

# **Taxicab and Livery Crashes in New York City 2004**

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## Summary

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The public perception is that taxicab and livery drivers are less safe than other drivers in New York City. On a scale of zero to 10, New York City taxi riders rate medallion cabs as a 5.7 on “safety from accidents.” By contrast, New Yorkers rate the private auto as 7.6 on safety from accidents. Car services receive an in-between rating of 6.7 on this service attribute.<sup>1</sup>

This report analyzes crash data to assess whether these perceptions are accurate. Are cabs among the least safe vehicles on the streets of New York? How likely are passengers, pedestrians and bicyclists to be injured in or by a taxicab or livery? How does this compare with the risks of being in a private car?

The report finds surprisingly good news for taxi and livery passengers:

- Crash rates are one-third lower for taxicabs and liveries than for other types of vehicles. The crash rate was 4.6 taxicabs involved in reported accidents per million miles traveled and 3.7 liveries involved in reported accidents per million miles traveled, compared with 6.7 vehicles involved in reported accidents per million miles for all vehicles in New York City, in 2004.
- As a result of lower crash rates in these vehicles, taxi and livery passengers are less likely to be injured while riding in a taxi/livery than are occupants of other vehicles. There were 1.6 injured taxi passengers per million passenger miles traveled and 2.0 injured livery passengers per million passenger miles traveled in 2004. These figures are lower than the injury rate of 2.6 injured persons per million miles traveled for occupants (drivers and passengers) of all vehicles in New York City, in 2004.
- For a typical Manhattan resident who takes 100 cab trips a year, the chance of being injured as a taxi passenger is 0.4% over a 10-year period, at current crash rates.
- Taxis and liveries cause injuries to pedestrians at a lower rate than do other vehicles. Crashes involving pedestrians and medallion cabs result in 0.77 injured pedestrians per million miles traveled by taxis. By contrast, in Manhattan, where most of the cab accidents take place, crashes between all vehicles and pedestrians result in 1.00 injured pedestrians per million miles traveled. The figure for liveries, which are dispersed throughout the five boroughs, is 0.49 injured pedestrians per million miles compared with 0.60 injured pedestrians per million miles for all vehicles citywide, in 2004.

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<sup>1</sup> Schaller Consulting, *Taxicab Fact Book*, March 2006, page 12.

- Liveries cause injuries to bicyclists at a lower rate than do other vehicles. Crashes involving bicycles and liveries produce 0.12 injured bicyclists per million miles traveled by liveries, compared with 0.17 injured bicyclists per million miles traveled by all vehicles.
- On the other hand, taxis cause injuries to bicyclists at a higher rate than do other vehicles. Crashes involving bicycles and taxis produce 0.33 injured bicyclists per million miles traveled by cabs, compared with 0.28 injured bicyclists per million miles traveled by all vehicles in Manhattan.

Lower crash rates for taxis and liveries are the upshot of a significant drop in the number of taxi and livery crashes over the past decade. The number of taxi and livery crashes declined by 12 percent from 2003 to 2004, and by a total of 28 percent since 1994.

Although it is difficult to identify all of the factors behind the decline in taxi and livery accidents in New York City, several factors appear to be among the most significant.

First, the declining number of taxicab crashes appears linked to the increase in experience levels among New York City cab drivers. Driver experience levels increased from 5.7 years in 1993 to 7.8 years in 1998 and 9.2 years in 2005.<sup>1</sup> The crash rate declined most rapidly from 1994 to 1998; this is the same time period in which driver experience levels increased most rapidly.

A different explanation appears to lie behind the drop in livery crashes since 1999. Since 2001, insurance companies that underwrite livery vehicles have more carefully tailored auto insurance premiums to driving records. While the livery industry has for many years had an incentive to drive more safely and reduce insurance costs, the benefits would accrue only to the industry as a whole. Changes in insurance underwriting brought this relationship to the vehicle level, so that drivers with accident-prone records now bear the brunt of higher insurance premiums. This has apparently led to more careful driving among livery drivers.

