Amended for publication.

THLGC
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At: Brisbane Hearing - Cycling Inquiry
Time/date: 21/8/13
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Research Brief

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For

Request **Road accidents and fatalities involving cyclists**

Date **2013**

Thank you for your request. Below is a compilation and analysis of the available data and information.

Summary

Bicycle-related fatalities in Queensland and Australia have remained fairly constant over the past decade despite the overall number of road transport fatalities having fallen significantly. Queensland has around one-quarter of Australia's cycling fatalities, which combined with reported cycling accident injuries, has recently been estimated to cost Australia around $450 million per year in economic terms. Part of the "built-in" unsafety of cycling is that cyclists are often seen as intruders in the road system, even though cycling is an important component of urban mobility.

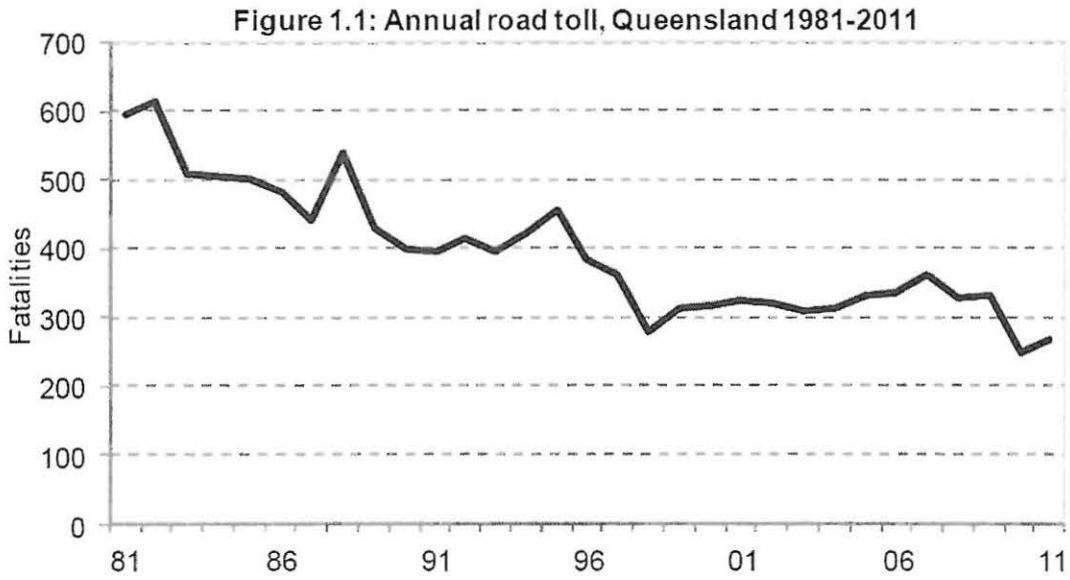
Road fatalities in Queensland

1. The information in this and the "Cycling fatalities and injuries" sections have been sourced from the Queensland government's "2011 Fatal road traffic crashes in Queensland, A report on the road toll".[1]

[1] Queensland. Department of Transport and Main Roads, *2011 Fatal Road Traffic Crashes in Queensland*, prepared by entre of National Research on Disability and Rehabilitation Medicine (CONROD), University of Queensland October 2012, accessed 22 May 2013 http://www.tmr.qld.gov.au/~/media/Safety/Transport%20and%20road%20statistics/Road%20safety/Fatal_road_traffic_crashes_in_qld_2011.pdf

2. There were 269 road fatalities recorded within Queensland during 2011. This is 20 fatalities greater than 2010 (n=249; representing an increase of 8.0%) but 52 fatalities fewer than the average for the previous five year period between 2006 and 2010 (n=321; representing a decrease of 16.2%).

3. Figure 1.1 shows the longer-term trend in Queensland's annual road toll between 1981 and 2011. Since 1981 (n=594), the road toll has decreased by 54.7% overall. The greatest number of fatalities within this 30 year period occurred during 1982 (n=616) and the fewest occurred during 2010 (n=249); the road toll during 2010 was the lowest since 1952. The average road toll for the most recent five year period, between 2007 and 2011, was 307 fatalities.



