Cycling Safety in Europe

Claus. Pastor

† Bundesanstalt für Straßenwesen (BASt)
Brüderstraße 53, D-51427 Bergisch Gladbach, Germany
e-mail: pastor@bast.de

ABSTRACT

The safety of cyclists has raised attention. Mandatory cyclist safety helmet use and passive measures to better protect cyclists in the event of a collision with passenger cars are under discussion. The number of fatal cyclists decreased however in Europe within the last 20 years by a considerable amount. On the other hand it is striking that the number of seriously injured cyclists did not decrease in a similar way. Even worse the number is increasing in the last decade. Looking at the age distribution of seriously and fatally injured cyclists elderly cyclists are in particular at risk. In Germany it is already the age group aged 35 to 45 years which show a constant increase in cyclist casualties during the last decade. Taking into account the demographic development and the introduction of e-bikes this might be an alarm signal.

Keywords: demographics, cyclist safety

1 INTRODUCTION

Cyclist accidents have raised attention in the last years. Discussions have been taken up about the mandatory use of cycling helmets and about improved passive safety for passenger cars. In the field of active safety discussions take place about the use of active pedestrian protection systems to also avoid cyclist accidents. In the context of implementing the regulation on mirrors of trucks to extend their field of sight also considered cyclists in the event of turning trucks at a junction.

However, the number of fatal cyclists decreased constantly during the last 20 years in the European Union. According to the CARE database there have been around 2300 fatal cyclists in the European Union in 2009. Referring to a total of more than 34000 fatalities in Europe this relates to a rate of 6,6%.

2 GENERAL INSTRUCTIONS

In Europe the number of fatal cyclists dropped by more than 30% in between 2000 and 2009 [http://ec.europa.eu/transport/road_safety/pdf/statistics/dacota/bfs2011_dacota-swov-cyclists.pdf]. The share of cyclists among fatal road users dropped from 9% to 6% within the same time frame. It should be possible to conclude that cyclist fatalities decreased faster than the average number of road traffic fatalities.

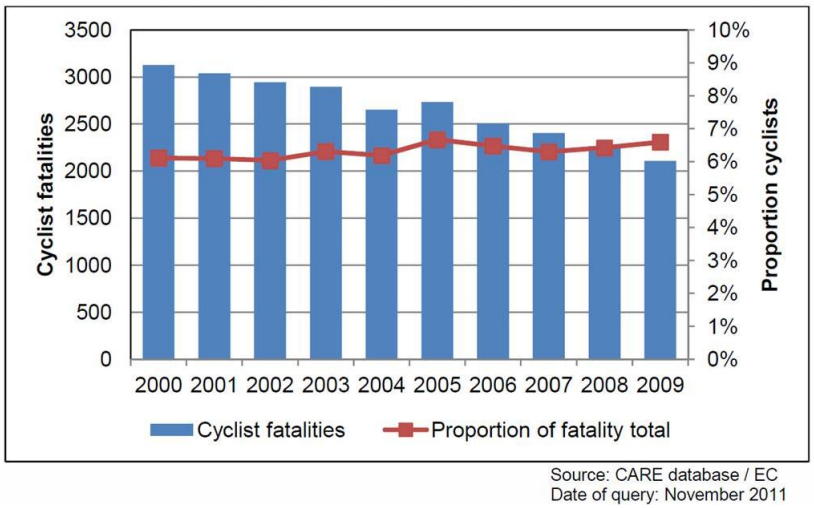


Figure 1. Number and proportion of cyclist fatalities in EU-19 countries between 2000 and 2009 (CARE Database 2011 [1])

In contrast to fatal pedestrian crashes cyclist accidents happen mostly during daylight conditions. Even though conspicuity is an issue for cyclist and pedestrians, pedestrians suffer from not being seen because of darkness whereas cyclists are overseen because of their small silhouette and their comparably high velocity. In addition cyclists frequently suffer from their attitude of "careless driving". "Failure to look properly" and "not giving right of way" are constantly causes of cyclist accidents as reported by the EC funded research project TRACE in 2008.

