

Chapter 1: Background

1.1 Trends in Bicycle Ridership and Collisions in Toronto

Toronto has relatively high levels of bicycle traffic on its downtown streets. On a typical weekday, bicycles make up roughly 5% of the downtown traffic (excluding expressways), while on some major streets, including Bloor Street West and Queen Street West, bicycles account for between 14% and 17 % of the vehicles.⁹ Surveys indicate that 8% of core area residents use bicycles as their main means of travel to work.¹⁰ In outer areas, bicycle use is much lower, and so the city-wide bicycle modal share is under 2% of all trips, as in most North American cities.

Several factors combine to make the use of bicycles for personal transportation quite practical and popular in central Toronto. Much of this portion of the city was laid out before the advent of the automobile, and the scale suits walking and cycling well. Main streets and transit lines are oriented parallel to the lakeshore on flat terrain, and the grid pattern is closely spaced. A diverse mix of residential and commercial development, including a thriving small-retail sector, means that shopping and other necessary trips can be quite short. The central area supports a large resident population, and there is a very high concentration of employment in the central business district. Thus, many residents enjoy short commute distances. Two large universities are located in downtown Toronto, as well as several colleges and medical institutions, which add to the commuter-cyclist population. The city is well served by public transit, especially in the central area, providing a convenient alternative on days when bicycling is not practical. These factors allow the residents of almost forty per cent of households within central Toronto, and over half of those in the core area, to do without regular access to a motor vehicle.¹¹ Recreational cycling is popular in all areas of the city, but most of Toronto's utilitarian cycling activity occurs in the central region, including the vast majority of bicycle trips to and from work.¹²

⁹ 1993 City of Toronto Central Area Cordon Count

¹⁰ 1991 Central Area Residents Survey

¹¹ Transportation Tomorrow Survey, 1996

¹² Decima, 2000

While many commuters walk, cycle, or use public transit, a large number of motorists compete for space on the roads every day. Approximately 1,200 collisions between bicycles and motor vehicles are reported each year in Toronto, resulting in an average of three cycling fatalities and over a thousand personal injuries each year. While the number of collisions may seem high, bicycles are not significantly over-represented in traffic collisions. Cyclists are involved in just under two percent of all reported motor vehicle collisions, roughly equal to the bicycle's share of all trips in the City. Nevertheless, they account for eight percent of all collision-related personal injuries and five percent of traffic fatalities. In the central area, where bicycles account for approximately five percent of traffic, fourteen percent of collision-related personal injuries are sustained by cyclists.¹³ While cyclists are much less likely to harm other road users, they are much more vulnerable to injury than are the occupants of motor vehicles. Hence, treating cyclists simply as operators of "ordinary" vehicles is not equitable, and is unlikely to promote an environment conducive to increasing bicycle-use.

Table 1.1: Cycling Fatalities and Injuries in Toronto (1992-2001)

Year	Fatalities	Injuries
1992	2	1,254
1993	4	1,247
1994	4	1,120
1995	1	1,144
1996	6	1,144
1997	4	1,397
1998	6	1,181
1999	2	1,029
2000	3	1,084
2001	0	1,100

As illustrated in Table 1.1, the number of cycling-related fatalities and injuries has been relatively constant over the past decade. While this is somewhat encouraging, considering that the number of cycling trips has increased, the injury rate for cyclists is still disproportionately high. It is essential that efforts to understand the causes of cycling collisions continue, and that the findings be incorporated in the processes of transportation planning and traffic operations.

¹³ Lucas, 1998

Toronto's new Official Plan stresses the importance of making alternatives to automobile travel more viable as the city continues to grow. The long-term process of implementing the Toronto Bike Plan has begun, with the dual goals of doubling the number of bicycle trips within ten years and reducing cycling-related injuries and collisions. In order to achieve these objectives, we must learn as much as possible about how, why, and where bicycle/motor-vehicle collisions occur.

