

E uropean

T ransport

S afety

C ouncil

BEST IN EUROPE 2002

SAFER CITIES

CONFERENCE ABSTRACTS

Traffic safety activity in Vienna, Austria

Professor Hermann Knoflacher,
Institute of Traffic Planning and Traffic Engineering,
Technical University Vienna

SUMMARY

1.6 Million inhabitants, capital of Austria, modal split: Car : PT : Non motorized = 37 : 34 : 29 Accident rate (Acc/inhabitant): 67% lower than the surrounding country
--

Traffic Safety in a city is not visible and, therefore, often neglected. Safety is influenced by the information from the environment both in and outside the city. Traffic in the city is one of the results of the management of flows of information, persons and goods with different modes in a permanently changing environment. Long term strategies are necessary in order to enhance the traffic safety of a city.

- Most important for successful traffic safety development is the strategic level; this is the level in which modal split decisions are made (parking regulations etc), where land use and city development takes place and where decisions about the distribution of space between different road users are made.
- Speed enforcement is also an important measure. A measure at the strategic and operational levels.
- The operational level, dealing with black spots is of importance, but does not influence the system as a whole.

The following measures were of importance for the decrease of accidents in the city of Vienna:

- Realisation and continuous extension of pedestrian areas
- Continuous improvement of public transport, underground, on the street level prioritisation of trams and busses (tram and bus caps), increasing comfort and accessibility of transport in the city and in the surrounding countryside
- A stringent parking policy in the inner districts, less parking places, introduction of parking fees
- Traffic calming
- Installation of a traffic safety division in the administration of the city
- Systematic treatment of all black spots, based on scientific analysis of the causes
- Night time ban of trucks
- Introduction and extension of cycle tracks since 1981
- Speed control (laser)
- Monitoring of measures

BEST IN EUROPE 2002 – SAFER CITIES, BRUSSELS, JUNE 25, 2002

A vision zero town – Trollhättan, Sweden

Hans Wahlstrom, Swedish National Road Administration
Stig Fredriksson, City Manager, Municipality of Trollhättan

SUMMARY

In the autumn of 1997, the Swedish Parliament passed the government bill proposing that all traffic safety endeavours be based on "Vision Zero".

"Vision Zero" is all about preventing human injury – and that traffic must be seen as the interaction between people, vehicles and roads. Roads and vehicles must be designed in such a way that the consequences of human error do not result in accidents that entail death or serious injury.

A national project "En route to Vision Zero" was conducted in the town of Trollhättan in the years 2000 and 2001. It was carried out in co-operation between the Swedish National Road Administration, Trollhättan Municipality, Saab Automobile AB, the National Society for Road Safety, the Police Authorities, the Swedish Association of Local Authorities and the Western Gotaland regional authorities. All those involved shared their accumulated knowledge and participated within their own special field of expertise.

In this project a 39 km long circuit of ordinary municipal streets and state roads was re-designed according to the principles of "Vision Zero". Some examples: raised pedestrian crossings, bus stops in the shape of an hour glass preventing cars from passing while the passengers are getting on or off the bus. Sophisticated traffic signals, roundabouts, central guard rails and separated bike lanes on the Highway as well as removal of intersections and fixed objects. The inhabitants of Trollhättan were informed and engaged throughout the duration of the project. Visitors from all over the world came to Trollhättan and could drive along the circuit in a number of Saab 9-5 cars equipped with an alcohol ignition interlock, a new type of seat belt reminder and an Intelligent Speed Adaptation system.

The results are very positive as far as the first evaluations show, i.e. speed and traffic flow surveys, effects for children and disabled persons, the co-operation between system designers etc. Evaluations are still being made and the results will be presented on 25th June. Even the people of Trollhättan, who initially were quite negative to the measurements, are today in favour of the circuit – a recent study shows that 75% of the 53,000 inhabitants are positive to the "En route to Vision Zero Project" in Trollhättan.

BEST IN EUROPE 2002 – SAFER CITIES, BRUSSELS, JUNE 25, 2002

Setting city targets - Gloucester, United Kingdom

Ray Lane, Head of Engineering Services, Gloucester City Council

SUMMARY

The Gloucester Safer City project ran from 1996 to 2001.