The share of cyclist fatalities among all road user fatalities differs however significantly across Europe. Figure 1 can show that in general in all EU countries cyclist safety improved not better than average comparing data from 2000 and 2009.

Table 1 shows that there are some countries, where a significant improvement has taken place. Namely Finland managed to reduce its share of cyclist fatalities from 13% to 7%. In Poland there is also a very positive trend visible over the last years.

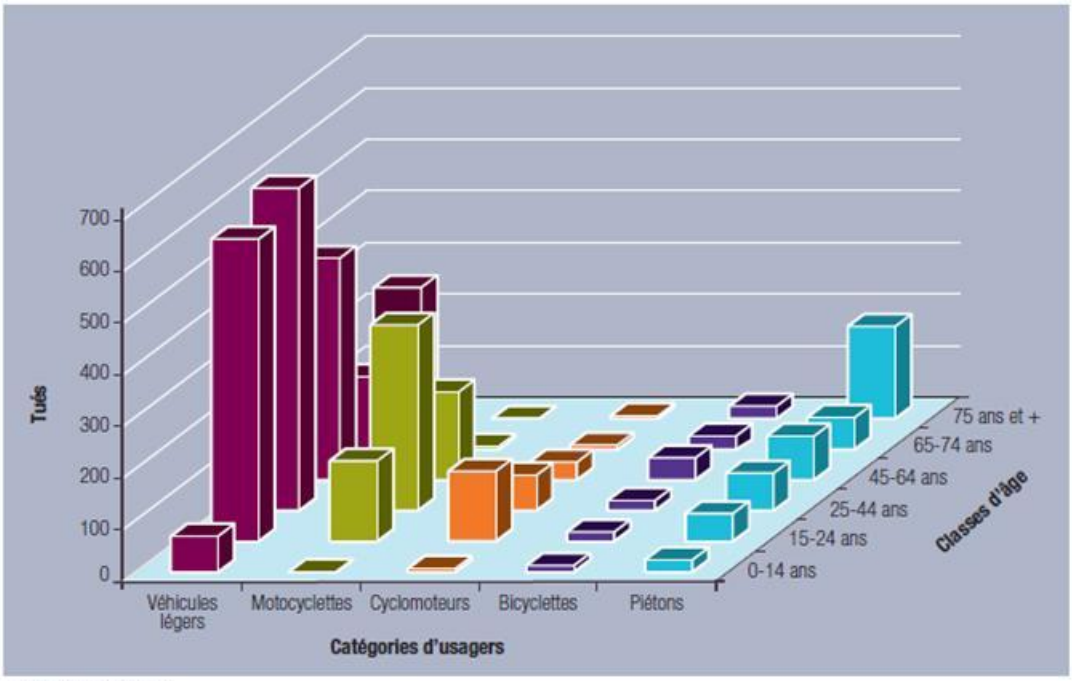
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BE	9%	9%	8%	9%	7%	7%	9%	8%	9%	9%
CZ	10%	11%	11%	11%	9%	9%	10%	10%	9%	9%
DK	12%	13%	11%	11%	14%	12%	10%	13%	13%	8%
DE	9%	9%	9%	9%	8%	11%	10%	9%	10%	11%
IE	2%	3%	5%	3%	3%	3%	2%	4%	5%	-
EL	1%	2%	1%	1%	1%	1%	1%	1%	1%	1%
ES	1%	2%	2%	1%	2%	2%	2%	2%	2%	2%
FR	3%	3%	3%	3%	3%	3%	4%	3%	3%	4%
IT	6%	5%	5%	5%	5%	6%	5%	7%	6%	7%
NL	18%	20%	17%	18%	20%	20%	25%	21%	21%	21%
AT	6%	6%	8%	6%	7%	6%	7%	5%	9%	6%
PL	-	11%	12%	11%	12%	11%	10%	9%	8%	8%
PT	3%	3%	3%	4%	4%	4%	4%	4%	5%	3%
RO	6%	6%	5%	7%	5%	8%	8%	6%	6%	6%
SI	8%	6%	7%	0%	8%	7%	6%	6%	8%	11%
FI	13%	14%	13%	10%	7%	11%	9%	6%	5%	7%
SE	8%	7%	8%	7%	6%	9%	6%	7%	8%	-
UK	4%	4%	4%	3%	4%	5%	4%	5%	4%	4%