1.2 The Toronto Coroner's Report on Cycling Fatalities

During the summer of 1996, two cycling fatalities within a ten-day period attracted considerable public attention. As a result, Toronto's Regional Coroner assembled an ad-hoc committee to review the cycling fatalities that had occurred in the city over the previous decade. The committee's report, sub-titled "Recommendations for Reducing Cycling Injuries and Death," was released in July of 1998.¹⁴ The Coroner stressed that "there is a disproportionate representation of bicycles in (personal injury) traffic collisions, relative to their numbers on the road, highlighting the need for appropriate programs designed to reduce cycling-related injuries." Furthermore, "(b)icycle collision reporting and the development of an adequate database for intelligent analysis must be recognized as important foundations." The Coroner's Report contained thirteen specific recommendations, one of which was that collision data should be studied in detail, to help create a more detailed understanding of the traffic safety problems affecting cyclists in the city:

C. Expert review of bicycle collisions and collision data

Recommendation #4

That the City of Toronto, with the assistance of the Ontario Trauma Registry, the Ministry of Transportation and other interested parties, initiate a comprehensive study of bicycle usage and collisions within the City. The study would include:

- probable causes of collisions (behavioural, geometric design, road condition, etc.)
- high frequency collision locations
- bicycle collision/injury trends
- physical infrastructure improvements to prevent collisions (site specific or systemic changes)
- educational messages for drivers, cyclists and the media
- any other relevant issues

¹⁴ Lucas, 1998

The Coroner recommended that the City commence an on-going, co-ordinated effort to understand the causes of local cycling fatalities and collisions:

Recommendation #5

That a multi-disciplinary team involving municipal staff, including traffic engineering, bicycle facility planning and bicycle safety training staff, and police and ambulance personnel be established to conduct an annual review of all cycling fatalities in the City of Toronto as well as bicycle collision data.

Among the Coroner's other recommendations were some specific suggestions as to how the information generated by this kind of research should be applied:

E. Collision prevention – enforcement

Recommendation #10

That the Toronto Police Service, in partnership with the municipal Cycling Committee, expand targeted enforcement and education efforts towards specific behaviours (cyclists and drivers) which cause collisions, and use the media to raise awareness of these behaviours.

And:

G. Road design/facilities

Recommendation #13

That The City of Toronto identify potentially dangerous locations for cyclists including high frequency accident locations and cyclist-identified problem areas where site-specific improvements can be made to prevent bicycle collisions.

In July of 1999, as part of the City's response to these recommendations, Transportation Services began The Toronto Bicycle/Motor-Vehicle Collision Study, focusing on the kind of cycling crashes that account for most serious cycling injuries. While cycling crashes that do not involve motor-vehicles can indeed cause injuries, information collected on such incidents — mainly by hospital emergency wards — is much less detailed than that available from motor-vehicle collision reports. When this study is supplemented with information from hospital records, we will be able to further develop our understanding of the scope of local cycling crash patterns.

The current study establishes a reliable method by which local collision data can be effectively analysed. As a follow-up to this study, Transportation Services is implementing a streamlined process by which statistics on motor-vehicle collisions involving cyclists can be

collected and reviewed on an on-going basis. This could reveal trends in cycling collisions and injuries, trends that may reflect the impact of traffic enforcement and public awareness campaigns, improvements in cycling infrastructure, and other initiatives, as well as changes in the level of local cycling activity.

Some of this study's findings have already been applied, in programs that contribute to the implementation of several of the Coroner's recommendations. For example:

- In 2002, Toronto Police Services began incorporating information from the Collision Study, along with suggestions from the Toronto Cycling Committee, in their annual "Cycle Right" campaign, aimed at both cyclists and drivers.
- City council has adopted a by-law requiring taxicabs to display a sticker reminding cab drivers and passengers to look for bikes prior to opening the car door. The City's own vehicle fleet will also be fitted with these stickers during routine maintenance.
- A public awareness campaign, "Sidewalks are for Pedestrians," launched by the City in 2002, highlights the dangers to both cyclists and pedestrians when cyclists ride on the sidewalk.
- "CAN-BIKE" cyclist-training course materials have been updated, with the addition of a new chapter on collisions and crashes. Canadian instructors now have access to information that is more relevant to cities like Toronto.

The Collision Study's geographic analysis identified several street sections where certain types of collisions were very frequent, such as parts of College Street where dooring incidents are common. It also highlighted differences in collision patterns between central and outer areas of the city. However, identifying more specific high-frequency collision locations will require additional data. Unlike motor-vehicle collisions, car/bike collisions are not frequent enough to yield distinct local concentrations within the two-year period covered by the study. Additional data, from collisions that have occurred in subsequent years, may provide enough information to pinpoint problematic intersections and corridors. In addition, as the Coroner suggested, cyclists may be able to identify places where they feel that site-specific improvements might reduce collisions, based on their travel experiences. A systematic method of collecting this kind of information should be developed.