The objective of the project is to reduce casualties by one third compared with the average 1991 to 1995 using engineering methods. The budget for the project was £5 million.

The project is unique in that it seeks to reduce casualties over a complete City rather than treat individual accident hot spots.

The project brought together all those working in road safety including engineers, emergency services, magistrates, road safety, education and training staff, public transport operators, planners and research organisations.

Political leadership was provided by a steering group of members from the City Council and Gloucestershire County Council. Their main role was to consider and approve the proposed way forward.

A large amount of consultation was involved. City wide consultation took place through the Safer City Forum and advertisements in local newspapers. Locally, the project team carried out traditional consultation such as public meetings, exhibitions and leaflets. Citizens panels were used in two locations where the normal consultation procedures did not give a clear view on what was acceptable.

The project has only recently ended, but already the signs are that it has been a success. In 2001 compared with the 1991-1995 average:-

- Deaths and Serious injuries are down by 48 per cent.
- Adult pedestrian casualties are down by 54 per cent.
- Child pedestrian casualties are down by 29 per cent.
- All casualties are down by 8 per cent, despite the greater awareness in Gloucester of road safety leading to a rise in accident reporting of 13 per cent.
- The severity ratio (the proportion of all casualties killed and seriously injured) fell from 13 per cent to 8 per cent.

TRL (the Transport Research Laboratory) will provide a final report for the Government later this year which will provide the results of the detailed monitoring of the project and will provide a useful guide for those who want to reduce casualties on an area-wide basis.

Implementing sustainable safety – Zoetermeer, The Netherlands

Ing. W. Serné, Traffic Engineer, Municipality of Zoetermeer

SUMMARY

Sustainable safety is a well known policy in the Netherlands, developed about 10 to 12 years ago. As a new town, Zoetermeer occupies a strategic position in the surroundings of the Hague and Rotterdam. In 1968 the city council accepted a plan for building a compact, independent city and in 10 years time Zoetermeer will number about 135,000 inhabitants. Besides housing development, the city planners also created ample shopping quarters, recreational provisions and, particularly, employment. Zoetermeer has to provide an adequate and varied labour supply. Currently, Zoetermeer has about 40,000 employees which has to grow to 75,000.

Road safety facts and figures

Road safety has always played a very important part in the city planning of Zoetermeer. In the past 10 years the level of accidents and casualties has been low. Fortunately, the accident and casualty totals are decreasing. Only recently, the city of Zoetermeer was declared one of the safest cities in the Netherlands. The level of street accidents is very low in spite of the extensive growth of inhabitants and employees. Accidents involving casualties are mainly caused by cars which collide with other cars or with cyclists and mopeds. The conflict between these road users is the main issue of interest when it comes to preventing road accidents involving casualties.

Sustainable road safety programme and the implementation in Zoetermeer

There are several, different aspects that play a part in road safety. The sustainable safety philosophy is based on the following principles:

- Engineering
- Spatial planning
- Modal choice/mobility
- Road infrastructure adapted to human limitations
- Vehicles provided with means that simplify the task of driving
- Vehicles that are constructed in such a way as to provide people with the best possible protection
- Education
- Road users who are sufficiently trained and informed
- Enforcement
- In connection with the engineering measures, police enforcement can increasingly focus on motorways and area distributor roads.
- The regional police will focus primarily on four spheres of interest: compulsory seat belt and crash helmet use, alcohol in traffic, running red lights, and speeding offences.

When all of these aspects are coordinated we can speak of sustainable road safety

The basic assumption for creating a sustainably safe road network is that the road users who meet one another are similar in terms of numbers and vulnerability and are also travelling at the same speed and in the same direction. In other words, conflicts between road users must be avoided as much as possible but, if they do exist, the differences in speed between them should be minimised.

On a sustainable safe road network, the design, function and use of the road are coordinated and the road infrastructure is adapted to human limitations. A sustainably safe road infrastructure is best described as one that is clearly perceived by road users. Road users can easily understand, based on what they see on the road, what is expected of them with regard to their behaviour as road users. They know what the maximum speed is, how the right of way is regulated, and are prepared for situations they may confront. For the road infrastructure, this means:

- making sure that various types of road users are using the road category intended especially for them
- limiting the number of motor vehicles to a certain maximum so that traffic volume is controlled
- allowing sufficient space for all road users
- separation of types of vehicles in cases where combinations lead to problems
- maintaining low speeds at locations exhibiting the possibility of conflicts between the needs of different types of road users.