Table 1. Cyclist fatality rates 2000 and 2009 (CARE Database 2011[1])

% d'usagers tués par tranches d'âge	0-14 ans	15-17 ans	18-24 ans	25-44 ans	45-64 ans	65-74 ans	75 ans et +	Total
Piétons	4,9 %	2,3 %	9,3 %	15,1 %	17,9 %	13,2 %	37,3 %	100 %
Bicyclettes	8,2 %	6,1 %	7,5 %	12,2 %	29,9 %	17,7 %	18,4 %	100 %
Cyclomoteurs	2,8 %	30,2 %	24,2 %	25,4 %	11,3 %	3,6 %	2,4 %	100 %
Motocyclettes	0,7 %	1,3 %	21,0 %	51,1 %	24,7 %	0,9 %	0,3 %	100 %
Véhicules légers	3,6 %	2,5 %	25,2 %	29,6 %	20,2 %	6,8 %	12,1 %	100 %

Source : ONISR, fichier des accidents.

DISTRIBUTION DES TUÉS PAR CATÉGORIE D'USAGERS SELON LEUR CLASSE D'ÂGE*, EN 2010



** Hors âge indéterminé.*
Source : ONISR, fichier des accidents.

Figure 2. Age distribution of fatal road users by category of traffic participation (French Road Traffic Statistics 2010 [2])

As can be seen from Figure 2 and Figure 3, fatalities among vulnerable road users like pedestrians and cyclists do frequently happen to elderly mobile people. Half of the cyclists in the EU-23 were at least 60 years old when they died in an accident.

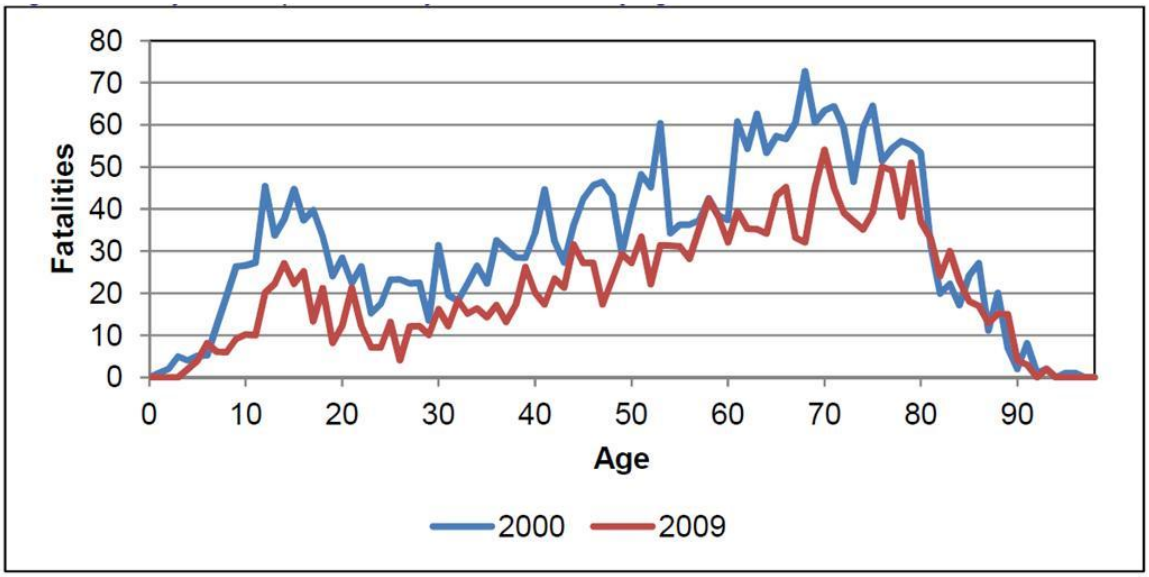


Figure 3. Age distribution of fatal cyclists in 2000 and 2009 (CARE Database, 2011[1])

