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BICYCLE RESEARCH REPORT NO. 11

April 1991

GERMAN FEDERAL HIGHWAYS INSTITUTE REPORTS RESEARCH FINDINGS ON SCHEMES FOR "GENERAL TRAFFIC-CALMING"

"General traffic-calming" improves cyclists' public image

The Key Facts

Federal pilot schemes for general traffic-calming in selected districts of six different towns have now been assessed and show the advantages of such measures. Trade and commerce flourish in these districts; road users' behaviour has improved, levels of noise and speed are lower and the ecological climate is also better. The public image of cyclists has also improved.

Contents

Three organizations have jointly undertaken to bring in schemes of general traffic-calming in six towns in Germany - the Federal Geographical and Land Use Institute (BFLR), the Federal Highways Institute (BASt) and the Federal Environmental Institute (UBA). Effects on town planning, traffic and environment have all been monitored. At a colloquium held in Ingolstadt in May 1990 the feedback, from Esslingen, Bretzenheim near Mainz and Ingolstadt was overwhelmingly positive.

Stefan Krause of the BASt says that traffic counts show a consistent increase in cycle use in all areas of the pilot scheme. Motor-vehicle speeds have dropped noticeably; this decrease was sharper where the original speeds had been higher and alterations to the road more radical (Table 1). Road safety improved in terms of personal injury, though not as regards damage to vehicles (Table 2).

There has been a marked change in road users' behaviour, and in the image of the cyclist. Before the traffic-calming almost half the cyclists in Esslingen were described as "reckless", compared with only a quarter afterwards. The motorist's image, on the other hand, has changed for the worse (Table 3).

According to Dieter Kanzlerski of the BFLR the research findings clearly show that .trade and commerce also profit by the traffic-calming measures. Spot checks among businesses within the pilot scheme area, compared with those outside it, have shown that sales have improved since the traffic-calming measures came into force (Table 4). Business did best in the towns

of Borgentreich and Buxtehude, which underwent the most comprehensive changes of all. Willingness to invest in business also rose significantly after the introduction of the scheme (Table 5).

Surveys on the opinions of local residents were made by Erhard Erl and Gerhard Winter in Esslingen, and by Winter and Werner Brog in Ingolstadt. These showed that after the scheme was introduced, motor traffic speeds were described as too high, but the accident risk was often perceived as being lower than before (Table 6). Improvements in conditions for pedestrians and in the appearance of the roads were especially welcome. Conditions for cyclists, on the other hand, came in for more criticism (see comparisons in Table 7).

In Ingolstadt there has been a general increase in criticism of motor traffic and its consequences, and a call for more traffic-calming measures. Almost 90% of those interviewed thought that despite the traffic-calming there were still too many cars. 76% thought that car speeds were too high. A demand for more traffic-calming can also be inferred from the assessment of the infrastructure for non-motorized road users (see comparison in Table 8).

Ekkehard Holzmann and Martin Schroth in Esslingen, Holzmann and Werner Ritter in Bretenheim, Mainz, and Martin Heisig in Ingolstadt all recorded benefits to the environment. Traffic noise decreased only slightly, but ecological conditions improved considerably thanks to tree-planting and the removal of man-made barriers from natural habitats.

Conference Publication

„Forschungsvorhaben ‚Flächenhafte Verkehrberuhigung', 5. Kolloquium, Ergebnisse aus den Modellgebieten und Erfahrungen anderer Städte" vom 16./17.5.1990 in Ingolstadt. 470 S; Hg. Bundesanstalt für Straßenwesen, Brüderstraße 53, W-5060 Bergisch-Gladbach 1. Tel. 02204-43-454; Fax. 02204-43832.

