

## Abstract

The Toronto Bicycle/Motor-Vehicle Collision Study examined 2,572 police-reported car/bike collisions that occurred in Toronto between January 1, 1997 and December 31, 1998. Research methods generally followed the approach recommended by the U.S. Federal Highway Administration (FHWA). The FHWA's car/bike collision typology was adapted to suit local data, resulting in a new typology with 23 collision types.

Collisions were most frequent on arterial roads, with the highest concentrations on central east-west routes, where bicycle volume is relatively high. Most occurred in dry weather, during daylight, particularly during peak hours, and especially between 3 p.m. and 7 p.m. The majority of collisions occurred at intersections (including driveway and lane entrances), and most of those involved motor-vehicle turning manoeuvres. Away from intersections, collisions most often involved a motorist overtaking a cyclist, or opening a car-door in the path of a cyclist. In the central area of the city, the most frequent type of collision involved a motorist opening their car-door in the path of a cyclist.

Almost 30% of the cyclists were cycling on the sidewalk immediately prior to their collisions. In many of these incidents, the motorist either failed to stop before crossing the stop bar (at controlled intersections) or sidewalk (at driveways and lanes), or proceeded forward after stopping, into the path of an on-coming cyclist. The combination of cyclists riding through crosswalks from the sidewalk and drivers "rolling through" stop signs appears to have contributed to a significant number of collisions.

The majority of the cyclists captured by the study were adults. Compared to the age distribution of Toronto's cycling population, cyclists between the ages of 18 and 34 were significantly over-represented in car-bike collisions. Males were more often involved in collisions than females. Proportionally fewer males were found to be wearing a cycling helmet at the time of their crash.

Some age groups exhibit disproportionately high involvement in particular types of collisions. Such findings suggest that factors related to the typical travel patterns, cycling or driving habits and/or skills of these age groups might account for their higher involvement. This can provide clues about the underlying problems affecting all age groups in those types of collisions, and can suggest ideas for specific countermeasures. Age-related findings also can be used in the development and delivery of safety messages, public awareness campaigns, and skills training programs targeted at specific audiences.

Some types of collisions are found to occur more frequently in the central area, while others are relatively more common in outer areas. On a smaller scale, certain street sections stand out, where the concentration of certain collision types seems especially high. Location-related findings are expected to contribute to the City's efforts to improve road safety by providing information regarding the kinds of physical treatments that might be most effective in different parts of the city. This kind of information can also contribute to the efficient implementation of localised traffic enforcement, and can help to focus public education and awareness campaigns.