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Planwisely Road Traffic Data (National): Methodology and Validation

November 2026

This note summarises the methodology and validation of the 2025 release of Road Traffic Data delivered through Planwisely. It is intended to support users assessing the dataset for planning, analytical and trial use cases, and to explain how the data should be interpreted alongside observed traffic counts.

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In summary

Road Traffic Data estimates how much traffic uses each road in Australia. It is built from anonymised mobile location data, which is then checked and adjusted against official traffic counts. We tested the 2025 release against 18,060 count locations across all states and territories. The observed data already aligns strongly with the counts before any calibration (R^2 0.969), and after calibration total volumes are within 1% of the counts (R^2 0.988). A hold-out test on locations the calibration had not seen indicates the result carries over beyond counted sites. Results are weaker in Victoria, where traffic signal counts are given a more limited role in calibration. The data is best suited to network and corridor analysis. It is less certain on local streets, in areas with few counts and for commercial vehicles on minor rural roads, and should be used as a consistent network dataset rather than a replacement for site-specific counts.

Methodology overview

Road Traffic Data is produced from observed mobile location data that is processed into representative vehicle movements and aggregated to road-link traffic volumes. The main processing stages are summarised below and described in more detail in the following paragraphs.



The process begins with anonymised location observations from mobile data sources across calendar year 2025. Observations are grouped into trips, and each trip is weighted so that the trips are representative of the population's travel, with safeguards so that no single device carries too much influence. Trips are matched to a national road network so that each observed trace becomes a path along road links. Drives to and from rail stations are included as car trips.

Quality checks remove/ re-weight trips whose matched path is implausible for a vehicle and trips that are likely to be buses or trams. The dataset is then calibrated against traffic counts in a single national calibration. Its generalised stages adjust the overall level of traffic, the time-of-day profile and the split between light and heavy vehicles; a final trip-level stage then refines the volumes where detailed count evidence is available.

Final outputs are provided by road link and direction, with hourly volumes for an average weekday and an average weekend day. Vehicle class outputs distinguish non-commercial/light traffic from commercial/heavy traffic. Road Traffic Data also supports select-link analysis, enabling users to understand where the traffic on a selected road link comes from and goes to.

Validation

Validation compares Road Traffic Data with observed traffic counts from state and territory road agencies, a toll road operator and local councils: 18,060 count locations with daily totals, 15,305 with hourly counts for weekdays and weekends, and 7,438 whose counts classify vehicles as light or

heavy. Victoria has the most count locations (10,910 of the 18,060 daily totals), most of them SCATS traffic signal detectors.

Results are shown at three stages. Before calibration shows the strength of the observed-data signal before any adjustment to counts, so it does not depend on the counts. Generalised calibration applies broad adjustments across the whole network. Trip-level calibration is the final released dataset, in which volumes are further refined where detailed count evidence is available. Because the calibration uses the same counts, final-stage results show how closely volumes match the counts at counted locations; the before-calibration and hold-out results show performance without that influence.

Each chart shows R^2, which measures how closely modelled volumes agree with the counts (1.0 is a perfect match), and the total ratio: the total modelled volume divided by the total counted volume at the locations shown. Where the text also reports the share of count locations within GEH 5, this is a standard measure of agreement that allows larger absolute differences on busier roads; a value under 5 is conventionally regarded as a good match. It is calculated on hourly-equivalent volumes (one tenth of each daily volume).

As a further test away from counted locations, a random 20% of count locations were set aside and the generalised calibration was repeated without them. At those withheld locations, 78% of daily totals were within GEH 5, the same share as when the locations were included, and up from 68% before calibration. This indicates the calibrated volumes hold up at locations the calibration has not seen.

Average daily total traffic volumes

The three charts below show all 18,060 count locations, each on its own, at successive calibration stages. Before calibration the observed data already shows a strong relationship with the counts, with R^2 of 0.969 and 68.5% of locations within GEH 5. This stage uses no count information, so it is an independent test of the observed data. Generalised calibration raises this to R^2 0.982 and 78.4%, and trip-level calibration to R^2 0.988 and 85.1%. Summed over all count locations, the final volumes are 1% above the counts.

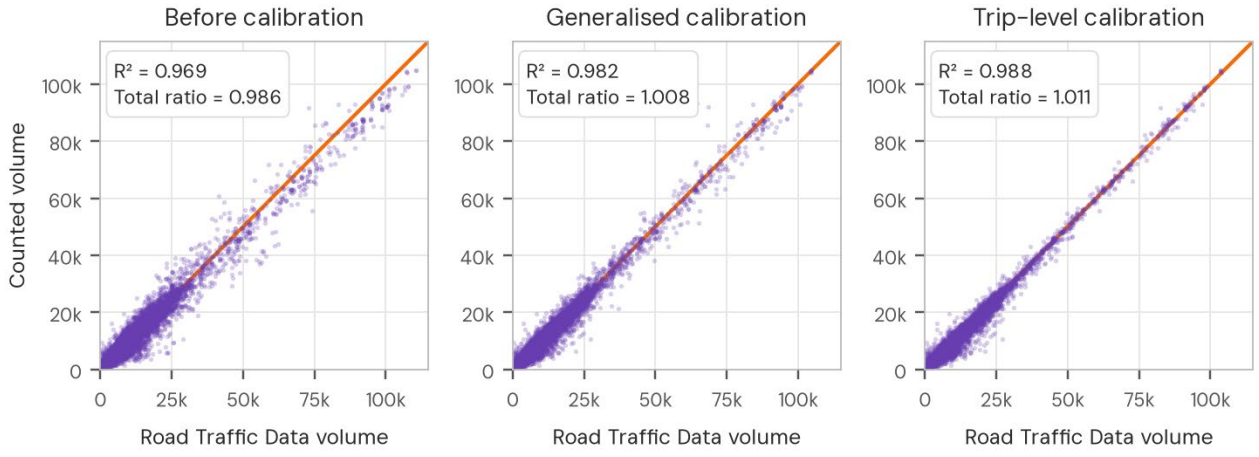


Figure 1. Average daily total volume at each of 18,060 count locations, all vehicles. The orange line is equality.

The observed movement data provides a strong base signal before calibration. Calibration corrects the overall level and tightens the fit. Victoria's SCATS detectors make up 52% of the national set; they are used in the generalised calibration only, which is why Victoria's results after calibration are lower than other states' (see the Victoria section).

Vehicle class validation

The vehicle class charts test whether the strong total-traffic result also holds when volumes are split into non-commercial (light) and commercial (heavy) vehicles, at the 7,438 locations whose counts classify vehicles. Vehicle classes are not separately estimated before calibration, so the charts start at the generalised calibration. Non-commercial volumes reach R^2 0.991 after generalised calibration and 0.999 after trip-level calibration; commercial volumes reach R^2 0.917 and 0.971, with total ratios of 0.984 and 0.994. Commercial volumes remain more variable from site to site than non-commercial volumes.

Each point is one location on a day: the daily count where a source classifies vehicles by day, and the mean of an average weekday and an average weekend day where it classifies them by hour.

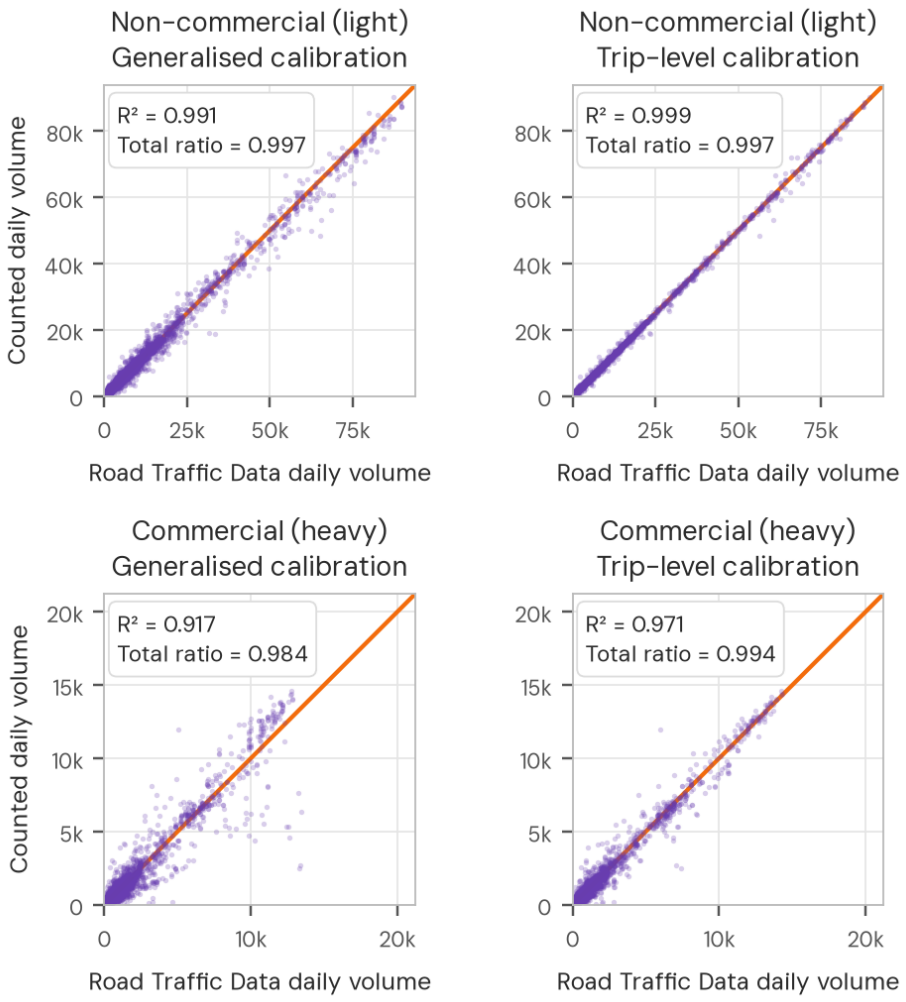


Figure 2. Daily volume at each classifying count location, after generalised and trip-level calibration.

