



## BICYCLE RESEARCH REPORT NO. 67

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### **TRAFFIC AND ROAD SAFETY IN BEIJING**

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#### The Key Facts

In Beijing conditions are rapidly worsening for the bicycle, which as recently as 1990 accounted for 58% of all journeys. Increasing traffic density is presenting cyclists and traffic planners with almost insoluble problems at road junctions.

#### Contents

As recently as 1990 the bicycle accounted for 58% of all journeys in Beijing (as opposed to only 2.9% by private car - see Table 2). Its status is now sinking fast as the Chinese capital undergoes a rapid expansion in motor traffic.

More than 12 million people travel within Beijing, for either work or tourism. The number of motor vehicles in use is rising rapidly. The number of cycles has increased by only 8% annually but the figure for motor vehicles rose by as much as 14% annually during the same period, from 104 000 to 564 000. In 1980 there were still 28 cycles to every motor vehicle; by 1993 there were only 13.

The road network in Beijing was developed on a chequerboard pattern 500 years ago during the Ming- and Quing-Dynasties. In 1993 it had two fast ring roads and 8 main roads 2645 km long, plus a number of side roads. This road network comprises only 2% of the surface area of the city - 1.93 km per square kilometre which is comparatively small.

All the existing fast roads and main roads have generous cycleways at least 7m wide to the left and right, and even side roads are supplied with two cycleways each 6m wide (see Fig. 3). The plans provide for a comprehensive extension of the road network. The aim is to build four ring roads intended for fast traffic, 19 additional main roads and numerous side roads.

The worst problems in the Chinese capital's road network occur where the paths of cyclists cross those of motor vehicles. Even in 1994 more than 10.000 non-motorised vehicles - mainly cycles - were recorded at 81% of all junctions during the rush hour, while 40% of junctions were used by more than 7000 motor vehicles. Normal ground-level road junctions with cycles and cars crossing over Joining and leaving can no longer cope with so many vehicles, and they have thus become capacity bottlenecks in the network.



Until now underpasses and footbridges have been added to many important junctions, so as to separate cycles from motor traffic by putting both on different levels (see Fig 1). However, as even this will not be sufficient, new and still more effective solutions will soon be required.

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### Traffic and Road Safety in Beijing

Table 1: Traffic speeds on Changang main road

Date	Length (km)	Speed in k.p.h. between these times				
		6.45- 7.30	7.30- 8.30	8.30- 9.30	9.30- 10.30	8.30- 10.30
15.10.89	14.17	44.1	23.7	24.8	30.9	27.4
18.11.94	14.17	30.9	23.9	24.9	24.5	24.7

Table 2: Mobility of road users (footways not included)

transport mode	persons carried		journeys	
	in millions	%	in millions	%
bus/trolleybus	2985	43.4	1678*	31.2
underground	382	5.6	216	4.0
taxi	72	1.1	72	1.3
works bus	161	2.3	161	3.0
private car	154	2.2	154	2.9
cycle	3100	45.4	3100	57.6
<b>totals</b>	<b>6834</b>	<b>100.0</b>	<b>5381</b>	<b>100.0</b>

\*divided by the mean number of changes (1767)



Fig.3: Cross-sections of various road types