Another factor is the Taxi and Limousine Commission's "critical driver" program, which sets strict ceilings for DMV points for taxi and livery drivers. Drivers are suspended for accumulating more than 6 points on their license in a 15-month period. Driver licenses are revoked for drivers accumulating more than 10 points on their license in a 15-month period.

Another key finding of the report is that while injury rates are lower for taxi passengers than other vehicles, the severity of injury is greater for those passengers who are injured in a taxicab. Injured taxi passengers are twice as likely as passengers of other vehicles involved in the same crash to suffer head and face injuries. The higher incidence of such

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<sup>1</sup> Schaller Consulting, *Taxicab Fact Book*, March 2006, page 52.

injuries owes to passengers not using restraints and the presence of partitions in medallion cabs.

Although restraint use has increased, taxi passengers remain woefully unlikely to fasten their seat belt. Only 23% of taxi passengers who were involved in a crash were known to be wearing a seat belt, compared with 40% of livery passengers and 67% of passengers in other vehicles involved in these crashes. The figure for taxi passengers increased by 5 percentage points between 1999 and 2004 but remains quite low. (These figures are all for rear-seat passengers.)

One implication of these findings is the need to reduce the severity of taxicab injuries. Keys to reducing injury severity are increasing passenger use of seat belts and better protecting passengers from being injured by the partition during crashes.

A second implication is the importance of continuing to attract and retain qualified taxicab drivers. The 2004 fare increase, which led to higher driver earnings, and the TLC's rule to reserve nearly one-half of medallion licenses to owner-drivers, who have the highest experience levels and lowest crash rates, are key levers in continuing to develop a more experienced and safer driver workforce.

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Prior to establishing his consulting practice in 1998, Mr. Schaller served as Director of Policy Development and Evaluation at the New York City Taxi and Limousine Commission and as Deputy Director for Marketing Research and Analysis at New York City Transit, which operates the city's subway, bus and paratransit services.

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## Methodology

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This report covers crashes occurring in New York City that were reported to the New York State Department of Motor Vehicles and that involved taxicabs and for-hire vehicles. DMV supplied data files to Schaller Consulting in response to a Freedom of Information request.

Taxicabs are the familiar yellow medallion cabs, of which there are currently 12,779 licensed in New York City. The for-hire vehicle (FHV), or livery, category includes car services, black cars and limousines seating fewer than 9 passengers. There are nearly 40,000 licensed FHVs in New York City. Crash data for this group also includes a small number of paratransit vehicles and commuter vans.

This analysis covers taxi and livery crashes occurring between 1990 and 2004. Data for 2004 only recently became available from DMV; data for 2005 are scheduled to be released later this year.

DMV transitioned to a new database system for crash data that affected data from 2000 to 2002. As a result, 2000 data are not available and 2001 data appear to have limitations as noted in this report. In addition, due to changes in reporting for crashes that involve property damage only, this report focuses on crashes involving personal injury and fatality in making comparisons between years.

Not included in this analysis are out-of-town taxicabs and liveries not licensed by the New York City Taxi and Limousine Commission.

## Trends in Taxi/Livery Crashes

*The number of taxi and livery crashes involving injury has declined since peaking in 1999.*

- There were 9,128 taxi/livery crashes in New York City in 2004, a decline from 10,361 in 2003 and from 13,126 in 1999.
- The decline is primarily from a reduced number of livery crashes. The 5,964 livery crashes in 2004 is the lowest number in over a decade, and a 42% decline since 1999.
- The number of taxi crashes has fluctuated in the range of 3,000 to 4,000 since 1996.

Table 1. Taxi and livery crashes involving injury or fatalities, 1990-2004

Year	Injury crashes, including those involving fatalities			Crashes involving fatalities		
	Taxicabs	Liveries	Total Taxi & Livery	Taxicabs	Liveries	Total Taxi & Livery
1990	3,568	5,114	8,534	22	22	44
1991	3,608	4,752	8,134	9	25	33
1992	4,398	6,410	10,519	9	16	25
1993	4,434	7,408	11,518	5	22	27
1994	4,904	8,179	12,670	6	23	29
1995	4,398	8,648	12,699	17	22	39
1996	4,077	8,433	12,202	10	18	27
1997	3,897	9,702	13,384	7	21	28
1998	3,143	9,983	12,922	3	19	22
1999	3,041	10,290	13,126	10	20	29
2000	Data not available					
2001	(a)	9,641	(a)	(a)	22	(a)
2002	3,620	7,977	11,637	8	15	23
2003	3,363	7,193	10,361	6	22	28
2004	3,349	5,964	9,128	7	15	21

(a) 2001 data were processed as DMV transitioned to a new computer system. The figure for taxicabs appears to omit some crashes and thus is not reported here.