Time-profile validation

The weekday and weekend hourly profiles compare each hour's share of the day at the 15,305 locations with hourly counts. Road Traffic Data captures the shape of traffic across the day before calibration, and calibration brings it closer to the counts, particularly in the weekday afternoon peak and evening and the weekend late morning. After calibration the share in every hour is within 0.4 percentage points of the counted share on weekdays and 0.1 on weekends. These results support use of the data for time-of-day and weekday/weekend analysis at a network level, while individual site results may still vary.

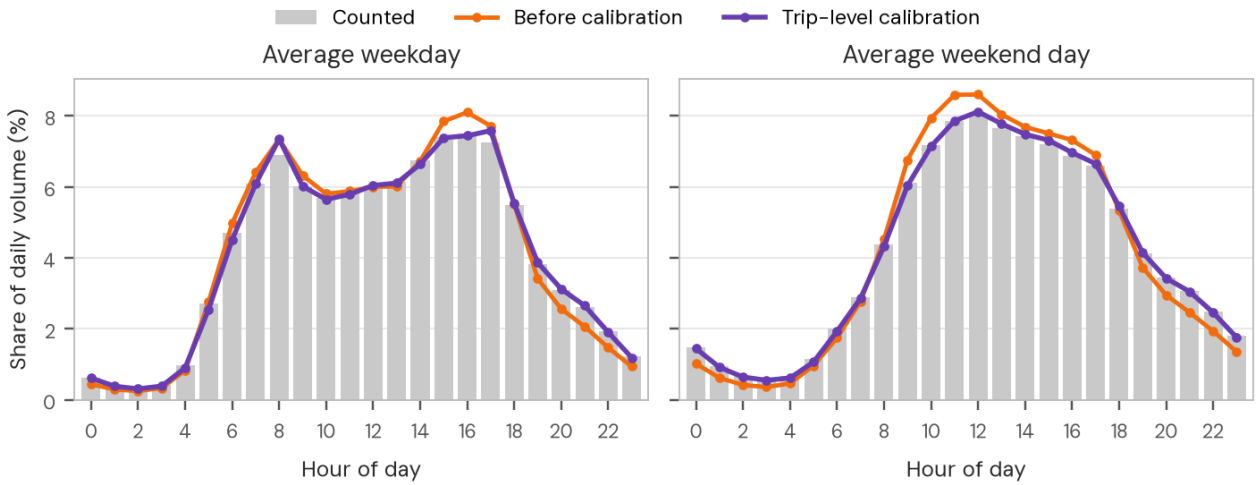


Figure 3. Share of daily volume by hour at count locations with hourly counts, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is residential streets, at 7% below the counts (22% below before calibration). The validation sample is concentrated on higher-order roads, which provide the strongest evidence. Local streets make up most of the network but hold a small share of the count locations, so local-street volumes should be interpreted with more caution.

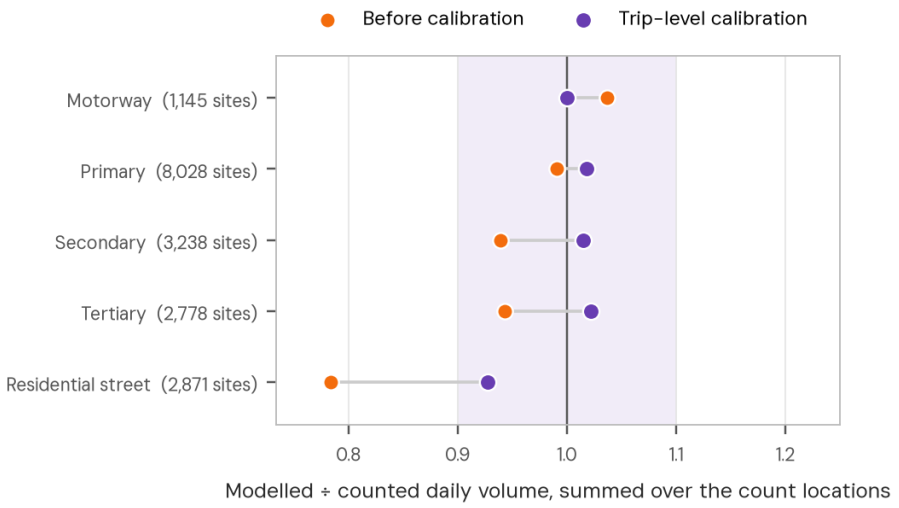


Figure 4. Modelled over counted daily volume by road class, summed over the count locations on each class. The shaded band is within 10%.

Appropriate use and limitations

The validation supports use of Road Traffic Data as a dataset for network and corridor analysis. It is well suited to understanding volumes across roads, comparing time-of-day and weekday/weekend patterns, and using select-link analysis to investigate movements associated with a selected link. It should be interpreted as a consistent network dataset rather than a replacement for every site-specific traffic count.

At counted locations the final volumes closely match the counts. Away from counts, accuracy is best indicated by the before-calibration and hold-out results, and it is lower in regions with few counts of their own, for commercial vehicles on minor rural roads, and on local streets. Individual-link uncertainty can also be higher where volumes are low, roads are close together, geometry is complex, or comparison counts represent a narrow time and location.

Volumes are a calibrated estimate of travel on an average weekday and weekend day of 2025. Each release changes its method and data as well as the year it describes, so differences between releases should not be read as traffic growth.

Results by state

The sections below repeat the validation for New South Wales, Victoria, Queensland, South Australia, Western Australia, Tasmania and the Northern Territory, in the same format as the national results. A chart is omitted where a state has no counts of that kind: South Australia and the Northern Territory have no hourly counts, and the Northern Territory has no classified counts.

New South Wales

The New South Wales validation set has 1,179 count locations with daily totals: 330 Transport for NSW counters, 126 Transurban toll road locations and 723 council count locations. There are 456 locations with hourly counts, and 1,050 whose counts classify vehicles as light or heavy.

Average daily total traffic volumes

At the 1,179 count locations, R^2 is 0.951 before calibration, with 63.4% of locations within GEH 5. Generalised calibration raises this to R^2 0.985 and 83.0%, and trip-level calibration to R^2 0.998 and 98.2%. Before calibration the volumes are 14% above the counts in total; the generalised calibration corrects this level.

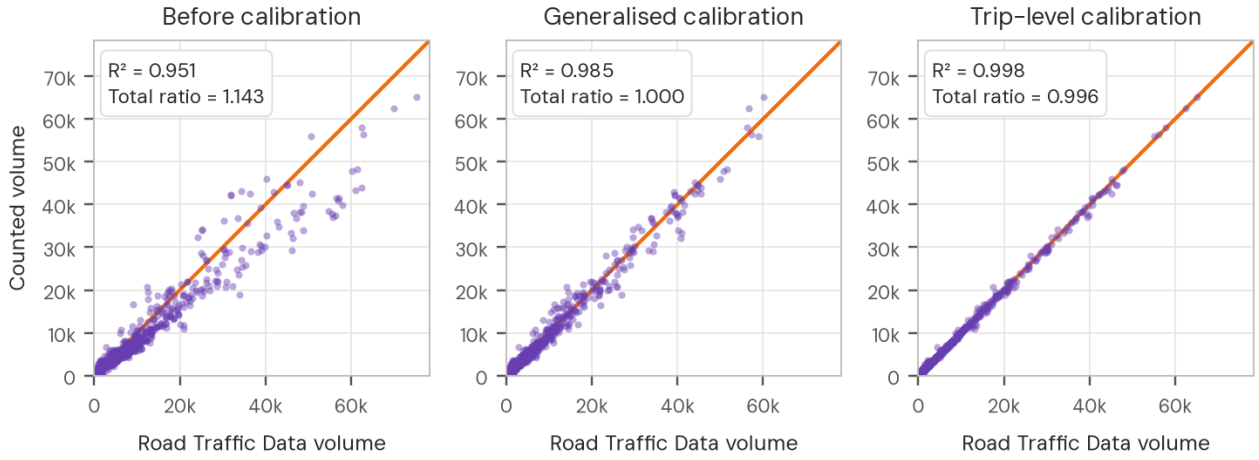


Figure 5. New South Wales, average daily total volume at each of 1,179 count locations, all vehicles.

Vehicle class validation

At the 1,050 classifying locations, non-commercial volumes reach R^2 0.980 after generalised calibration and 0.998 after trip-level calibration, and commercial volumes R^2 0.897 and 0.952. Summed over these locations, commercial volumes are 1% above the counts after generalised calibration and 2% below them after trip-level calibration.