Unfortunately, there is not a lot of data available with regard to the trend of seriously injured cyclists. Data from the UK and Germany show similarities as regards an increase of seriously injured cyclists, in particular within the age group above 35 years.

Figure 4, Figure 5 and Figure 6 show time series of the number of cyclist casualties and fatalities during the two last decades. Whereas Figure 4 and Figure 6 show the constant decrease of fatalities over the years throughout the different age groups, Figure 4 and Figure 5 show also that the number of mid-aged and elderly cyclist casualties is rising dramatically.

Hence the UK road traffic accident report from 2011 states: "While the total number of cyclists killed on the roads in fell by 4 per cent, the number of people seriously injured riding bicycles rose by 16 per cent to 3,085. Cyclists aged 18-59 suffered the sharpest increase in serious injuries, 21 per cent higher than in 2010."

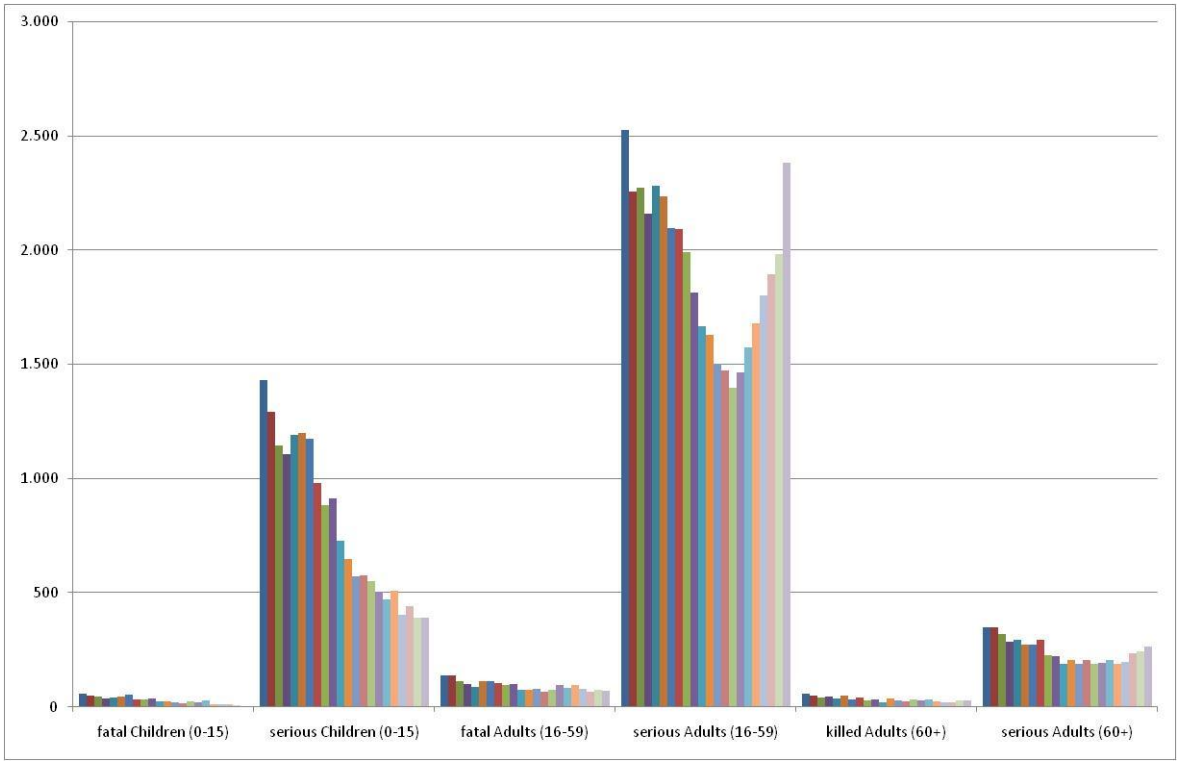


Figure 4. Time series (1990-2011) of fatal and serious cyclists by age group (UK Road Traffic Statistics 2011 [3])

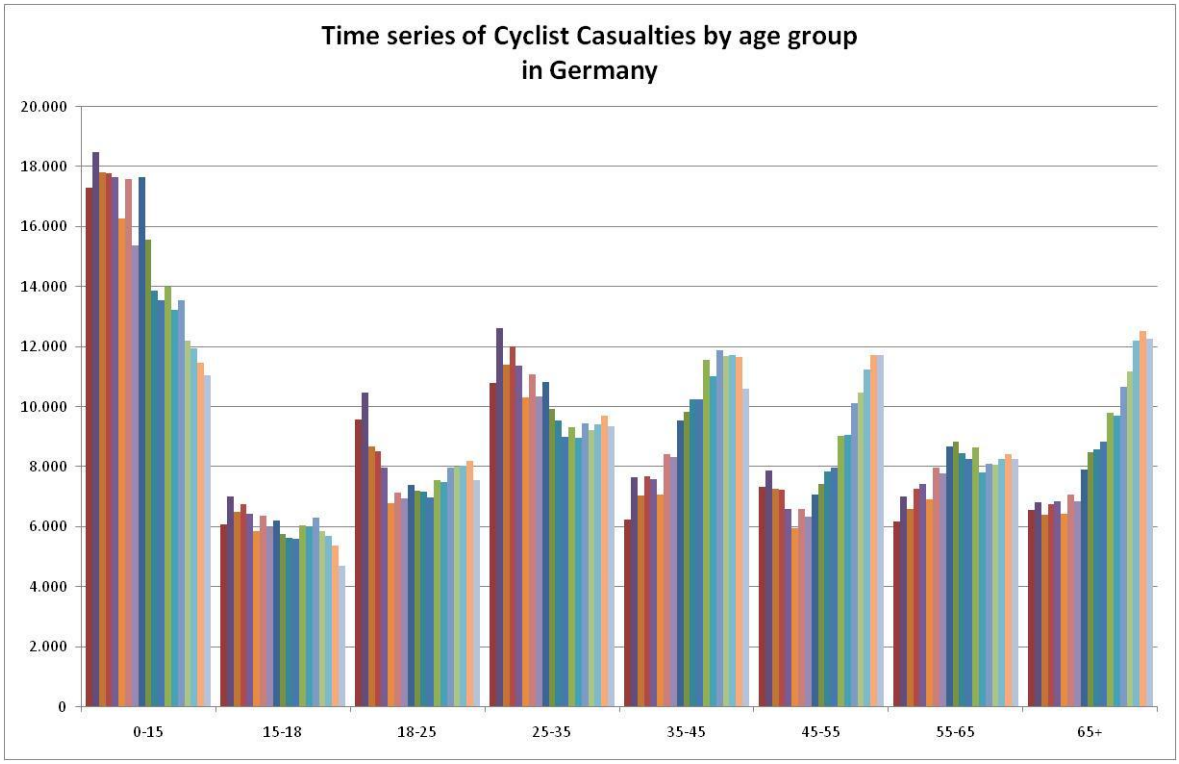


Figure 5. Time series (1991-2009) of cyclists casualties by age group (German Road Traffic Statistics 2010 [4])