An important part of the first phase in the Sustainable Safety Programme consists of the large-scaled design and construction of 30 kilometre per hour zones (Residential districts). Traffic enforcement in these zones will be minimal; on 30 kilometre per hour streets that are designed according to these standards through traffic is rare and many different measures are taken to assure that speed is limited.

In the local Zoetermeer road classification we make a distinction between 3 road categories with rough quality standards:

- Arterial roads

More than about 15,000 vehicles per day, traffic is dominant. Speed limit 50 or 70 km/h. Divided carriageway roads; no car parking; split level pedestrian and cycle crossings; split level arterial crossroads; traffic lights at collector's junctions; no bumps or other traffic calming measures.

- Major and Minor collectors

6,000 up to 15,000 vehicles per day for the major and 3,500 up to 6,000 vehicles per day for the minor collectors.

Collectors are single carriageway roads. Speed limit 50 km/h. They have limited connections with residential roads. Their exits look like carriage gateways with collectors priority; at collectors junctions roundabouts or elevated junction geometry; pedestrian and cycle crossings at intersections or with traffic calming measures.

Major collectors have separated cycle tracks, no car parking and bus stops beside the roads. Minor collectors can have non separated cycle ways, parking beside the roads and bus stops on the road.

- Residential streets

Up to 3,500 vehicles per day; speed limit 30 km/h; no through traffic; parking in special parking places; measures to reduce speed every 100 metres (Bumps, traffic calming/sleeping policemen).

So, the main characteristics of a sustainably safe constructed road-network are:

- Hierarchy design
- Traffic division. For instance a clear distinction between fast traffic and slow traffic.
- Residential areas
- Clear directives for a uniform construction or lay-out of our roads.

Calming Traffic in Cattolica, Italy

Nazario Gabellini, Director Of Municipal Traffic Police, Comune Di Cattolica

SUMMARY

Cattolica is a seaside resort on the Adriatic coast. It has about 16,000 inhabitants and its territory is only 5 square kilometres. During certain summer periods and thanks to its 300 hotels, the population of Cattolica reaches almost 100,000 inhabitants, including residents and tourists. The total length of the road network is 70 kilometres, while the main road network just exceeds 10 kilometres. 70 to 80% of the traffic is carried on these 10 kilometres. It can vary from 6,000 to 7,000 vehicles every day to 20,000 on the street which joins the motorway with the town centre. The main streets are divided into many other smaller streets. These are (or were) highly dangerous areas. In fact there was an incident every 6 to 7 days in these areas, before the traffic management interventions. Now they are 4 to 5 every year.

A local newspaper published an article about the car repairer of Cattolica (Resto del Carlino 10/02/1999). The title was "The incidents' number collapses. Car repairers are ruined by roundabouts". Last year on 21st January, during the inauguration of the new area of our hospital, the sanitary director underlined the decrease of the admissions number thanks to the intervention of control of the traffic adopted by our town hall. On 10th June a delegation of experts and members of several Italian associations visited our city, and they highly appreciated the interventions. On 7th June 2001 Cattolica won a competition organized by the monthly "Quattoruote", WWF and ASSTRA. It was called 'Let's breathe the city'. On 9th September 2001 the funeral of the last traffic light was celebrated, during the national meeting of police.

However, what do these traffic management interventions comprise? We must say that they are not original, but original is their use. We created: 18 small compact roundabouts. They have an external diameter, that can vary from 13 to 32 m and single entrances too (11 roundabouts substitute the same amount of traffic lights on the main streets). We also created: 36 raised crossroads, 49 raised pedestrian crossings, unbroken pavements, traffic free zones, road narrowings. In total there were 103 interventions.

Costs. Many interventions were carried out during roads' maintenance works. Others following calls for tenders and others again were implemented by private organisations. These were also interventions to improve street furniture. Altogether, the total costs amounted to 517,000 Euros between 1996 and today.