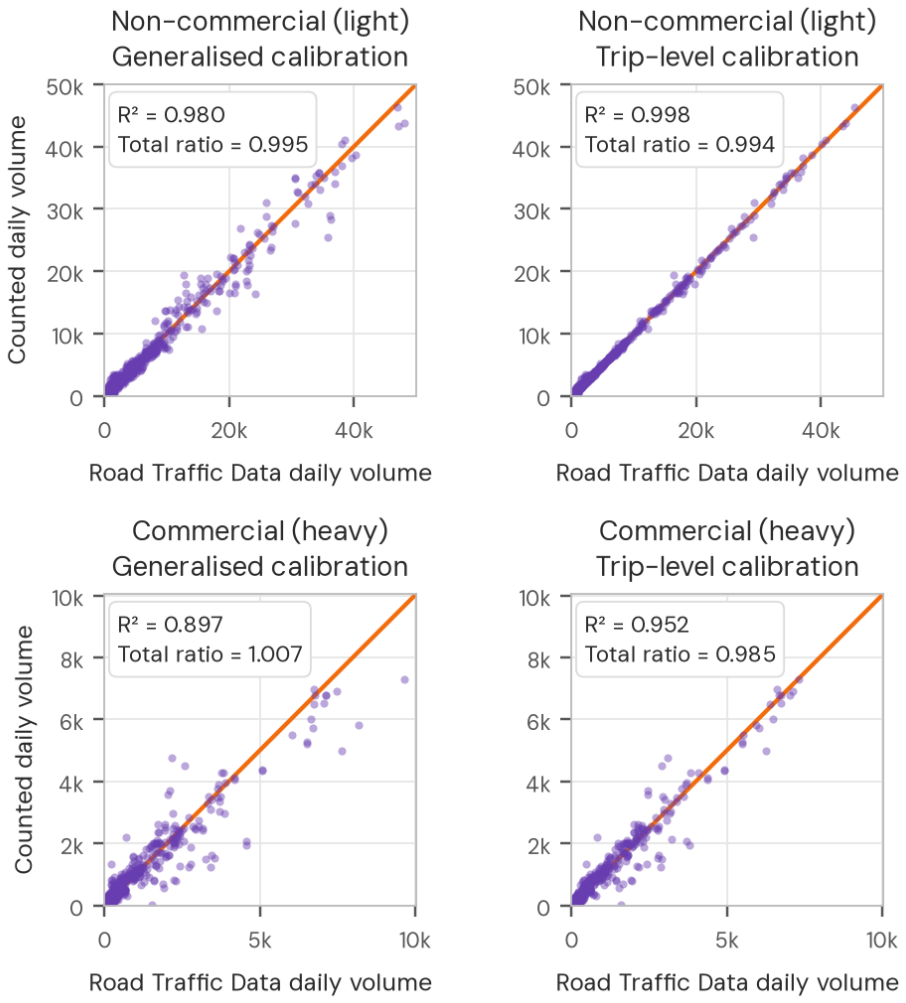


Figure 6. New South Wales, daily volume at each classifying count location.

Time-profile validation

At the 456 locations with hourly counts, the share of the day in every hour is within 0.1 percentage points of the counted share on weekdays and 0.1 on weekends after calibration, against 0.5 and 0.7 before.

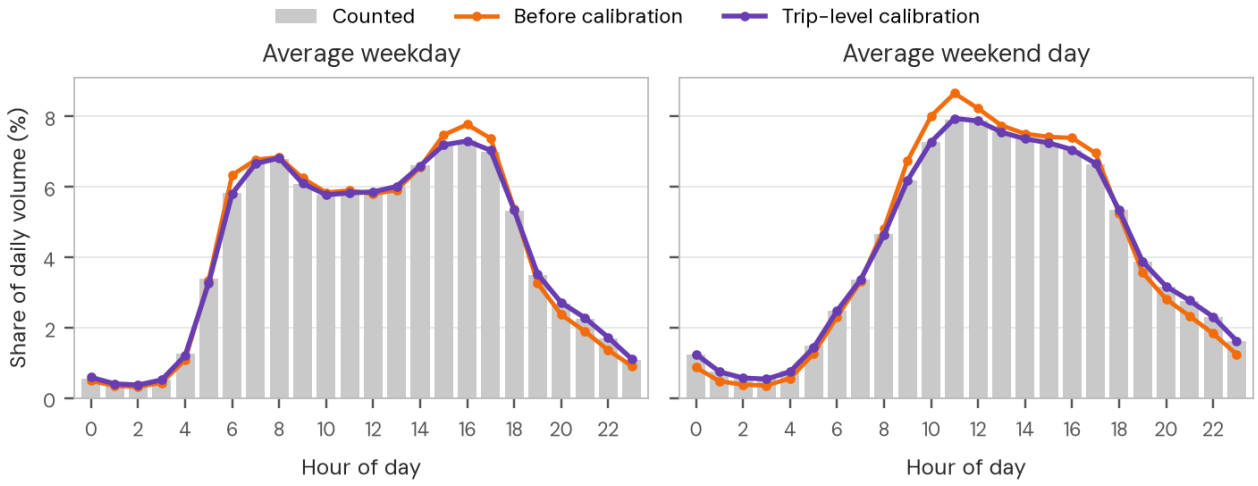


Figure 7. New South Wales, share of daily volume by hour, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is residential streets, at 5% below the counts (17% below before calibration).

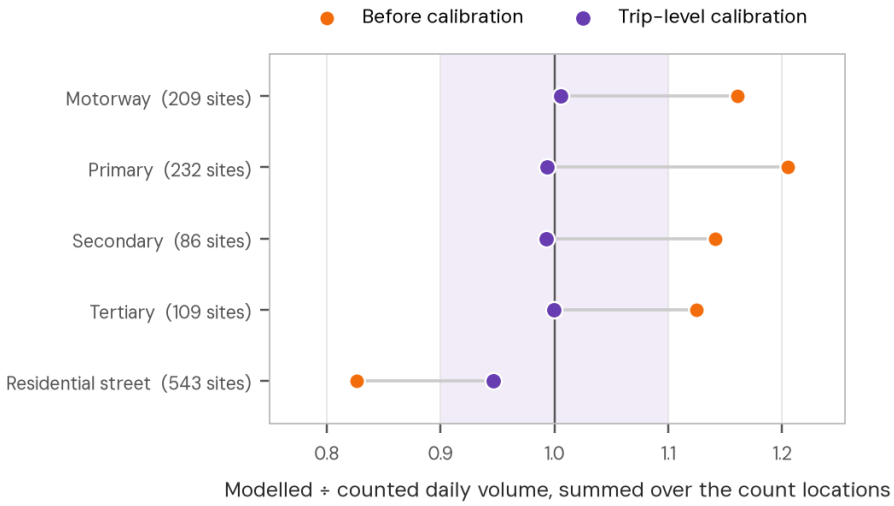


Figure 8. New South Wales, modelled over counted daily volume by road class.

Victoria

The Victoria validation set has 10,910 count locations with daily totals: 9,391 SCATS traffic signal detectors, 295 TIRTL classifying counters and 1,224 council count locations. There are 9,686 locations with hourly counts, and 1,381 whose counts classify vehicles as light or heavy. The SCATS and TIRTL counts are the Department of Transport and Planning's.

Average daily total traffic volumes

Victoria's daily totals are dominated by SCATS traffic signal detectors: 9,391 count locations at 2,751 signalised intersections, each shown on its own. SCATS counts are measured at intersection approaches, can under-count in congestion and are affected by detector faults, so they are used in the generalised calibration but not in the trip-level stage. Victoria's results after calibration are therefore lower than other states'.

At the 10,910 count locations, R^2 is 0.976 before calibration, with 67.8% of locations within GEH 5. Generalised calibration raises this to R^2 0.982 and 73.9%, and trip-level calibration to R^2 0.984 and 76.9%.

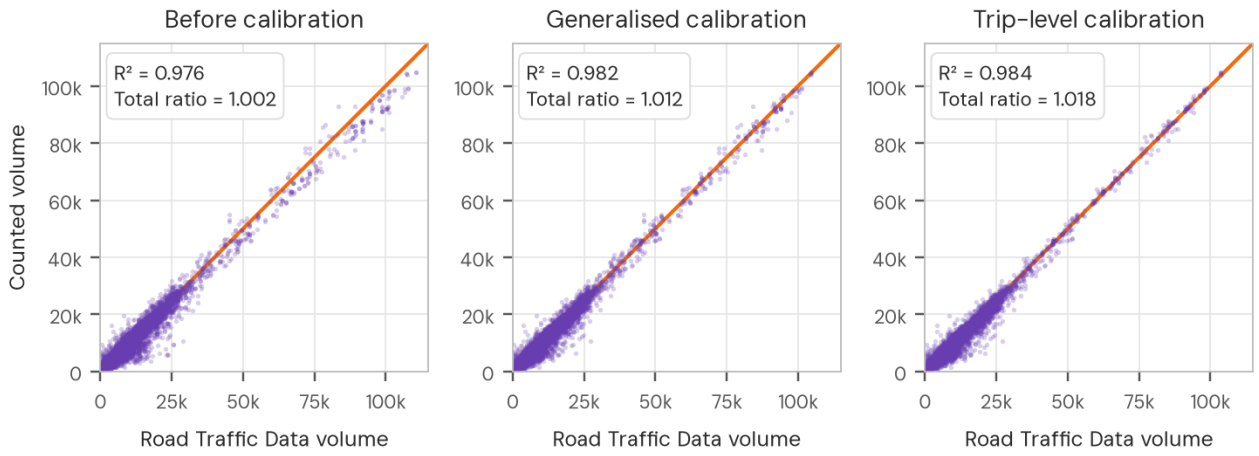


Figure 9. Victoria, average daily total volume at each of 10,910 count locations, all vehicles.