Crashes involving injury or fatality. Note that some crashes involve both taxi and livery vehicles but are counted only once in the total column.

Source: Department of Motor Vehicle crash data.

## Taxi and Livery Crashes by Borough

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*Crashes are concentrated in the boroughs in which taxis and liveries operate most intensively.*

- Taxi crashes are concentrated in Manhattan, which accounted for 78% of taxi crashes in 2004.
- Livery crashes are distributed among Brooklyn, the Bronx, Manhattan and Queens, reflecting the citywide nature of livery service.

Table 2. Taxi and livery crashes involving injury or fatalities, by borough, 2004

	Total Taxi/Livery	Taxi	Livery
Bronx	1,357	61	1,302
Brooklyn	2,311	285	2,054
Manhattan	3,791	2,620	1,299
Queens	1,537	380	1,180
Staten Island	132	3	129
Total	9,128	3,349	5,964

Number of crashes involving injury or fatality. Note that some crashes involve both taxi and livery vehicles but are counted only once in the total column.

Source: Department of Motor Vehicle crash data.



## Taxi and Livery Crash Rates

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*Crash rates have declined significantly for both taxis and liveries since the 1990s.*

- There were 4.1 crashes involving taxicabs per million miles that cabs traveled in 2004, down from 6.1 crashes per million miles in 1994.
- The livery crash rate declined from 5.2 crashes involving liveries per million miles traveled in 1999 to 3.4 crashes per million miles in 2004.

Table 3. Taxi and livery crash rates, injury crashes

Year	Crashes per 1m miles		# crashes		Vehicle miles (millions)	
	Taxi	Livery	Taxi	Livery	Taxi	Livery
1992	6.1	4.9	4,398	6,410	723	1,310
1999	4.0	5.2	3,041	10,290	768	1,973
2003	4.2	4.0	3,363	7,193	799	1,820
2004	4.1	3.4	3,349	5,964	815	1,733

Number of crashes involving injury or fatality. Note that some crashes involve multiple taxi or livery vehicles.

Sources: Department of Motor Vehicle crash data

Taxi mileage is based on odometer readings recorded at Taxi and Limousine Commission inspection

Livery mileage data assumes average of 40,000 miles per year for car services, 60,000 miles for black cars and 25,000 miles for limousines. Livery mileage estimate is corroborated by mileage data collected by the NY State Department of Environmental Conservation from 2003 vehicle inspections. See NYSDEC, "An Evaluation of NYTEST Results from NYC's Omnibus Fleet," February 21, 2006. Available: <http://www.dec.state.ny.us/website/dar/research/06omnibusreport.html>

## Comparison of Crash Rates

*Taxicabs and liveries are in fewer crashes (per million miles of travel) than other vehicles in New York City.*

- 4.6 taxicabs were involved in crashes per million miles traveled by cabs in 2004, including reported property damage crashes.<sup>1</sup>
- The crash rate for liveries was lower: 3.7 vehicles involved in crashes per million miles traveled by liveries.
- Crash rates are higher for other types of vehicles. The rate for all vehicles in New York City was 6.7 vehicles involved in crashes per million miles traveled in 2004.

Table 4. Crash rates for taxis, liveries and all vehicles, all reported crashes

	Rate per 1m miles traveled	Drivers involved	Vehicle miles* (millions)
Taxi	4.6	3,761	815
Livery	3.7	6,434	1,733
All vehicles - NYC	6.7	121,448	18,222
All vehicles - Manhattan	6.6	21,398	3,224
All vehicles - other boros	6.7	100,050	14,998

\*One vehicle traveling one mile is one vehicle mile.