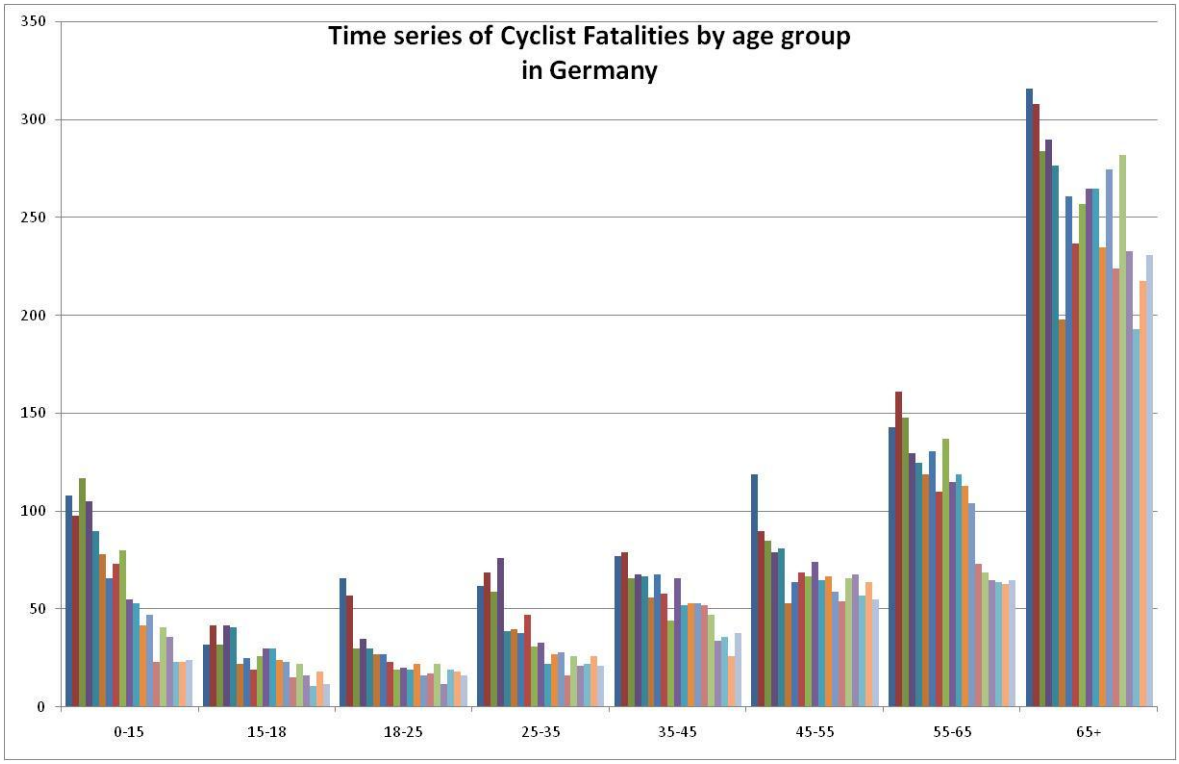


Figure 6. Time series (1991-2009) of cyclists fatalities by age group (German Road Traffic Statistics 2010 [4])

This development is clearly related to the strongly increasing exposure and usage of bicycles. In Germany an adjusted increase of 17% has been seen in bicycle usage comparing mileage surveys from 2002 and 2008 (Figure 7). This trend is however not restricted to Germany. Similar trends can be seen elsewhere (Figure 8).

