Status Summary 2023:

Road Safety Risk Factors

Bloomberg Philanthropies Initiative for Global Road Safety

CAMPINAS, BRAZIL

JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

International
Injury Research Unit

Beginning in 2022, the Johns Hopkins International Injury Research Unit, through the Bloomberg Philanthropies Initiative for Global Road Safety, has been conducting observations in Campinas to reduce road injuries and fatalities.

The following report highlights results from an ongoing study that captured observations of three risk factors:* speed, helmet use, and seat-belt and child restraint use between October 2022 and May 2023.

*This study did not observe drink driving due to COVID-19 risks.

Speeding among observed vehicles was

21%

Correct helmet use among all motorcyclists was high at

94%

Overall seat-belt use among adult rear-seat passengers was low at

33%

Less than one-fifth of children 5-11 years old were observed using age-appropriate child restraints

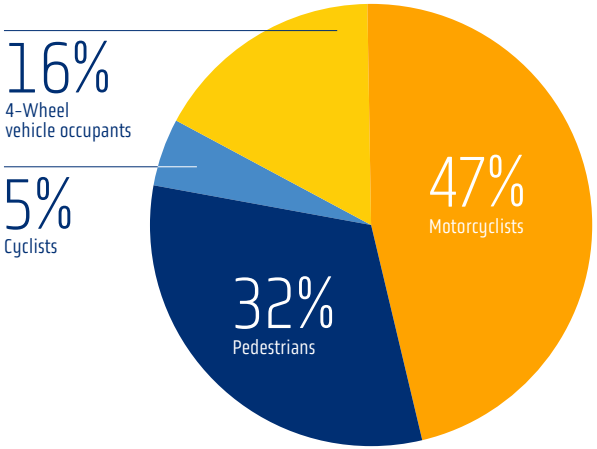
13%

Road Traffic Fatalities in Campinas

2018–2022

2018	2019	2020	2021	2022
130	126	130	151	151

Deaths by road user, 2022



Vulnerable road users (motorcyclists, pedestrians, and cyclists) **accounted for 84% of road traffic fatalities.**

Note: Data from existing sources was used for the outcome data indicators. Police crash data systems are prone to underreporting.

Recommendations

Agents of Urban Mobility and the Municipal Company for Campinas Development (EMDEC)

- Increase enforcement of:
  - Speed limits, particularly among motorcyclists and on arterial and collector roads.
  - Correct helmet use among all riders.
  - Seat-belt use, particularly among adult rear-seat passengers.
  - Age-appropriate child restraint use.

Secretary of Transport of Campinas and City Hall

- Implement mass-media campaigns coordinated with enhanced enforcement efforts, focusing on:
  - The dangers of speeding.
  - Seat-belt and child restraint use.
- Develop a speed management plan for Campinas to foster the establishment of safe speeds (according to WHO) and the standardization of speed limits on roads with similar characteristics.
- Add and implement a maximum speed limit of 30 km/h on roadways (local and collector roads) where motorized traffic mixes with pedestrians and cyclists, and 50 km/h on arterial roads.
- Implement speed-calming measures, such as bumps, rumble strips, safe speed signage, and designation of low-speed areas to protect vulnerable road users.

Speed in Campinas

Higher speeds lead to a greater risk of a crash and a higher probability of serious injury. An increase of 1 km/h in average vehicle speed results in an increase of 3% in the incidence of crashes resulting in injury and an increase of 4%–5% in the incidence of fatal crashes.*

*Save LIVES: A road safety technical package. Geneva: World Health Organization; 2017.

21% of vehicles were observed exceeding the posted speed limit.

Average speeds in Campinas were 46 km/h.

Observed exceeding speed limits was high among motorcycles (43%).

Observed speeding was higher on collector roads (32%) and local roads (21%) compared with arterial roads (8%).

Applying the global recommendation (30 km/h for local and collector roads and 50 km/h for arterial roads), **66% of the observed vehicles were exceeding the recommended speeds.**

Functional classification of roads

Arterial road: These are roadways with high traffic volume; they provide a high degree of mobility and carry a high proportion of travel for long distance trips. These roadways carry the major portion of trips entering and leaving an activity center, as well as the majority of movements that either go directly through or bypass the area.