Vehicle class validation

At the 1,381 classifying locations, non-commercial volumes reach R^2 0.996 after generalised calibration and 0.999 after trip-level calibration, and commercial volumes R^2 0.977 and 0.983. Summed over these locations, commercial volumes are 7% below the counts after generalised calibration and within 1% of them after trip-level calibration.

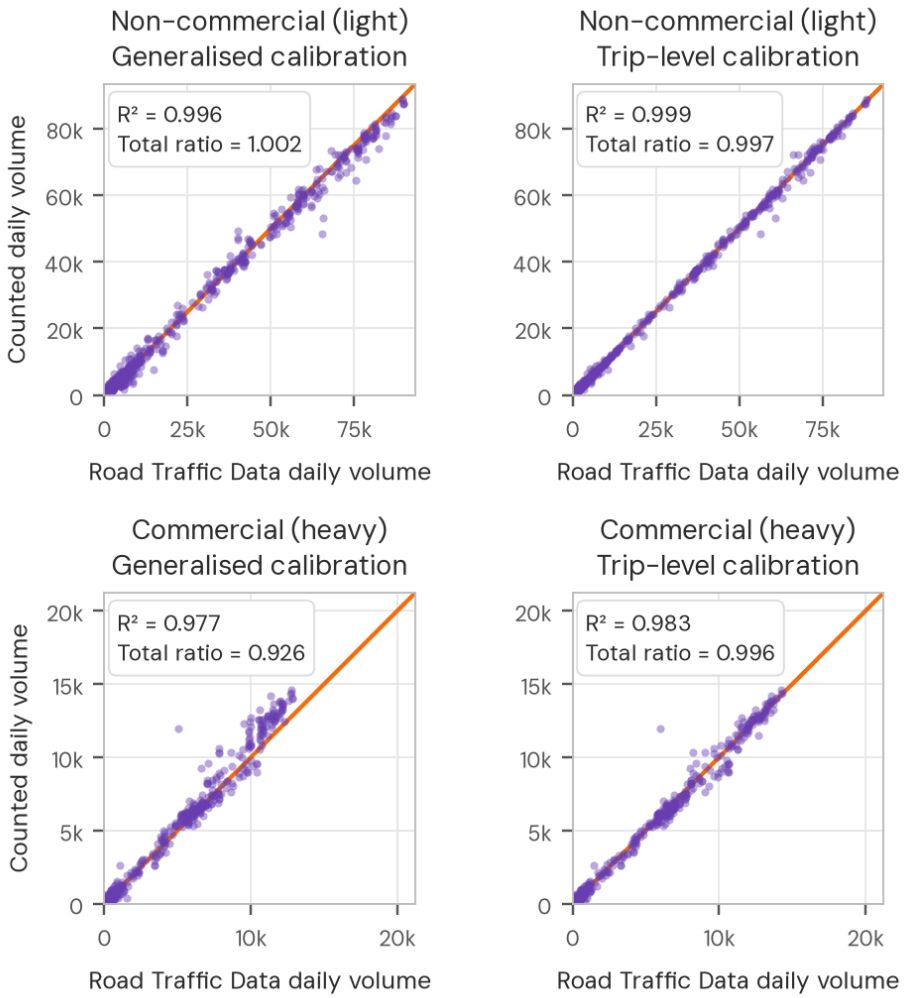


Figure 10. Victoria, daily volume at each classifying count location.

Time-profile validation

At the 9,686 locations with hourly counts, the share of the day in every hour is within 0.6 percentage points of the counted share on weekdays and 0.2 on weekends after calibration, against 0.7 and 0.8 before.

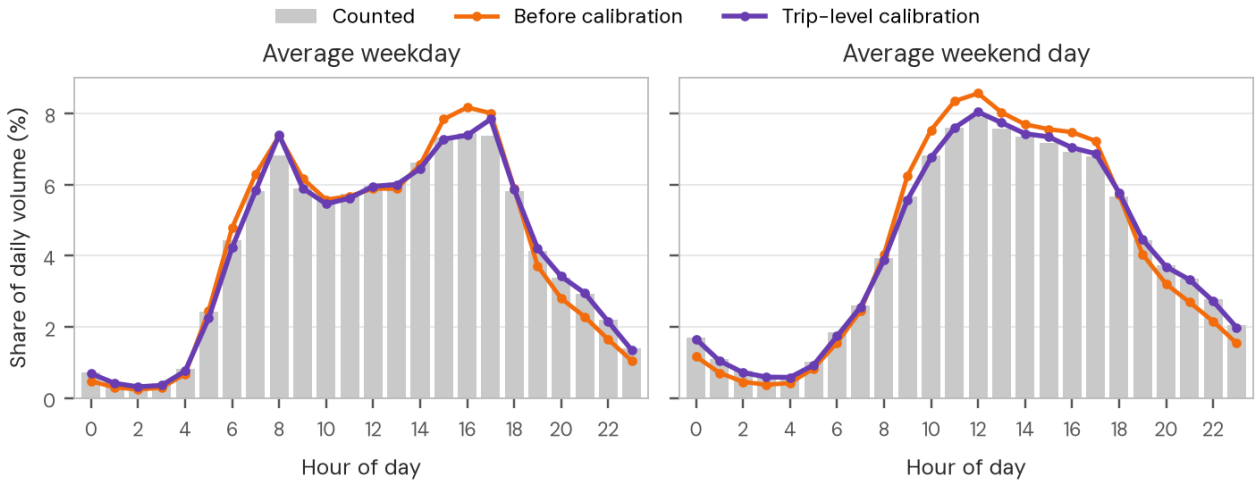


Figure 11. Victoria, share of daily volume by hour, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is residential streets, at 9% below the counts (23% below before calibration).

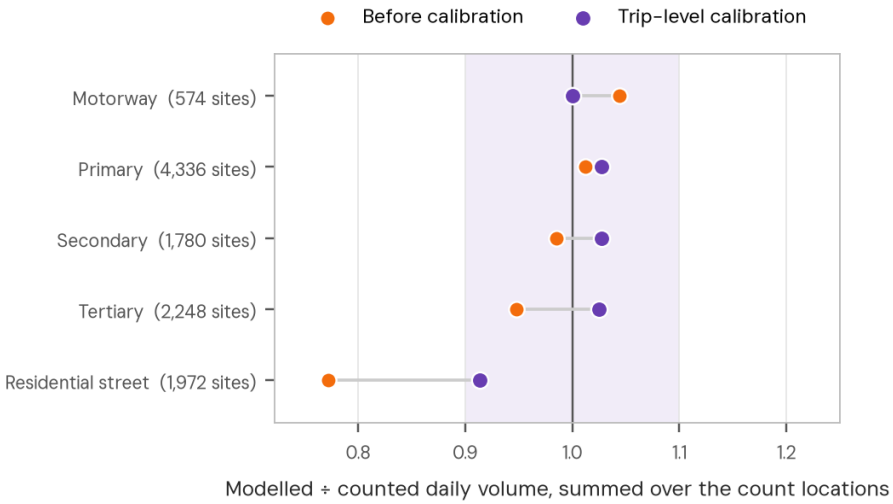


Figure 12. Victoria, modelled over counted daily volume by road class.

Queensland

The Queensland validation set has 3,275 count locations with daily totals: 3,013 Department of Transport and Main Roads count locations and 262 council count locations. There are 3,393 locations with hourly counts, and 2,646 whose counts classify vehicles as light or heavy.

Average daily total traffic volumes

At the 3,275 count locations, R^2 is 0.976 before calibration, with 76.0% of locations within GEH 5. Generalised calibration raises this to R^2 0.988 and 86.1%, and trip-level calibration to R^2 0.997 and 96.9%.

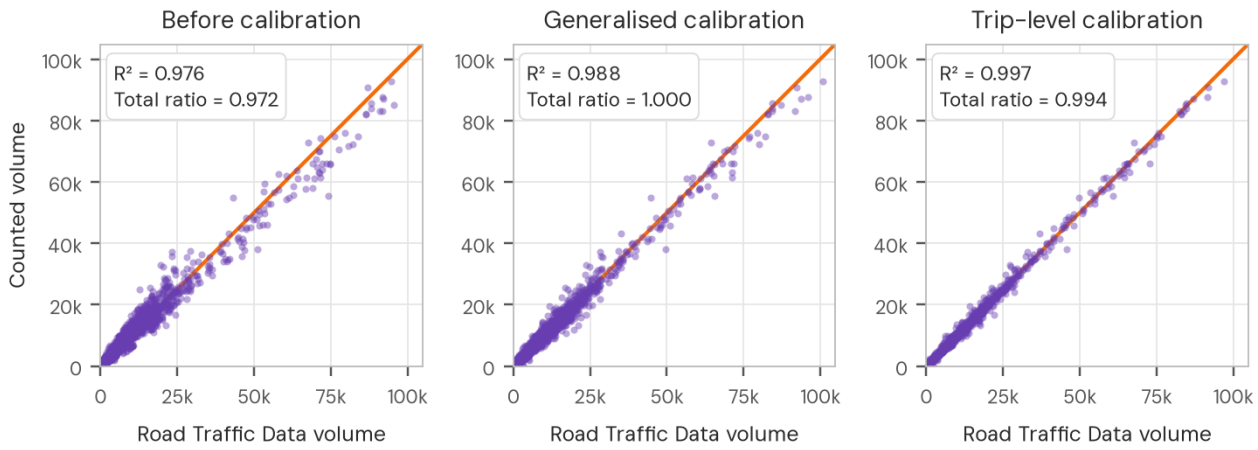


Figure 13. Queensland, average daily total volume at each of 3,275 count locations, all vehicles.

