



Perth Metropolitan Road Network Speed Survey

Fact Sheet

Working together to prevent road trauma



RoadWise®



WALGA

RoadWise is funded by the State Government and supported by Local Governments
www.roadwise.asn.au

It has been well documented that lower speeds lead to fewer crashes, resulting in fewer deaths and serious injuries (Rowley, 2019). On Western Australian roads, speeding and speed related crashes have unremittingly been featured in the reporting of killed or seriously injured (KSI) figures on WA roads (Rowley, 2018). As such, ongoing evaluations and initiatives to assist in reducing travel speed in Western Australia is paramount to keeping drivers, passengers and pedestrians safe.

Background

Between 2013 and 2017, 7365 people were killed or seriously injured (KSI) across the Perth metropolitan road network, with speed being assessed as a contributing factor in 13.3% of crashes (Road Safety Commission, 2019). Speeding behaviours have a significant impact on the Perth metropolitan road network and community, as such ongoing evaluations and initiatives to assist in reducing speed behaviours in Western Australia is vital.

To evaluate trends of drivers speed behaviours, 13 annual speed surveys have been conducted from 2000 to 2018 reviewing the Perth metropolitan road network to evaluate trends and changes in drivers speed compliance over time and their relation to the effectiveness of road safety programs (Sultana, 2019).¹ The survey data is collected from different speed limit roads across the metropolitan network where free flowing traffic conditions occur (Sultana, 2019).

The information included in this fact sheet is a brief summary taken from the 2018 annual survey report - *Trends in Driver Speed Behaviours on Perth Metropolitan Road Network 2000 to 2018* (Sultana, 2019). Readers are recommended to review this report for more detailed information on the methodology, historical results, data analysis and recommendations. Copies can be accessed through the Main Roads WA www.mainroads.wa.gov.au and Road Safety Commission www.rsc.wa.gov.au websites.

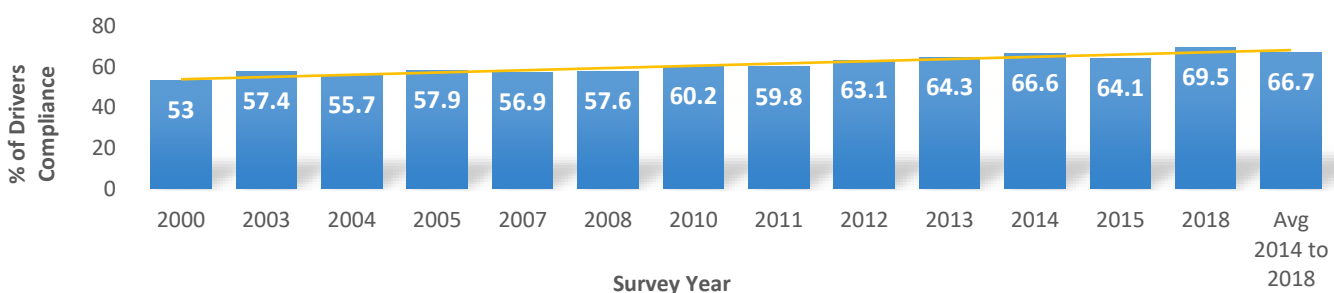
Overall Network Compliance

All Vehicles

From the thirteen speed surveys conducted on across the Perth metropolitan road network, a gradual increase in drivers speed compliance rates (the percentage of drivers that travel at or below the posted speed limit) has been observed over time, however, some variation between the survey years is seen (Sultana, 2019). In the baseline survey conducted in 2000, a 53.0% compliance rate was recorded for drivers travelling at or below posted speed limits. Whilst this increased to 57.9% in 2005, it decreased to 56.9% in 2007, before increasing to 69.5% in 2018 (Sultana, 2019). The overall average compliance rate seen in the five-year period from 2014 until 2018 was recorded at 66.7% (Sultana, 2019). This average over that period indicates significant improvements have occurred in driver speed compliance across the Perth metropolitan road network since the initial survey in 2000 (Sultana, 2019).

Compliance on State and Local Roads

The latest survey results suggest that an increase in speed limit compliance on state and local roads has been achieved since 2000, with the 2018 survey demonstrating the highest compliance of speed limits on both road types since the initial survey in 2000 (Sultana, 2019). When reviewing the baseline data from 2000, 60.7% of drivers on state roads and 49.1% on local roads complied with or drove below the required speed limits (Sultana, 2019). Comparatively in 2018, these rates increased to approximately 70.6% on state roads and 68.5% on local roads (Sultana, 2019). These improvements suggest a 10% and 19.4% (respectively) increase in driver's speed compliance on both road types since the 2000 survey period (Sultana, 2019).



Graph 1. “Driver speed compliance to speed limits across the Perth Metropolitan road network 2000 to 2018” (Sultana, 2019, p. 17).