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Table 1: Average speeds of unrestricted motor vehicles

Pilot scheme area	Esslingen	Ingolstadt	Mainz
Before: 50 kph limit; after: traffic-calmed area			
No of measuring points	-	-	1
average speeds in kph			
before	-	-	36
after	-	-	30
difference	-	-	-6
Before: 50 kph limit; after: 30 kph limit with structural alterations			
No of measuring points	3	1	5
average speeds in kph			
before	45	42	51
after	33	34	38
difference	-12	-8	-13
Before: 50 kph limit; after: 30 kph limit without structural alterations			
No of measuring points	1	3	3
average speeds in kph			
before	37	39	46
after	32	35	40
difference	-5	-4	-6
Before: 50 kph limit; after: 50 limit with structural alterations			
No of measuring points	3	-	5
average speeds in kph			
before	49	-	51
after	45	-	44
difference	-4	-	-7
Before: 50 kph limit; after: 50 kph limit			
No of measuring points	3	1	2
average speeds in kph			
before	45	49	51
after	43	46	48
difference	-2	-3	-3

Source: report by S Krause, p413, quoted from M Häpcner & U Bauen-Häpcner, 1990

Table 2: Trends in accident occurrence in Esslingen and Ingolstadt

	Esslingen		Ingolstadt	
Total no of accidents	pilot scheme area	control group	pilot scheme area	contro group
before	846	439	714	700
after	1032	485	605	486
index	122	110	85	69
accidents with personal injury				
before	155	89	228	197
after	147	100	148	119
index	95	112	65	60

Source: report by S Krause, p414

Table 3: Perceived changes in road users' behaviour (%)

	casual	unsafe	careless	reckless	total
Pedestrians					
before	45,7	15,4	36,2	2,7	100
after	38,0	10,9	36,7	14,4	100
Cyclists					
before	21,4	12,8	18,8	47,0	100
after33,5	33,5	4,3	35,4	26,8	100
Motorists					
before	68,3	5,0	9,0	17,7	100
after	14,6	8,6	48,5	28,3	100

Source: report by S Krause, p 414, quoted from U Köhler & J Pörada, 1989

Table 4: Willingness to invest in business

Pilot scheme area	Sales trends (no of businesses in%)		
	downwards	unchanged	upwards
Berlin 1)	31,3	40,4	28,3
Borgentreich	0,0	60,7	39,3
Buxtehude	6,0	33,7	60,3
Esslingen 2)	20,5	31,1	32,5
Ingolstadt	18,4	38,8	42,7
Mainz 2)	28,6	30,6	34,7

1) Turmstraße and Beusselstraße excluded
2) Remainder up to 100% - no data

Source: report by D Kanzlerski, p 26 (table 1)

Table 5: Willingness to invest in business

Pilot scheme area	No of investments per company	
	before	after
Berlin	0,4	0,7
Borgentreich	0,4	1,0
Buxtehude	1,1	0,8
Esslingen	0,8	1,2
Ingolstadt	0,4	1,0
Mainz	0,3	0,8

Source: Research by town planning department accompanying pilot scheme; from D Kanzlerski, p 28 (table 2)

Table 6: Perception of accident risk by various groups of road user

	BEFORE		AFTER	
	high %	low %	high %	low %
Children	85	14	73	27
Young people	64	36	53	47
Adults	58	42	42	58
Elderly	82	18	76	24
Pedestrians	64	36	59	41
Cyclists	74	26	73	27

Source: report by E Erl & G Winter, p 260 (table 3, Esslingen)

Table 7: Changes brought about by traffic-calming

Changes assumed	agree %	disagree %	ratio
The roads are safer for pedestrians	59	41	+18
Children can travel more safely on roads and pavements	54	46	+8
Motorists have to be prepared for sudden dangerous situations	75	25	+50
Cyclists can travel more safely	43	57	-14
Walking is pleasanter	55	45	+10
The appearance of the road is more attractive	56	44	+12
There is more greenery on the roads	62	38	+24

Source: as for table 6, p261

Table 8: Evaluation of typical traffic situations in residential areas

	BEFORE agreeing %	AFTER agreeing %
There are too many cars	63	89
The cars drive too fast	67	76
The pavements are too narrow	33	57
There are too few safe cycleways	59	67
There are too few safe crossings for pedestrians	51	62

Source: report by W Brög & G Winter, p80 (table 9 - Ingolstadt)