Vehicle class validation

At the 2,646 classifying locations, non-commercial volumes reach R^2 0.990 after generalised calibration and 0.999 after trip-level calibration, and commercial volumes R^2 0.756 and 0.894. Summed over these locations, commercial volumes are 7% above the counts after generalised calibration and 2% below them after trip-level calibration.

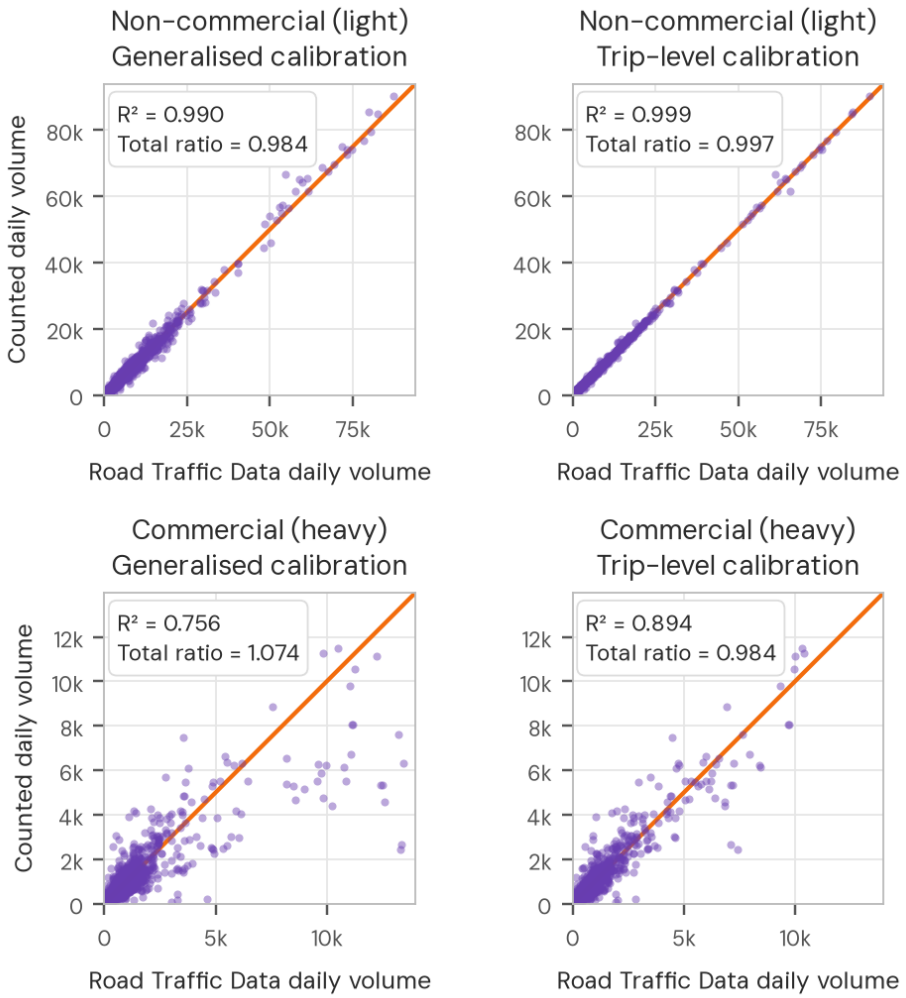


Figure 14. Queensland, daily volume at each classifying count location.

Time-profile validation

At the 3,393 locations with hourly counts, the share of the day in every hour is within 0.2 percentage points of the counted share on weekdays and under 0.1 on weekends after calibration, against 0.5 and 1.0 before.

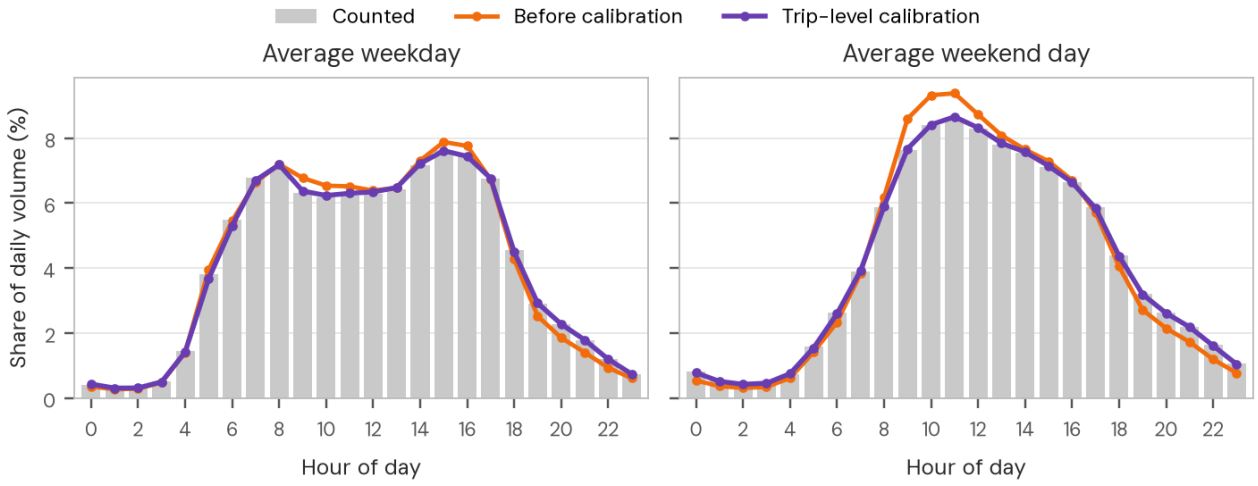


Figure 15. Queensland, share of daily volume by hour, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is secondary roads, at 3% below the counts (16% below before calibration).

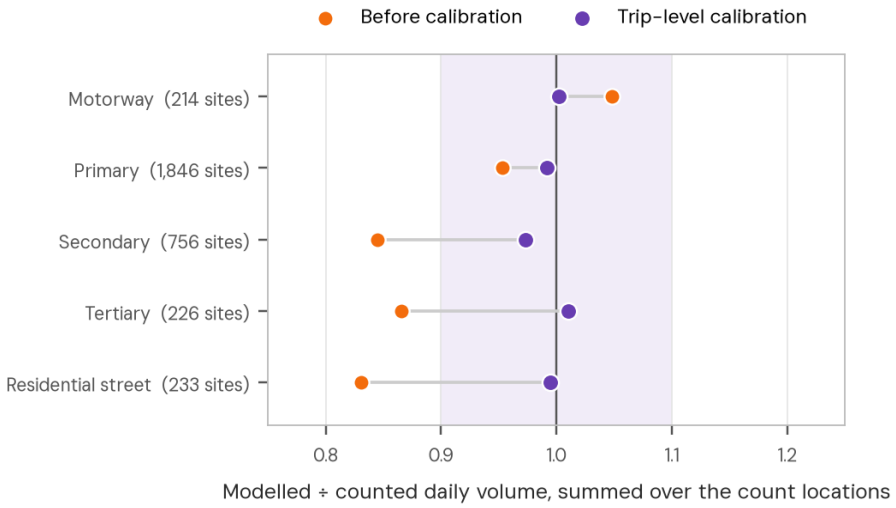


Figure 16. Queensland, modelled over counted daily volume by road class.

South Australia

The South Australia validation set has 594 count locations with daily totals, all from the Department for Infrastructure and Transport. There are no locations with hourly counts, and 593 whose counts classify vehicles as light or heavy.

Average daily total traffic volumes

At the 594 count locations, R^2 is 0.974 before calibration, with 53.4% of locations within GEH 5. Generalised calibration raises this to R^2 0.976 and 71.7%, and trip-level calibration to R^2 0.999 and 97.0%. Before calibration the volumes are 12% below the counts in total; the generalised calibration corrects this level.

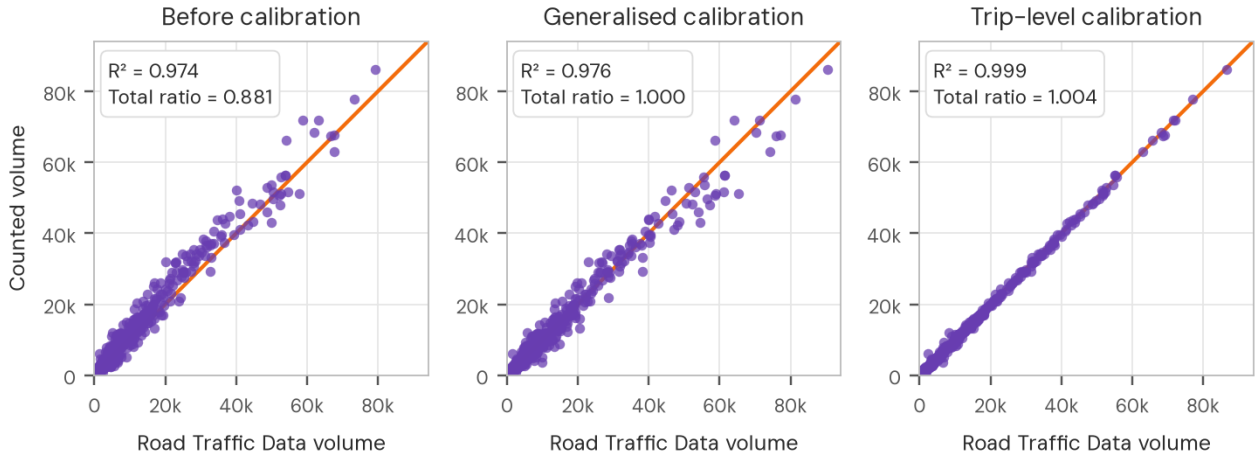


Figure 17. South Australia, average daily total volume at each of 594 count locations, all vehicles.