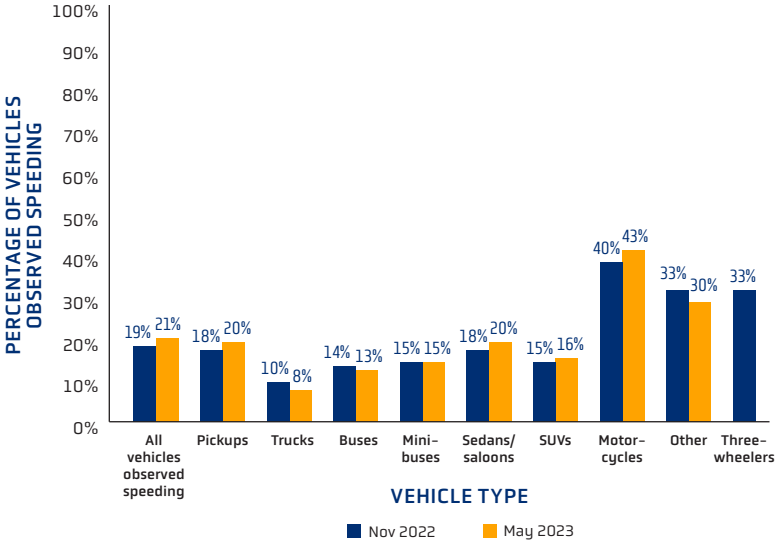
Local road: These roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas.

Collector road: These roads collect traffic from local roads and connect to arterial roadways. They penetrate neighborhoods and communities, collecting and distributing traffic between neighborhoods and arterial roads. Collector roads are shorter than arterial but longer than local roads.

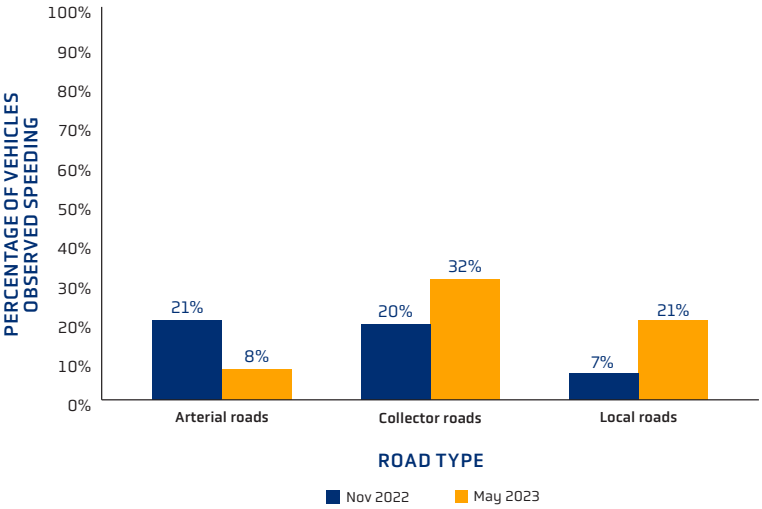
These roads provide less mobility than arterials at lower speeds and for shorter distances.

Key Findings on Speed in Campinas

Speeding was highest among motorcycles



Speeding was most common on arterial and collector roads



Recommendations

Agents of Urban Mobility and the Municipal Company for Campinas Development (EMDEC)

- Increase enforcement of speed limits, focusing on:
  - Motorcycles.
  - All types of roads, including local roads.
  - Areas with more vulnerable road users and with the most fatalities and serious injuries.
- Make enforcement operations regular, visible, and widespread.

Secretary of Transport of Campinas and City Hall

- Develop a speed management plan for Campinas to foster the establishment of safe speeds (according to WHO) and the standardization of speed limits on roads with similar characteristics.
- Adopt and implement a maximum speed limit of 30 km/h on roadways where motorized traffic mixes with pedestrians and cyclists, and 50 km/h in urban areas.
- Scale the implementation of speed-calming measures through Complete Streets and Tactical Urbanism interventions, carry out geometric and signage corrections on the main hotspots, and expand the cycling network.

Helmet Use* in Campinas

Using a motorcycle helmet correctly** can reduce the risk of fatality by 42% and the risk of serious head injury by 69% in the case of a crash.

*Overall helmet use was defined as strapped or unstrapped use of a helmet of any type.
**Correct helmet use was defined as the use of a standard helmet that was worn correctly and with the chin strap fastened.

Correct helmet use was lower among males (94%) compared with females (96%).