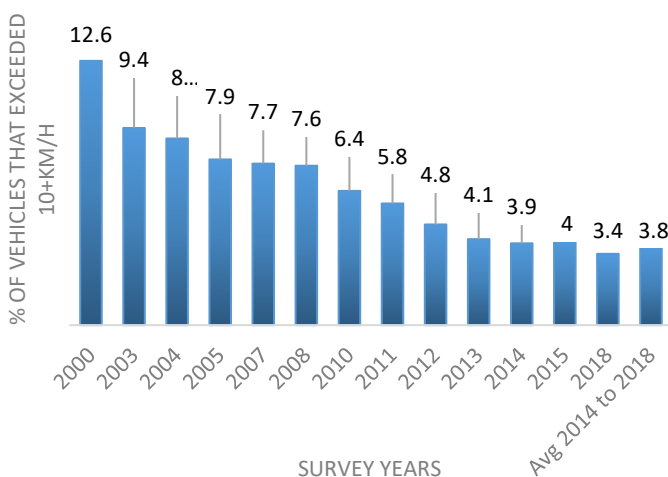
¹ Evaluating the effectiveness of road safety programs occurs through changes seen in drivers speed compliance, excess speed behaviours of 10+km/hr, 85th percentile and mean speeds over time (Sultana, 2019).

Motorcycle Drivers Compliance Rates

Motorcyclist's compliance to speed limits within the Perth metropolitan road network has demonstrated variation between survey years, although, general improvements are noted (Sultana, 2019). When reviewing survey data from 2000 to 2005, the average compliance rate was reported at 49.1%. Comparatively, the 2014 to 2018 data speed compliance rate increased to 54.5%, demonstrating a 5.4% overall increase in compliance (Sultana, 2019). The lowest performing year was seen in 2011 which recorded a 46% compliance rate, whilst the most compliant year to date was recorded in 2018 at 56.5% (Sultana, 2019).

Excess Speeds of 10km/h above the speed limit

Since the initial baseline data captured for drivers travelling at speeds greater than 10+km/h above the speed limit in 2000 (average 12.6%), a significant increase in compliance and decrease in drivers excess speeding behaviours has been seen (Sultana, 2019). In 2018, on average, 3.4% of drivers were identified to drive 10+km/h above the posted limits (Sultana, 2019). These 2018 results suggest a 73.3% reduction has been achieved since 2000 in the number of drivers exceeding speeds of 10+km/h above posted speed limits across the network (Sultana, 2019). As seen in graph two below, a gradual decreasing trend in the percentage of drivers engaging in excess speeding is seen since the baseline surveys in 2000.



Graph 2. Percentage of drivers recorded from 2000 to 2018 that exceeded the speed limit by 10+ km/h above speed limits (Sultana, 2019, p. 19).



Compliance by Speed limit

When reviewing the 2000 data for 60km/hr (46.1%), 70km/hr (68.9), and 80km/hr (75.0%) roads, compliance has increased by 21.7%, 16% and 15.4% respectively in the 2018 survey data (Sultana, 2019). Alternatively, 90km/hr

and 100km/hr zones have demonstrated reductions in compliance rates (Sultana, 2019). For instance, 90km/hr roads demonstrated a decrease in compliance from 74.2% in 2000 and 75.6% in 2015 to 71.9% in 2018 (Sultana, 2019). Similarly, 100km/hr roads demonstrated significant variation in each survey. The initial base rates in 2000 was 80.4%, which dropped to 79.4% in 2012, 65% in 2014, then increased to 73.9% in 2015 before falling to 67.4% in 2018 (Sultana, 2019). Overall, despite achieving a 21.7% increase in driver speed compliance, 60km/hr roads have displayed the lowest driver compliance rates across the surveys, whilst 90km/hr roads have remained fairly consistent in compliance over time (Sultana, 2019). For data relating to 50km/hr and 110km/hr roads, initially both road limits had their own surveys completed, however in 2004 these results were compiled in the surveys. In 2004, compliance on 50km/hr roads reported a 29.5% compliance rate which increased to 51.9% in 2018 (Sultana, 2019). Similarly, 110km/hr driver speed compliance rates also increased from the initial results seen in 2007 demonstrating a 76.4% compliance rate to 84.6% in 2018 (Sultana, 2019). It should be noted that on Perth metropolitan roads where 110km/hr speeds apply, drivers were more compliant than on non-metropolitan roads between the 2000 to 2015 surveys.

Compliance and Speeding by Day of the Week



Across the majority of surveys, the greatest compliance has been noted to fall on Mondays to Wednesdays with a 64% driver speed compliance rate (Sultana, 2019).