Vehicle class validation

At the 593 classifying locations, non-commercial volumes reach R^2 0.973 after generalised calibration and 0.999 after trip-level calibration, and commercial volumes R^2 0.878 and 0.962. Summed over these locations, commercial volumes are 7% above the counts after generalised calibration and 7% above them after trip-level calibration.

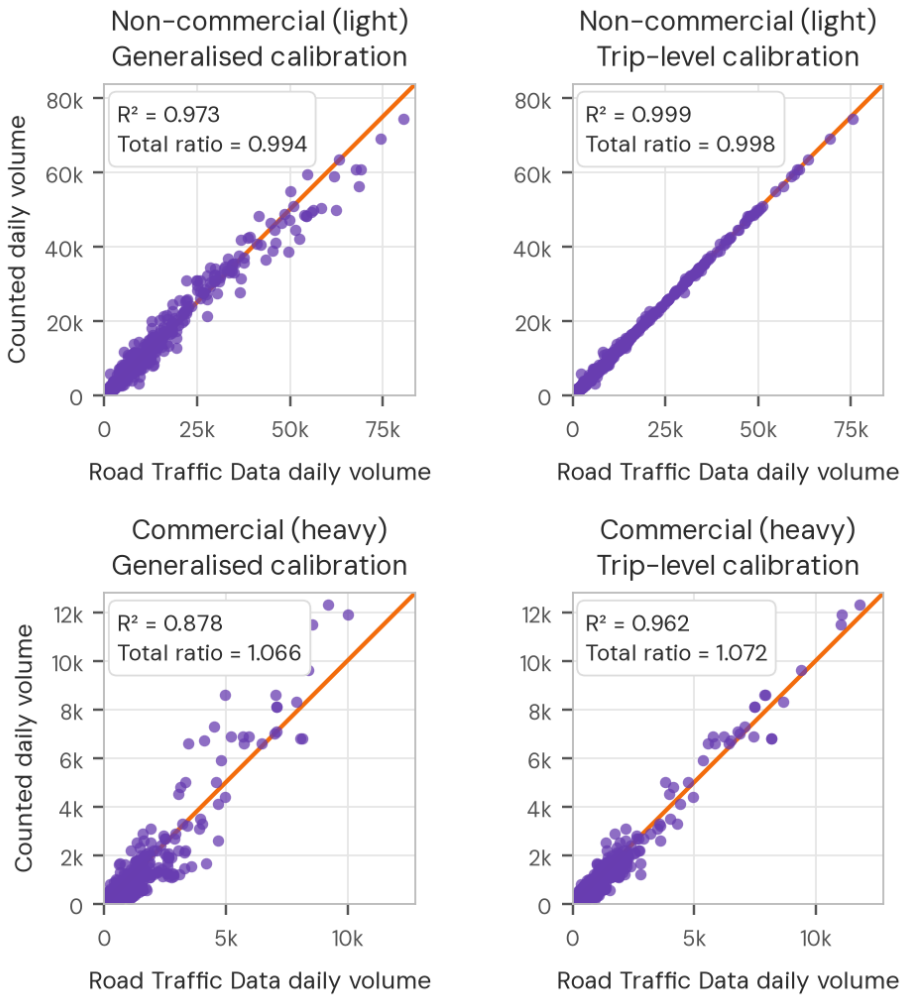


Figure 18. South Australia, daily volume at each classifying count location.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is residential streets, at 10% above the counts (6% below before calibration).

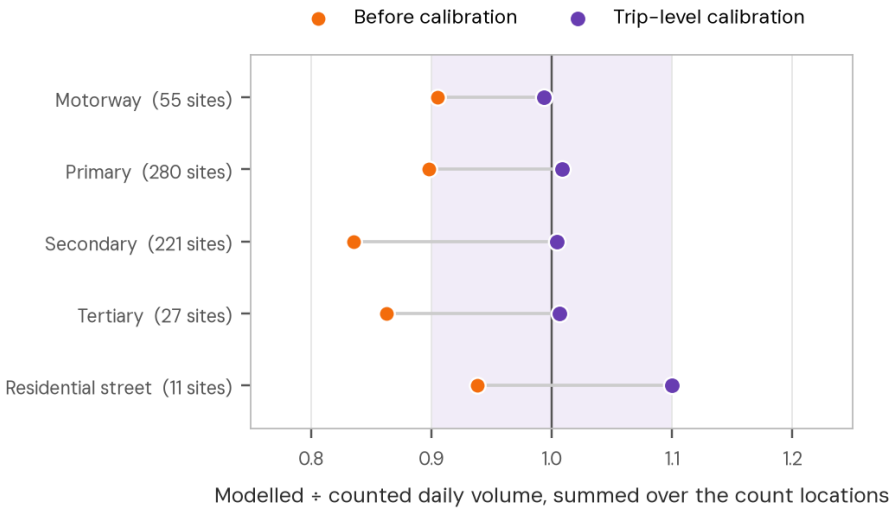


Figure 19. South Australia, modelled over counted daily volume by road class.

Western Australia

The Western Australia validation set has 1,231 count locations with daily totals, all from Main Roads Western Australia. There are 1,257 locations with hourly counts, and 1,257 whose counts classify vehicles as light or heavy.

Average daily total traffic volumes

At the 1,231 count locations, R^2 is 0.951 before calibration, with 71.7% of locations within GEH 5. Generalised calibration raises this to R^2 0.959 and 88.1%, and trip-level calibration to R^2 0.997 and 98.0%. Before calibration the volumes are 17% below the counts in total; the generalised calibration corrects this level.

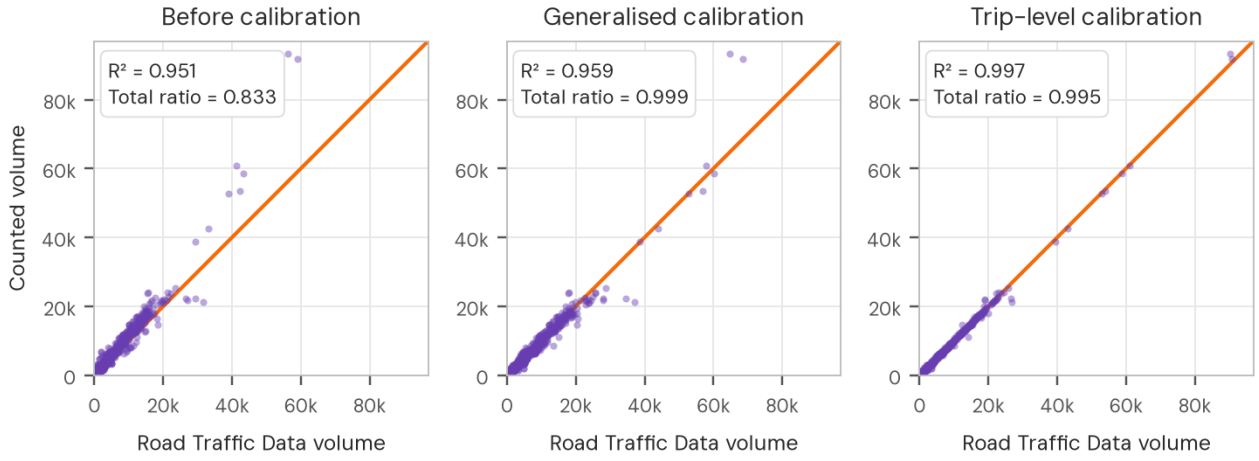


Figure 20. Western Australia, average daily total volume at each of 1,231 count locations, all vehicles.

Vehicle class validation

At the 1,257 classifying locations, non-commercial volumes reach R^2 0.956 after generalised calibration and 0.998 after trip-level calibration, and commercial volumes R^2 0.895 and 0.940. Summed over these locations, commercial volumes are 6% below the counts after generalised calibration and 5% below them after trip-level calibration.