Source: Queensland. Department of Transport and Main Roads, *2011 Fatal Road Traffic Crashes in Queensland*, prepared by Centre of National Research on Disability and Rehabilitation Medicine (CONROD), University of Queensland, October 2012

4. During 2011, 40.1% (n=108) of all road fatalities in Queensland were drivers. This represented a decrease in driver fatalities of 5.3% (n=6) compared with 2010, and a decrease of 26.2% (n=38.4) compared with the previous five year average. Passengers accounted for a further 27.1% (n=73) of road fatalities during 2011, representing an increase of 46.0% (n=23) compared with 2010, and an increase of 10.9% (n=7.2) compared with the previous five year average.

5. There were 45 (16.7%) motorcycle rider and pillion fatalities during 2011, a decrease of 10.0% (n=5) compared with 2010, and 28.1% (n=17.6) less than the previous five year average. Pedestrians accounted for 12.3% (n=33) of all road fatalities during 2011, representing an increase of 17.9% (n=5) compared with 2010, but a decrease of 11.3% (n=4.2) compared with the previous five year average. The fatality rate for bicyclists during 2011 was 3.3% (n=9), which was an increase of 9.8% (n=0.8) compared with the previous five year average.

Table 2.6: All fatalities by road user type, Queensland 2006-2011

Road user type	2006	2007	2008	2009	2010	2011		2011 v 2010		2011 v 2006 to 2010 average	
	No.	No.	No.	No.	No.	No.	%	Change	%	Change	%
Drivers	155	171	140	152	114	108	40.1%	-6	-5.3%	-38.4	-26.2%
Passengers	67	64	77	71	50	73	27.1%	23	46.0%	7.2	10.9%
Motorcyclists	58	73	72	60	50	45	16.7%	-5	-10.0%	-17.6	-28.1%
Bicyclists	9	10	7	8	7	9	3.3%	2	28.6%	0.8	9.8%
Pedestrians	46	42	30	40	28	33	12.3%	5	17.9%	-4.2	-11.3%
Other*	0	0	2	0	0	1	0.4%	1	-	0.6	150.0%
Total	**335**	**360**	**328**	**331**	**249**	**269**	**100.0%**	**20**	**8.0%**	**-51.6**	**-16.1%**

*Other includes train driver/passenger and animal conveyance

Source: Queensland. Department of Transport and Main Roads, *2011 Fatal Road Traffic Crashes in Queensland*, prepared by Centre of National Research on Disability and Rehabilitation Medicine (CONROD), University of Queensland, October 2012

Cycling fatalities and injuries – characteristics

6. For the nine cycling fatalities recorded on Queensland roads in 2011, Transport and Main Roads has gathered some further information on age, gender and location of the fatal accidents. It is important to note that all fatalities, with the exception of the two fatalities in the 60 to 74 years age group, were male persons. Also, alcohol was not a factor (relating to the cyclist) in any of the fatal accidents in 2011.

Characteristics of cycling fatalities - Queensland 2011

Age		***Region***	
0 to 4	0	Brisbane	1
5 to 11	1	Ipswich	2
12 to 16	1	Logan	1
17 to 20	1	Sunshine Coast	1
21 to 24	0	Toowoomba	1
25 to 29	1	Mackay	2
30 to 39	0	Tablelands	1
40 to 49	1	***Total***	***9***
50 to 59	1		
60 to 74	2		
75 and over	1		
Total	***9***		

Table A18: Bicycle rider and pillion fatalities by helmet use, Queensland 2002-2011

Helmet use	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Worn	4	5	3	3	5	5	6	5	3	7
Not worn	0	1	3	2	3	3	1	2	2	1
Not determined	1	1	3	0	1	2	0	1	2	1
Total	**5**	**7**	**9**	**5**	**9**	**10**	**7**	**8**	**7**	**9**

Source: Queensland. Department of Transport and Main Roads, *2011 Fatal Road Traffic Crashes in Queensland*, prepared by Centre of National Research on Disability and Rehabilitation Medicine (CONROD), University of Queensland, October 2012

7. Under-recording of bicycle accidents is a problem for cyclist safety analysis. The underlying reason of under-recording is that personal injury accidents are not systematically registered. According to State data from the Queensland Injury Surveillance Unit for the period 1998 to 2004[2]:

