the bike counter network and along specified corridors or cordons.

## Data insights

The data can currently only be used for aggregated or site-specific insights. Some examples of the kind of insights the data can provide are:

- How does volume/speed/temporal profile of this site compare to other sites with similar characteristics?
- Since an intervention (policy or infrastructure), what effect has been observed at this site(s)?
- How many bike riding counts have been detected heading in to and/or out of the CBD, and has this measure seen decline or growth over a given period?
- What is the 85th percentile speed at this location and how has it changed over time?

See the most recent [Making Tracks Report](#) for insights about movement and trends observed on the WA bike network.

## Data limitations

The data cannot be used to determine user insights or origin-destination (O-D) information. Some examples of the kind of insights the data cannot provide are:

- demographics of the people that crossed the site
- where people come from or go to before/after crossing the site
- travel time between counter sites for each individual bike count recorded
- a person's trip purpose.

## Complementary data sources

Permanent bike counters are just one way to understand bike riding movements. A summary of other data sources and their potential uses is available in the [Western Australian Bicycle Network Data and Monitoring Strategy](#).

Bike count data can also be compared with user and community surveys to gain a better breadth of understanding of bike riding trends, participation demographics and user preferences. See the most recent [People Pulse Report](#) for insights from these community surveys.

## Active travel monitoring

A holistic active travel Evaluation Framework and Action Plan will be developed following the release of the new [WA's Active Travel Strategy](#).

Active travel refers to being physically active to make a journey, which can be for a variety of purposes such as transport, exercise, fun or recreation. Walking and bike riding are the most common modes, but using a wheelchair, scooting, skating, running, paddling or using other assisted devices (such as an eBike) are also included.