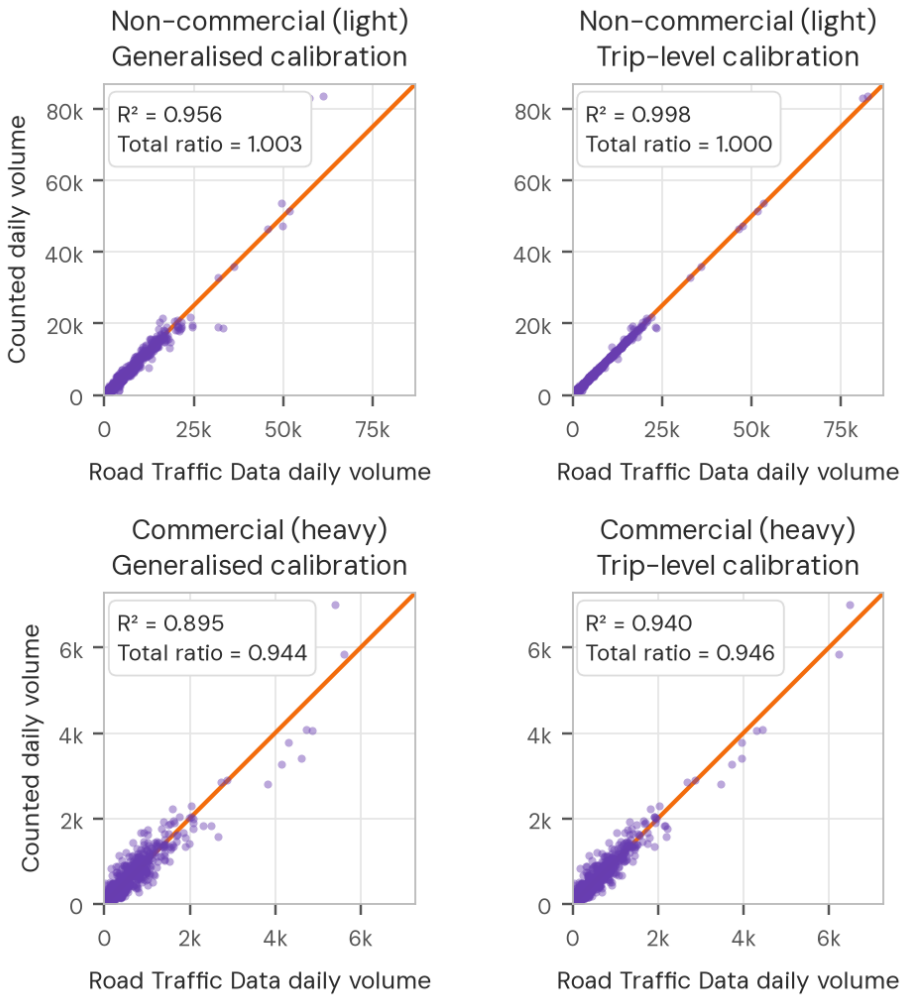


Figure 21. Western Australia, daily volume at each classifying count location.

Time-profile validation

At the 1,257 locations with hourly counts, the share of the day in every hour is within 0.2 percentage points of the counted share on weekdays and 0.1 on weekends after calibration, against 0.6 and 1.0 before.

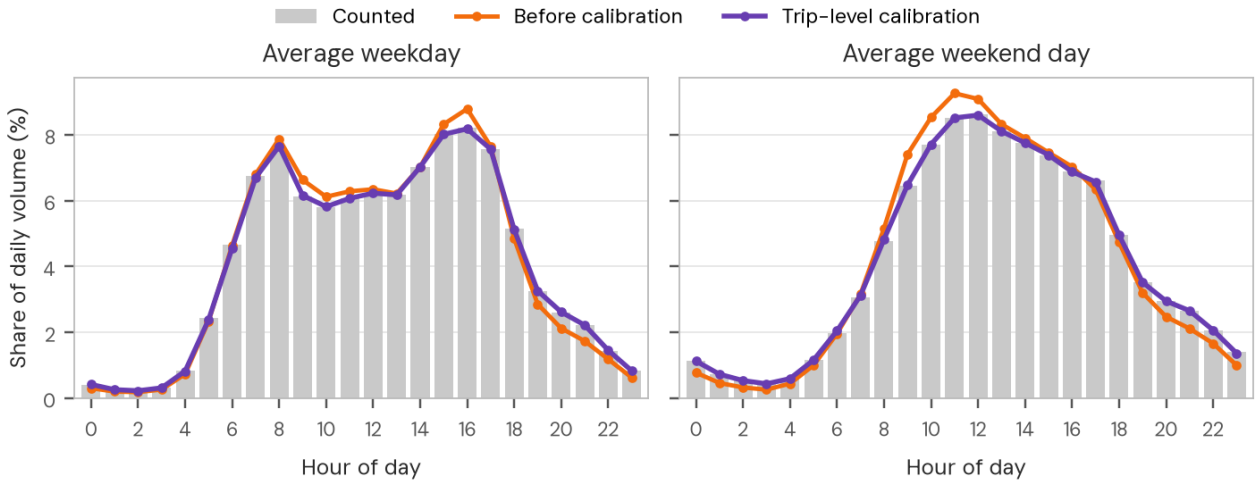


Figure 22. Western Australia, share of daily volume by hour, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is secondary roads, at 2% below the counts (23% below before calibration).

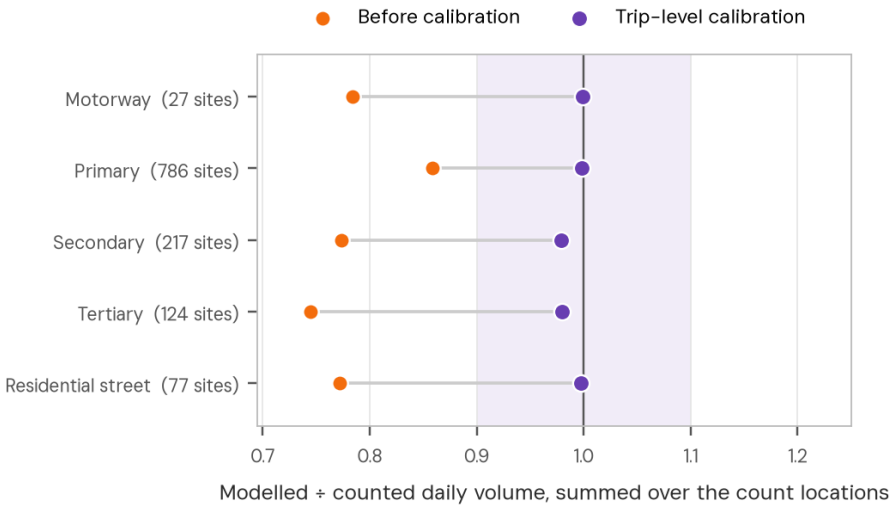


Figure 23. Western Australia, modelled over counted daily volume by road class.

Tasmania

The Tasmania validation set has 503 count locations with daily totals, all from the Department of State Growth. There are 503 locations with hourly counts, and 503 whose counts classify vehicles as light or heavy.

Average daily total traffic volumes

At the 503 count locations, R^2 is 0.984 before calibration, with 61.2% of locations within GEH 5. Generalised calibration raises this to R^2 0.989 and 91.7%, and trip-level calibration to R^2 0.999 and 100.0%. Before calibration the volumes are 28% below the counts in total; the generalised calibration corrects this level.

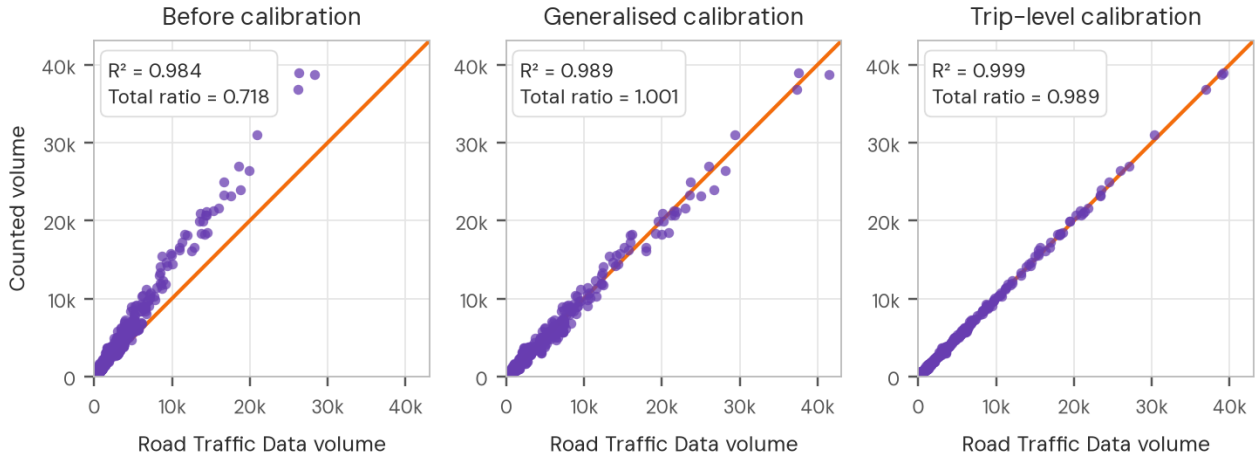


Figure 24. Tasmania, average daily total volume at each of 503 count locations, all vehicles.

Vehicle class validation

At the 503 classifying locations, non-commercial volumes reach R^2 0.985 after generalised calibration and 0.999 after trip-level calibration, and commercial volumes R^2 0.881 and 0.963. Summed over these locations, commercial volumes are 15% below the counts after generalised calibration and 4% below them after trip-level calibration.