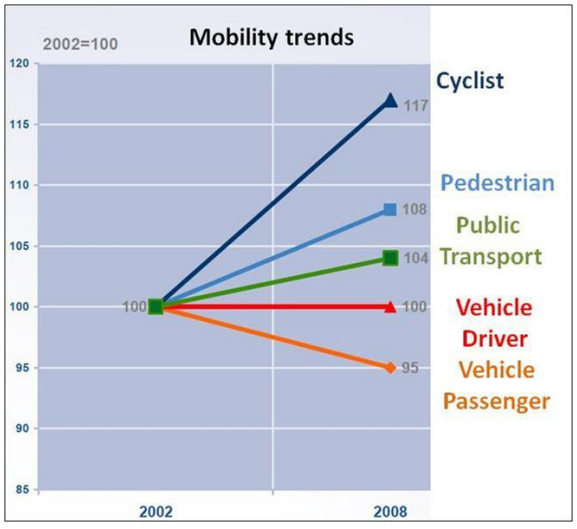


Figure 7. Exposure increase of bicycle trips (German Mobility Survey (MID) 2002, 2008)

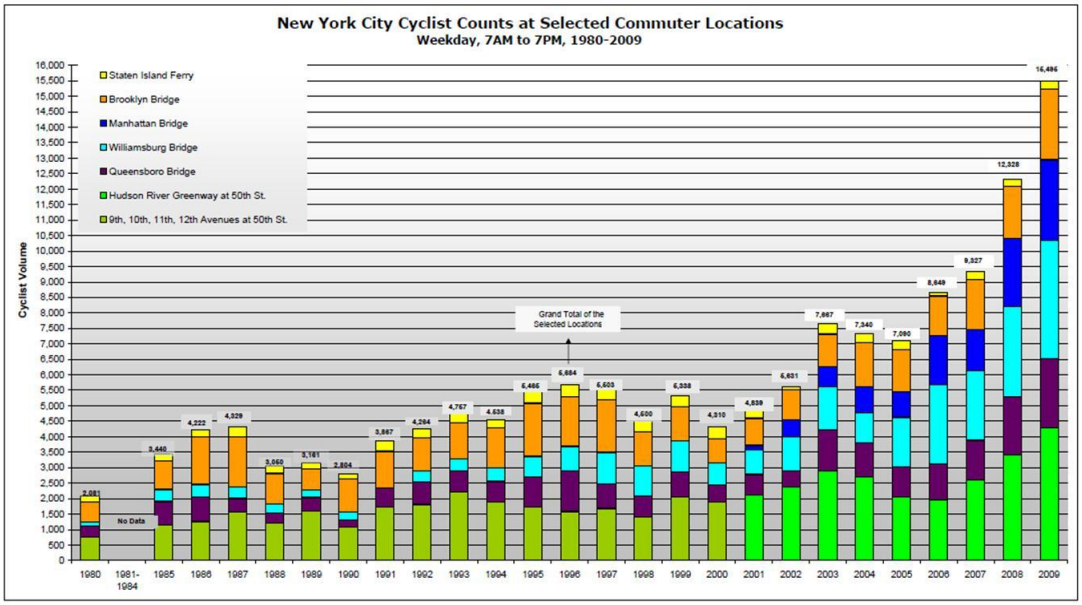


Figure 8. Exposure increase of bicycle trips (New York City Cyclist Count 1980 – 2009 [5])

4 CONCLUSIONS

The number of cyclist fatalities dropped on average by more than 30% during the last 10 years in Europe. There is however a strong increase within the number of seriously injured cyclists visible in the data. This trend should be related to the increasing exposure of cyclists. Countermeasures have to be taken, varying from purely passive to active safety systems.

REFERENCES

[1] "Traffic Safety Basis Facts 2011, Cyclists", http://ec.europa.eu/transport/road_safety/pdf/statistics/dacota/bfs2011_dacota-swov-cyclists.pdf

[2] "La sécurité routière en France, Bilan de l'année 2010", http://www.securite-routiere.gouv.fr/content/download/3073/26966/version/3/file/Bilan_annee_2010_DSCR-O_cle081c12+%281%29.pdf

[3] http://www.dft.gov.uk/statistics/

[4] "Verkehrsunfälle, Zweiradunfälle im Straßenverkehr, 2010", Statistisches Bundesamt, http://www.destatis.de

[5] „2009 NYC Commuter Cycling Indicator", Janette Sadik-Khan, NYC Department of Transportation