This is followed by Thursday and Friday reporting an average of 60% compliance, with weekends falling significantly behind at 57% (Sultana, 2019). In 2018, the lowest compliance is seen on Sundays with an average of 59.6% of drivers complying with speed limits (Sultana, 2019). When evaluating particular days of the week where drivers are most likely to engage in excess speeds of 10+km/h above posted speed limits, weekdays (6.3%) generally have lower rates of drivers travelling higher/excess speeds than on weekends (8.0%) (Sultana, 2019).

Speeding by Time of Day



When reviewing all surveys, the most likely time where drivers may engage in excessive speeds of 10km/hr or more above the speed limit is between 7:00pm and 7:00am (Sultana, 2019). In 2018, 5% to 11% of speeding drivers were recorded between 11:00am and 6:00am, which is generally the expected time frame

where the highest speeds can occur (Sultana, 2019). In 2018, the least likely time where drivers may engage in excess speeds is estimated between 8:00am and 12:00pm (Sultana, 2019). Overall, a reduction across all hours is noted in the percentage of drivers travelling at or above 10+km/hr between the 2000 (67%) and 2018 (79%) surveys which supports the overall compliance seen on Perth metropolitan roads (Sultana, 2019).

Mean Speeds and 85th Percentile Indices

The evaluation of mean speeds and 85th percentile indices are also explored in the survey to support both the evaluation of drivers speed behaviours and the effectiveness of road safety programs within the network.

Mean Speed

Across the surveys, some variation between survey years has been reported when reviewing the mean vehicle speeds. For instance, the mean speed of drivers reported in 2000 on 60km/hr roads was 59.8km/hr. This decreased to 57.2km/hr in 2009, then to 56.8km/hr in 2011 but increased to 58.0km/hr in 2012 (Sultana, 2019). By 2018, the mean speed rate was recorded at 55.1km/hr, suggesting a 7.8% overall decrease in the average speed drivers engage on 60km/hr roads since the 2000 survey (Sultana, 2019). Despite some variation, some improvements are noted when reviewing the mean speed rates on all roads in 2000 against the 2018 data. In 2018, 60km/hr, 80km/hr, 90km/hr and 100km/hr roads demonstrated significant reductions in mean speeds (-4.7km/hr, -3.6%km/hr, -3.2km/hr and -4.6km/hr respectively) in comparison to the 2000 survey, whilst 70km/hr (-0.5km/h) and 110km/hr (+0.08) roads remained relatively consistent, with minimal changes being reported (Sultana, 2019).

85th Percentile Speeds

The use of 85th percentile speeds are often seen in determining speed limits for roads. The theory is that most drivers are assumed to be reasonable and don't want to be in an accident, but they generally want to

get to their destination quickly. The 85th percentage is derived from the speed that at least 85 percent of drivers would drive at or below under free-flowing conditions, which is then often considered the highest safe speed for a road. On the rural road network, the distribution of the 85th percentiles of speed limits has demonstrated a range of variation since the 2000 survey, from minor changes to reductions of up to 3km/hr (Sultana, 2019). As seen in the table below, when reviewing the 2018 results, the lowest percentile for speed limit roads was seen on 70km/hr roads, which was reported at 2.5km/hr above the speed limit, and the highest was recorded on both 80km/hr and 100km/hr which both fell at 4.1km/hr above the speed limit (Sultana, 2019).

Summary

Since the baseline survey in 2000, despite some variations being seen, the annual speed surveys have demonstrated significant improvements within the rural road network relating to increased driver speed compliance over time (Sultana, 2019). The data collected across all surveys has highlighted key road environmental factors that can impact drivers speed behaviours such as time of the day, day of the week, region they are travelling through and the speed limit on the road (Sultana, 2019). The results are suggested to provide significant evidence and indicators of the patterns, behaviours and factors that may influence driver's behaviours which support previous interventions and encourage future initiative considerations (Sultana, 2019). Further evaluations have been suggested in the report for the utilisation of the data to investigate the relationship between speed compliance to speed enforcement initiatives, and considering impacts/severity of road crashes relating to speed behaviours identified in the report (Sultana, 2019). The report also suggests that speed enforcement strategies should consider or incorporate key factors such as temporal factors, road types, regions, and speed limits in the future (Sultana, 2019).

References:

- Regional Overview. (2019, November). Retrieved May 2020. from <https://www.rsc.wa.gov.au/Statistics/Regional-Statistics/Regional-Overview>. East Perth: Road Safety Commission.
- Rowley, P. (2018). *Speed Management Information Sheet*. Retrieved May 2020. from <https://www.rsc.wa.gov.au/resources>. East Perth: Road Safety Commission.
- Sultana, S. (2019). *Trends in Driver Speed Behaviours on Rural Road Network 2000 to 2018*. East Perth: Road Safety Commission.