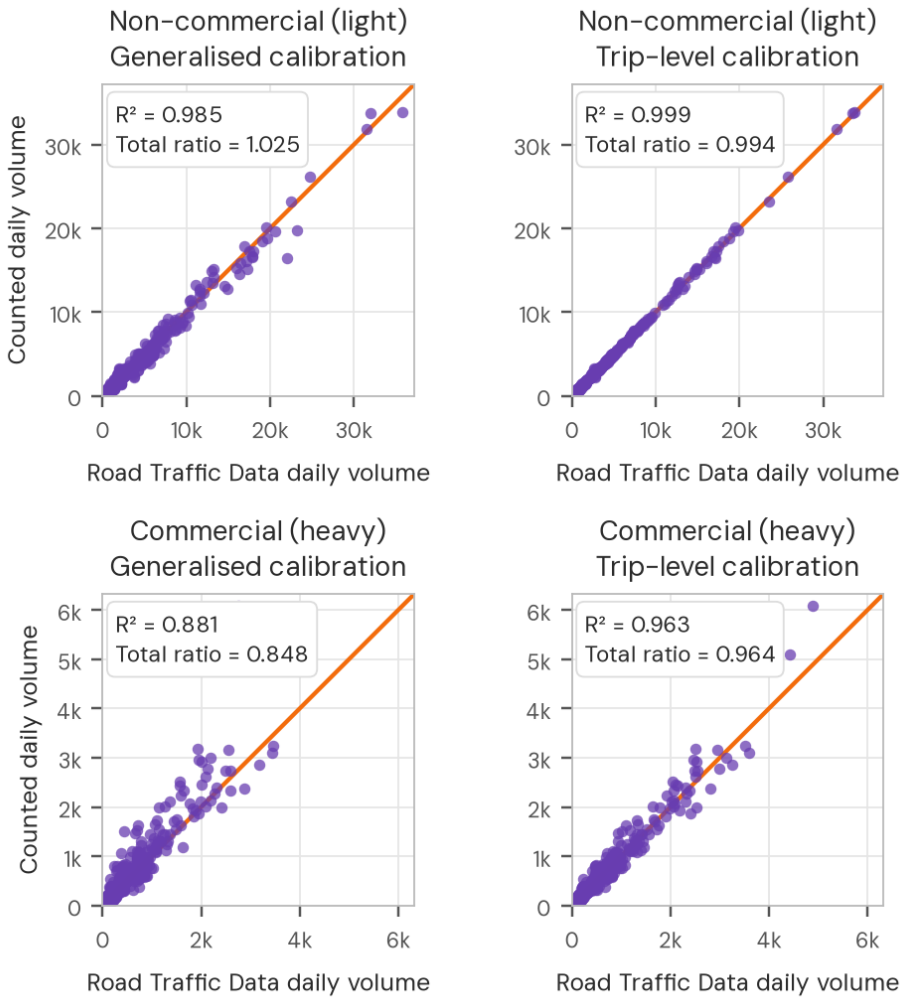


Figure 25. Tasmania, daily volume at each classifying count location.

Time-profile validation

At the 503 locations with hourly counts, the share of the day in every hour is within 0.3 percentage points of the counted share on weekdays and 0.2 on weekends after calibration, against 1.0 and 1.1 before.

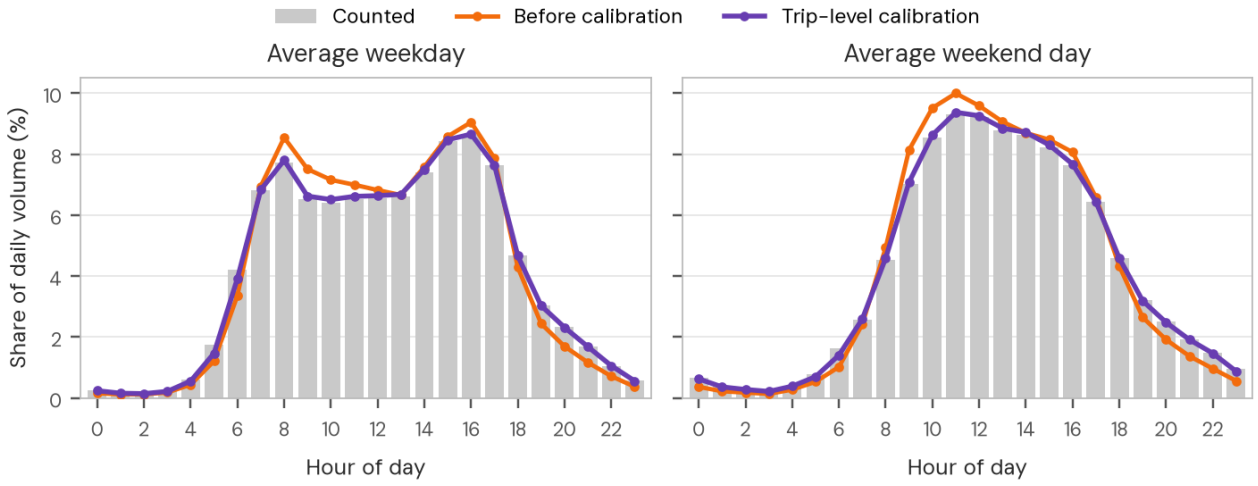


Figure 26. Tasmania, share of daily volume by hour, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is secondary roads, at 2% below the counts (33% below before calibration).

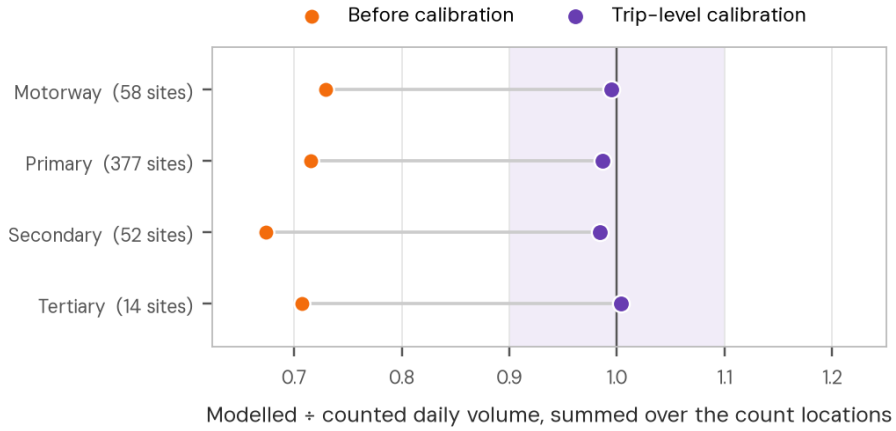


Figure 27. Tasmania, modelled over counted daily volume by road class.

Northern Territory

The Northern Territory validation set has 356 count locations with daily totals, all from the Department of Infrastructure, Planning and Logistics. There are no locations with hourly counts, and none with classified counts.

Average daily total traffic volumes

At the 356 count locations, R^2 is 0.964 before calibration, with 63.2% of locations within GEH 5. Generalised calibration raises this to R^2 0.965 and 90.2%, and trip-level calibration to R^2 0.996 and 99.2%. Before calibration the volumes are 30% below the counts in total; the generalised calibration corrects this level.

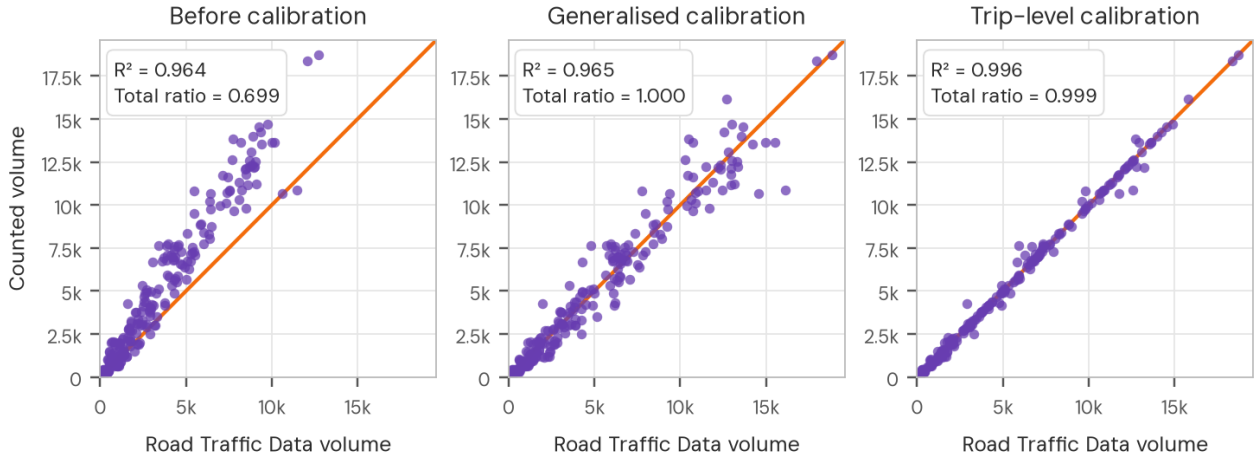


Figure 28. Northern Territory, average daily total volume at each of 356 count locations, all vehicles.

Road-class validation

Summed over the count locations on each road class with at least five locations, volumes after calibration are within 10% of the counts on every class. The furthest is residential streets, at 5% below the counts (51% below before calibration).

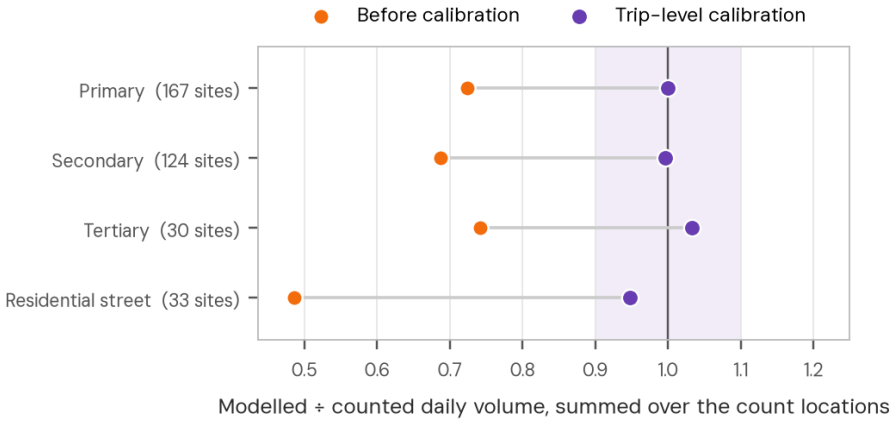


Figure 29. Northern Territory, modelled over counted daily volume by road class