Table shows the number of drivers involved in crashes. The number of drivers is a close approximation to the number of moving vehicles (may exclude some hit and run drivers). Parked cars are not included even if a driver was present.

Table includes all reported crashes including property damage only crashes as well as injury and fatality crashes. Figures are not comparable to Table 3 due to inclusion of property damage only crashes, and counting vehicles as opposed to crashes.

Sources: Department of Motor Vehicle crash data; Governor's Traffic Safety Committee, "Summary of New York City Motor Vehicle Accidents, 2004" and "Summary of Motor Vehicle Accidents, 2004 New York County." Available: <http://www.nysgtsc.state.ny.us>.

Taxi and livery mileage: see notes for Table 3.

Mileage for all vehicles based on New York Metropolitan Transportation Council, "Best Practice Model – 2002 Update and Reconciliation," page 42. This report shows daily vehicle miles of travel in 2002 in the New York region by county. These data are adjusted for seasonality and increases in traffic to estimate 2004 annual vehicle miles traveled. Seasonality adjustment is based on New York City Department of Transportation, "Seasonal Traffic Flow Factors, 1996-2000," July 2001. Growth in traffic is estimated based on traffic volumes at New York City bridges; see New York City Department of Transportation, "New York City Bridge Traffic Volumes, 2004."

<sup>1</sup> Reported property damage-only crashes are included in this section in order to compare with published data for citywide crashes.

## Passenger Injury Rates

*The chance of injury is lower for passengers riding in taxis and liveries than for occupants (including both drivers and passengers) of all vehicles in New York City.*

- 1.6 taxi passengers were injured per million passenger miles traveled in 2004. By comparison, 2.1 occupants of all vehicles in Manhattan – where cabs primarily operate – suffered injuries per million miles traveled.
- The injury rate for livery passengers was 2.0 injured livery passengers per million passenger miles traveled, somewhat higher than for taxi passengers but lower than the 2.6 injured occupants per million miles traveled among all vehicles in the city.

Table 5. Injury rates for passengers and drivers

	Injuries per 1m miles	Injured persons	Person miles* (millions)
Passengers			
Taxi	1.6	1,091	696
Livery	2.0	2,140	1,077
Occupants (drivers and passengers)			
All vehicles - NYC	2.6	70,649	27,490
All vehicles - Manhattan	2.1	10,509	4,907
All vehicles - other boros	2.7	60,140	22,583
Drivers			
Taxi	1.1	889	815
Livery	1.1	1,961	1,733
All vehicles - NYC	2.4	43,210	18,222
All vehicles - Manhattan	1.9	5974	3,224
All vehicles - other boros	2.5	37,236	14,998

\*One person traveling one mile is one person mile. Two people traveling one mile in a vehicle together are two person miles.

Figures include fatalities.

Sources: Department of Motor Vehicle crash data; Governor's Traffic Safety Committee, "Summary of New York City Motor Vehicle Accidents, 2004" and "Summary of Motor Vehicle Accidents, 2004 New York County."

Mileage data sources: see notes for Tables 3 and 4.

Taxi and Livery passenger mileage data are based on 62% passenger occupancy for taxicabs and estimated 45% occupancy for liveries, and 1.4 passengers per trip for both taxi and livery.

## Severity of Injury

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*Taxi passengers who are injured in a crash are more likely than passengers in other vehicles to experience a serious injury.*

- 21% of taxi passengers who were injured in a crash were seriously injured or killed.
- By comparison, 9% of passengers injured in livery and other vehicles involved in taxi/livery crashes were seriously injured or killed.
- Taxi passengers were more likely to be seriously injured if they were not using a restraint. Of injured taxi passengers, 24% of those not wearing a restraint were seriously injured compared with 13% of those wearing a restraint.
- Of taxi passengers who were seriously injured, 68% experienced head or face injuries, compared with 35% of passengers in other vehicles and 49% of livery passengers who were seriously injured.