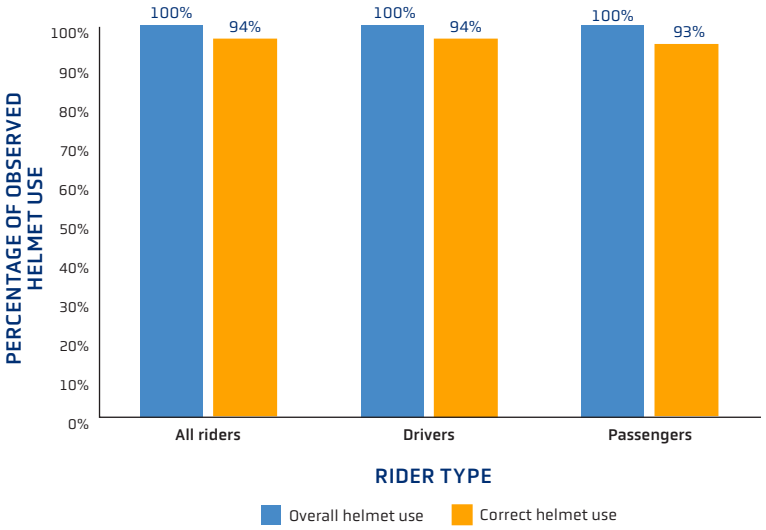
Helmet use on arterial roads was at 92%.

Correct helmet use among all motorcyclists was high at 94%.

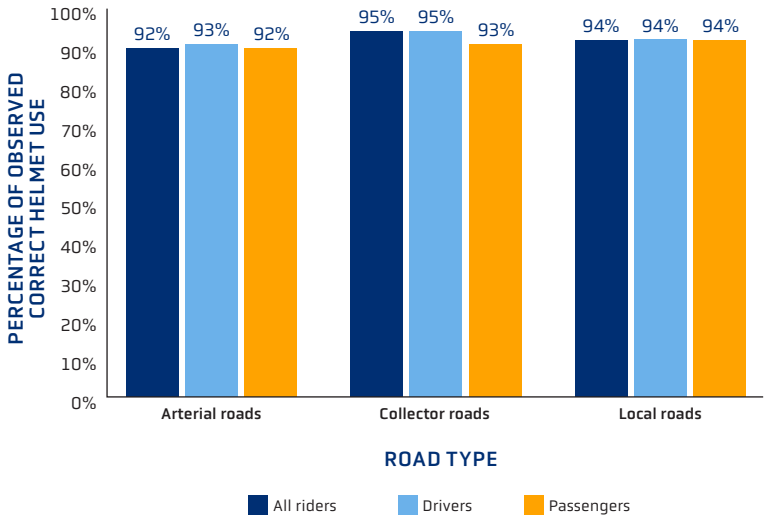
Correct helmet use was similar across arterial roads (92%) collector roads (95%) and local roads (94%).

Key Findings on Helmet Use in Campinas

Correct helmet use was lower among drivers



Correct helmet use was similar among motorcyclists on different types of roads



Recommendations

Agents of Urban Mobility and the Municipal Company for Campinas Development (EMDEC)

- Continue enforcement of correct helmet use.
- Make enforcement operations regular, visible, and widespread.

Secretary of Transport of Campinas and City Hall

- Implement mass-media campaigns in coordination with enforcement efforts, to keep correct helmet use high.
- Promote media training, with the intention of qualifying media coverage of road safety as a serious public health problem, which contributes to the transmission of messages about risk factors and behaviors to the general population, aiming at changing behavior.
- Conduct studies to assess motorcycle helmet quality and advocate for enhanced safety laws to improve helmet standards.

Seat–Belt and Child Restraint Use in Campinas

Seat–belts and child restraints play a significant role in reducing the severity of injuries in the event of a crash; they reduce mortality by 50% in crashes in which motorists, passengers (including rear–seat passengers), and children would otherwise die. Children in front seats have a 40% higher road traffic injury risk than children in rear seats.

Seat-belt use among all occupants ≥ 12 years old was 85%.

