

Introduction

Safety is a primary concern in the design of any transportation system. The study of traffic safety failures — crashes⁷ — can highlight possible design shortcomings, which can be addressed through engineering treatments. Infrastructure and vehicle design improvements are examples of the many types of safety counter-measures that can be implemented with the help of knowledge obtained through crash studies. Research that reveals behaviour patterns associated with the occurrence of crashes can yield important safety messages. These can be delivered through education, training, and public awareness programs, and can also aid in the development of traffic enforcement campaigns. The goal of all these initiatives is to improve traffic safety by reducing the occurrence of crashes and mitigating the severity of those that do occur.

In the past, traditional transportation planning tended to focus on the provision of safe facilities to accommodate an existing, and increasing, demand for motorised travel. Long-range planning that facilitates and encourages alternative travel modes is now becoming more prevalent, and is incorporated in Toronto's new Official Plan. Along with reducing the number of cycling crashes and injuries, a major objective in the field of bicycle transportation planning is to actively stimulate increased use of bicycles for routine trips. Hence, in addition to improving real safety for cyclists, the *appearance* of safety is important, since the perception of risk discourages bicycling in mixed traffic for many people.

Of the various possibilities for increasing everyday use of bicycles, perhaps the greatest potential lies in encouraging citizens who already cycle for pleasure to also use their bicycles for everyday personal transportation — for getting to work or school, and for shopping and visiting. For those who live close enough to their school or workplace for bicycle commuting to be feasible, the most frequently cited factor inhibiting them from doing so is the perception that riding in traffic is dangerous.⁸ Efforts to address this problem — to promote cycling *and* to improve cycling safety — must rely on a solid understanding of the actual dangers involved.

⁷ Currently, traffic “accidents” are more often referred to as “crashes,” to emphasise the notion that most are caused by a combination of potentially avoidable circumstances and/or actions. Bicycle crashes include both simple falls and collisions with other road users.

⁸ Decima, 2000

In July of 1999, a year after the release of the Toronto Regional Coroner's report on Cycling Fatalities, the City's Transportation Services Division began a study of motor-vehicle collisions involving bicycles. The study looked at all the collisions between cyclists and motorists that were reported to police during 1997 and 1998. This report consists of two parts: Part I describes the Toronto Bicycle/Motor-Vehicle Collision Study, including the research methods and key findings. Part II presents the results of study's statistical and geographic analyses, in detail.

Chapter 1 of Part I provides some background information, placing the study in the context of a growing cycling community and increasing public concern over the safety of cycling in Toronto. The research approach is explained in Chapter 2, with descriptions of the data collected, the collision "typing" and statistical analysis processes, and the format used to present the results. The key findings are summarised in Chapter 3, beginning with some general findings regarding the collisions and the cyclists involved in them. The most frequently occurring types of collisions are then discussed individually, along with some of the less frequent types that tended to result in the most serious injuries. Chapter 4 pulls together some common findings that emerged from the analysis of the different types of collisions, in an attempt to highlight some of this city's most significant cycling safety issues. This leads to some suggestions for "next steps," in terms of possible applications of the knowledge that has emerged from this study, further analysis of the data, and potential future research.

Part II presents, for each type of collision in the typology, all the significant analysis results, as well as diagrams depicting typical collision configurations, and maps showing the location of each incident reported during the study period. The reader will find it useful to refer to these pages to supplement many of the discussions in Part I.