# Impact of the Blue Lanes on Road Safety

Road crashes, speed and motorcyclists' perceptions in São Paulo

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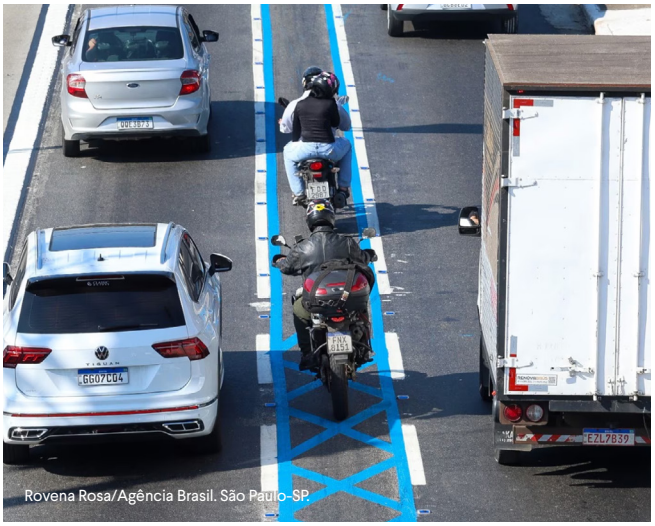
## What are Blue Lanes?

"Blue Lanes" refer to a road infrastruture program in São Paulo, Brazil that form a network of roads with a dedicated motorcycle lane, painted blue, within the general flow of vehicles. Blue Lanes are not physically separated from other lanes. Progressively implemented by the city starting in 2022, these lanes surpassed 200 km in 2025, with a further 200 km expected by 2027[1]. Their intent is to organize traffic and **increase the safety of motorcyclists.**

## Why Was the Study Conducted?

Despite the rapid expansion of Blue Lanes in São Paulo, there was a lack of consistent evidence capable of measuring its real effects on road safety. To date, the available evaluations presented methodological limitations that prevented the establishment of a cause-and-effect relationship between the intervention and possible changes in traffic injury indicators.

To fill this gap, this study was designed with **robust methods of impact evaluation**, combining quantitative and qualitative approaches. The goal is to offer solid scientific evidence on the effects of Blue Lanes and support future public policy decisions.



Rovena Rosa/Agência Brasil. São Paulo-SP.

## What the Study Revealed

### Fatal crashes may double at intersections along Blue Lane roads.

- The study confirmed the increase in fatal cases involving motorcyclists at intersections.
- On average, this increase is estimated to be between 100% and 120% in fatal cases with motorcyclists.
- There were no consistent reductions in non-fatal injuries or in crashes outside of intersections.

### The Blue Lanes increased speeding among motorcylists.

When considering the 50 km/h speed limit, nearly every single motorcyclist was speeding in the Blue Lanes.

**95.9%** of motorcyclists drive above speed limit.

When considering more extreme speeds at 60 km/h, the difference between roads with and without Blue Lanes is stark.

**8 in 10**

motorcyclists drive above 60km/h on roads **with Blue Lanes**

**3 in 10**

motorcyclists drive above 60km/h on roads **without Blue Lanes**

### Motorcyclists feel more visible and respected, but also admit that the lane encourages "racing" under time pressure.

- Users report greater predictability and a sense of belonging in traffic.
- The perception of physical safety is higher, but it is accompanied by a sense of freedom to accelerate.
- Work pressures (delivery targets) are cited as factors that increase the tendency to risky behaviors.

# Methodology

## Interviews, drones and road crash records for a more complete analysis

The study combined interviews, drones and death and injury data for a robust analysis. The research was conducted on three complementary fronts:

### Road crash data analysis

Georeferenced records of road crashes between 2021 and 2025 were analyzed to verify changes in indicators of crashes with injuries before and after implementation of the Blue Lanes. For this, the study used advanced statistical methods (such as propensity score[2] matching and the "difference in differences"[3] model) to isolate the effect of the intervention from other external factors.

### Observation of traffic behavior

Using AI-based tools to process drone footage, movements of motorcyclists and other vehicle drivers were tracked on roads with and without a Blue Lane. The images helped measure speed indicators, overtaking patterns and conflict dynamics, showing how the Blue Lanes influences driving and traffic flow.

### Perceptions of motorcyclists

The research team conducted face-to-face interviews with delivery motorcyclists in different regions of the city. The goal was to understand users' perceptions on safety, predictability and coexistence in traffic after the implementation of the Blue Lanes.

This integrated approach (combining objective data and field insights) sought to offer **a more complete picture of the effects of the Blue Lanes** on road safety.

# Why Use Comparison Groups?

Using comparison groups allowed us to better estimate what would have happened if the Blue Lanes **had not** been implemented.

- Simple "before and after" comparisons **do not work** because many factors change over time.
- Therefore, we created a **comparison group**: roads similar to those with Blue Lanes, but **without** the intervention.
- These routes were chosen with **statistical methods** that control infrastructure and circulation characteristics, allowing a fairer comparison.

This approach allows us to isolate the **real effect** of the Blue Lanes from the other changes in the city.

# The Future of the Blue Lanes

The results indicate that the project worsens the safety of motorcyclists and therefore should not be expanded. If continued, engineering adjustments at intersections, strengthening of speed management and enforcement, and addressing the working conditions of delivery motorcyclists is needed to address the risks highlighted by this study.

# Developed by a Diverse Group

This study was conducted by a consortium of universities and partner organizations, bringing together experts in transportation, public health, and data science. The research involved teams from the University of São Paulo (USP), Federal University of Ceará (UFC) and Cordial Institute, with technical support from Vital Strategies. The work reflects the joint commitment to produce independent scientific evidence to strengthen road safety in Brazil.

**Endnotes**

[1] São Paulo City Government - Goal Plan 2023-2027. Available at: https://programademetas.prefeitura.sp.gov.br/

[2] Propensity score matching creates comparable treatment and control groups based on observed characteristics, reducing selection bias in observational studies.

[3] Difference-in-differences (DiD) estimates a policy's effect by comparing changes in outcomes before and after the policy between treated and comparison groups, attributing the additional change to the policy itself.