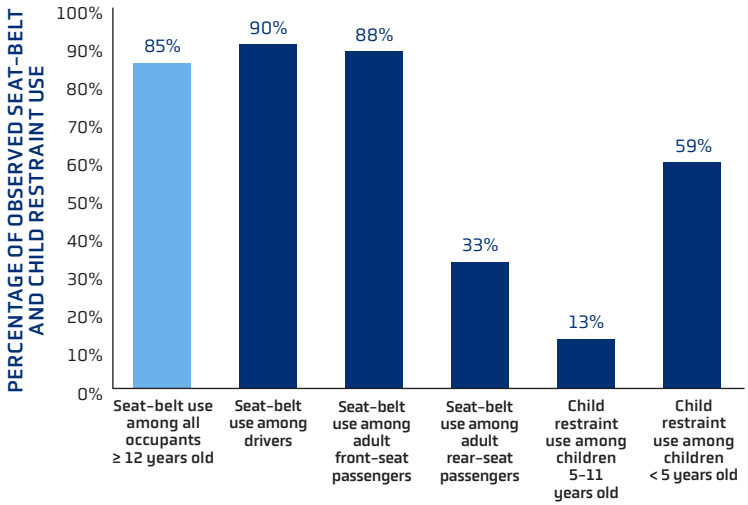
Seat-belt use was very low among adult rear-seat passengers (33%).

Child restraint use was very low among children 5-11 years old (13%).

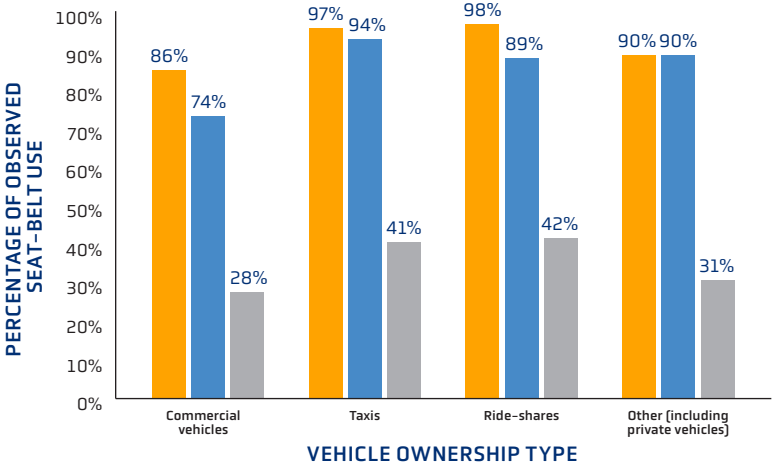
Seat-belt use was low among all occupants in heavy vehicles (54%).

Key Findings on Seat-Belt and Child Restraint Use in Campinas

Seat-belt use among adult rear-seat passengers and child restraint use among children 5–11 years old was very low



Seat-belt use was lower among passengers in commercial vehicles



Recommendations

Agents of Urban Mobility and the Municipal Company for Campinas Development (EMDEC)

- Increase enforcement of:
  - Seat-belt use among rear-seat passengers.
  - Seat-belt use among all occupants in commercial vehicles.
  - Age-appropriate child restraint use.
- Make enforcement operations regular, visible, and widespread.
- Strengthen the enforcement of unpaid fines and penalties.
- Engage ride-sharing, taxis, and commercial companies to promote the use of seat-belts.

Secretary of Transport of Campinas and City Hall

- Implement mass-media campaigns in coordination with enhanced enforcement efforts, emphasizing the importance of seat-belt use among rear-seat passengers and age-appropriate child restraints.
- Advocate for legislation to increase the use of age-appropriate child restraints.

Designating a safe space for pedestrian crossing as part of a tactical urbanism project in Rua Delfino Cintra in Campinas, Brazil.

METHODS

Since 2022, the Johns Hopkins International Injury Research Unit has partnered with the Universidade de São Paulo to conduct roadside observations. The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the Universidade de São Paulo. This report provides results from observational surveys that represent the population-level (citywide) prevalence of important road safety risk factors—speed, helmet use, and seat-belt and child restraint use—at baseline. In the last round of observations, for speed, there were 73,978 observations (October 2022); for helmet use, there were 11,849 observations (October 2022); and for seat-belt and child restraint use, there were 26,283 observations (October 2022).

Observation sites were randomly selected, conditional on the safety of observers. Fifteen sites were randomly selected to capture the prevalence of risk factors that could be attributed to either implementation of targeted interventions or secular trends. For each risk factor, a standardized protocol for data collection was implemented. All risk factors were observed by selecting vehicles in a systematic quasi-random fixed sequence during a period of three weeks in 15 observation sites of the city. The selection of the observation sites was done proportionally to traffic flow, weighted by the density of traffic lights of each administrative region. Observations were performed between 8:15 a.m. and 5:30 p.m. on both weekdays and weekend days. The methods were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city. The data management team at Johns Hopkins International Injury Research Unit reviewed and cleaned the data to perform the analyses available in this report.

ACKNOWLEDGMENTS

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SECRETARIA DE TRANSPORTES

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