   - There are approximately 6,000 emergency department presentations and almost 10 deaths each year from bicycle-related injury in Queensland.
   - Bicycle injuries make up a third of all transport-related injuries presenting to hospital emergency departments.
   - Bicycles are the most common consumer product causing injury in children.
   - Nearly 75% of all bicycle-related emergency department presentations were children aged under 15 years. The most common age group (40% of cases) was children aged 10-14 years.
   - In the 10-14 year age group, cycling is the fourth leading cause of injury death in Queensland[3].
   - Most fatalities are due to head injuries and involve a collision with a motor vehicle. The majority of bicycle injuries however, result from a single vehicle crash (ie. no other vehicle or object is involved).
   - In Queensland, the majority of adult cyclists are injured on the road (55%). In children under the age of 15 years, 36% were injured on the road, and 32% at home.
   - Fractures are the most common injury following a fall, with the lower arm the most common injury site (30%) followed by the head, neck or face (23%). Children tend to sustain injuries to their forearms and adults have more injuries to their shoulders.

[2] Hockey R and Miles E, Queensland Injury Surveillance Unit, Injury Bulletin, *Bicycle Injuries*, Mater Clinical Epidemiology Centre, Injury Bulletin No 57, January 2000, http://www.qisu.org.au/ModCoreFilesUploaded/Bulletin_57133.pdf, accessed 22 May 2013

[3] Centre for Accident Research & Road Safety – Queensland (CARRS-Q), Bicycle safety, *State of the Road*, Factsheet, updated May 2011, http://www.carrsq.qut.edu.au/publications/corporate/bicycle_safety_fs.pdf, accessed 22 May 2013

Economic evaluations of cycling accidents

8. Road traffic related injuries place a significant burden on health care services in terms of financial resources, bed occupancy and demand on health care professionals. In 2010, the social cost of all road crashes was estimated to be $27 billion[4]. The flow on effect from road crashes, fatalities and injuries impose a significant financial and social cost on the economy.

9. Recent estimates[5] of the economic cost of bicycle fatalities and injuries are around $450 million per year.[6] Bicycle crash costs have been calculated by looking at the number of accidents per million kilometres travelled (MKT). Using a unit accident cost (currently estimated at between $60,500 and $82,000 per accident depending on jurisdiction), the accident costs per MKT for cycling and driving can be calculated. Crash costs include three main components, human costs, vehicle costs and general costs. As such, the unit cost of an accident is similar for cars and bicycle crashes.

Conclusion

10. According to the OECD International Transport Forum,[7] part of the "built-in" unsafety of cycling is that the road system has, with some notable exceptions, not been designed for cyclists. More precisely, the road system has not been designed for mixing well-protected, heavy and high velocity vehicles with unprotected, lightweight and slower road users. Furthermore, the traffic system does not typically account for the specific characteristics of cyclists and bicycles. Cyclists are highly flexible and sometimes unpredictable road users, riders display very different abilities, cyclists seek to minimise energy expenditure, bicycles can be easily de-stabilised and are relatively difficult to see because of their size (in daytime) and their poor or lack of night-time lighting. Though cycling is an important component of urban mobility, in reality cyclists are often seen as intruders in the road system.

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[4] Australia. Department of infrastructure and Transport, *Road Safety*, http://www.infrastructure.gov.au/roads/safety/ accessed 22 May 2013

[5] Australian Institute of Health and Welfare: Berry JG & Harrison JE 2008. Serious injury due to land transport accidents, Australia, 2005–06. Injury research and statistics series number 42. Cat. no. INJCAT 113. Adelaide: AIHW.http://www.nisu.flinders.edu.au/pubs/reports/2008/injcat113.pdf

[6] Amy Gillett Foundation, Safe together, *Where the rubber meets the road,* http://www.amygillett.org.au/assets/Uploads/Documents/AmyGillett-Report-A4-FINAL.pdf

[7] International Transport Forum, *Cycling Safety: Key messages*, International Transport Forum Working Group on Cycling Safety, OECD, http://www.internationaltransportforum.org/Pub/pdf/12Cycle-Safety.pdf