Table 6. Degree of injury of passengers in taxi and livery crashes, 2004

	Percent serious injury	Serious injury	Total injured
Medallion taxi	21%	229	1,091
Livery	9%	202	2,140
In other vehicles**	9%	208	2,193

\*Serious injury includes "severe" and "moderate" injuries: fractures, concussions, internal injuries, bleeding, burns, contusions and abrasions.

\*\*In other vehicles that were involved in taxi/livery crashes.

Figures include fatalities

Source: Department of Motor Vehicle crash data.

## Restraint Use

*Cab riders are far less likely to use restraints than drivers or passengers of other vehicles.*

- 23% of taxi passengers involved in crashes were using a restraint (seat and/or shoulder belt) at the time of the crash, as reported on DMV accident reports.
- This figure increased from 17% in 1999 to 23% in 2003.
- Livery passengers are more likely than taxi passengers to use restraints, with 40% of livery passengers in crashes having used a restraint.
- Taxi and livery drivers are more likely than their passengers to use restraints.

Table 7. Restraint use among taxi and livery passengers and drivers, 1990-2004

	1990	1994	1999	2004
Rear-Seat Passengers				
Taxi				
Restraint used	14%	18%	17%	23%
No restraint used	57%	55%	50%	50%
Unknown	28%	27%	32%	26%
Livery				
Restraint used	26%	29%	35%	40%
No restraint used	49%	47%	41%	37%
Unknown	25%	23%	24%	23%
Other vehicles in T&L crashes				
Restraint used			61%	67%
No restraint used			20%	17%
Unknown			19%	16%
Drivers				
Taxi				
Restraint used	34%	38%	43%	41%
No restraint used	37%	35%	29%	30%
Unknown	29%	26%	28%	28%
Livery				
Restraint used	52%	57%	66%	64%
No restraint used	26%	22%	15%	13%
Unknown	22%	21%	19%	23%
Other vehicles in T&L crashes				
Restraint used			74%	63%
No restraint used			8%	13%
Unknown			19%	24%

Crashes involving injury or fatality.

Source: Department of Motor Vehicle crash data.

## Pedestrian and Bicyclist Injury Rates

*Pedestrians are injured in taxi and livery crashes, and bicyclists in livery crashes, at a lower rate (per million miles of vehicle travel) than is the case for pedestrians and bicyclists in accidents with other vehicles. However, bicyclists are injured in accidents with cabs at a higher rate when compared with crashes involving other vehicles.*

- 0.77 pedestrians were injured in crashes with taxicabs, per million miles of taxi travel, in 2004.
- By contrast, 1.00 pedestrians were injured in crashes with vehicles in Manhattan per million miles of travel.
- Comparable figures for liveries are 0.49 pedestrians injured per million miles of travel, compared with a citywide rate for all vehicles of 0.60 pedestrians injured.
- 0.33 bicyclists are injured in taxi crashes, per million miles of taxi travel, in 2004.
- The figure for all vehicles in Manhattan, 0.28 bicyclists injured, is lower than for cabs.
- 0.12 bicyclists are injured in accidents with liveries per million miles traveled by liveries, compared with a citywide figure of 0.17 bicyclists injured in vehicular crashes per million miles traveled.

Table 8. Pedestrian and bicyclist injuries, 2004

	Per 1m vehicle miles	Injured* pedestrians /bicyclists	Vehicle miles (millions)	Fatalities
Pedestrians involved in crashes with:				
Taxi	0.77	627	815	6
Livery	0.49	844	1,733	8
All vehicles - NYC	0.60	10,995	18,222	155
All vehicles - Manhattan	1.00	3,208	3,224	35
All vehicles - other boros	0.52	7,787	14,998	120
Bicyclists involved in crashes with:				
Taxi	0.33	271	815	0
Livery	0.12	213	1,733	0
All vehicles - NYC	0.17	3,011	18,222	15
All vehicles - Manhattan	0.28	906	3,224	2
All vehicles - other boros	0.14	2,105	14,998	13

\*Include fatalities.

Sources: Department of Motor Vehicle crash data; Governor's Traffic Safety Committee, "Summary of New York City Motor Vehicle Accidents, 2004" and "Summary of Motor Vehicle Accidents, 2004 New York County."