Flows. After the traffic lights were removed, it was possible to travel the 10 km of the main network of streets in 20 minutes, without stopping and at a constant speed of 30km/h.

Acceptability. According to an enquiry among the inhabitants, 360 people out of 375 are satisfied with the interventions. Neighbouring town councils are being pressed by their citizens to take steps like ours. Moreover, many experts and administrators visit Cattolica to study our traffic map.

Conclusion. When in 1995 the municipal government transferred traffic management to the local police, citizens protested about the dangerousness of traffic as well as about noise and atmospheric pollution. Public opinion sought the usual interventions: construction of streets, widening of existing roads, introduction of new traffic lights, constant presence of policemen in the most dangerous areas. With reference to French experience, we suggested that our

Administration should regulate traffic by engineering intervention. In Spring 1996, a set of traffic lights were substituted by a roundabout. This type of intervention was not previously known, so as a consequence there was much protest. However, we noticed that at that junction there were less incidents and the traffic was still flowing. We went on then to create further small roundabouts at junctions and raised crossings in the most dangerous areas. Citizens began to appreciate the interventions. After this first experience, we gave the architect/planner Bruno Gandino, one the main Italian experts in traffic control, the job of drawing up the traffic project which was then approved unanimously by the town council. On 25th June we will talk about the change of drivers' behaviour and the press campaign.

Urban Management and Safety in Cottbus, Germany

Karl Heinz Schäfer, BSV, Aachen

SUMMARY

The study was developed in our private office for city and traffic planning (BSV, Aachen) at the request of the German Federal Highway Research Institute (BASt). It was finished in 2000, just 10 years after the German Unification.

As one of the largest East German cities Cottbus – with 120,000 inhabitants – provides an appropriate example of the special efforts which have been made to improve road safety after a massive wave of motorisation and accident totals in cities and towns of the German New States.

The traffic programme approved by the City Council at the beginning of 1996 is the focal point for local road safety work in Cottbus. In Germany, road safety programmes at a local level are still rare. This was the primary reason to select Cottbus as the German model city in the European DUMAS project.

There was a rapid increase of motor vehicle transport in Cottbus following the political change in 1990, specifically:

- An increase of passenger car population from 225 per thousand in 1987 to 425 per thousand in 1998.
- An increase of the percentage of motorized personal traffic from 23 percent of the daily trips in 1987 to 45 percent in 1998, while other means of transport showed high decreases.
- An increase of the average daily distances travelled per person from 12.8 km in 1982 to 24.0 km in 1998.

In comparison to the other East German cities, Cottbus followed the general trend. Of note, however, is the relatively high percentage of bicycle traffic (18% in 1998) which characterises Cottbus as a “bicycle city”.

Other circumstances must be considered to be negative for the development of road safety in East Germany in the early 90's:

- a high percentage of new drivers with low experience and risky behaviour in traffic,
- most of the first generation of newly registered motor vehicles were initially cheap used cars with higher performance data than East German motor vehicles ever had before.

Big efforts had to be made to break the wave of increasing accidents, particularly those with injured people, and turn it towards a lower level again. In Cottbus, therefore some important planning concepts have been worked out till 1996:

- a Master Plan for city development,
- a development concept for the downtown district,
- a Master Plan for traffic development (including a special concept for traffic noise prevention),
- a school development plan (including measures to secure school routes).

Last but not least, a road safety programme was formulated and published in 1996, that includes eight strategic principles for road safety work in Cottbus:

1. Protection of the weaker traffic participants,
2. Promotion of public transportation (particularly the tram),
3. Reduction of accident black-spots,
4. Reduction of motor vehicle speed,
5. Reorganisation of the parking system ("non-moving traffic"),
6. Preventive measures for specific target groups,
7. Reinforcement of traffic safety work within companies, and
8. Co-ordination of communal traffic safety work by a new Committee for Traffic Safety.

As explicit goals are specified: reduction of accident figures and accident severity, particularly for accidents involving children, senior citizens, pedestrians, bicycle riders and professional drivers and also reduction of accidents resulting from speed. Quantitative objectives, however, have not been formulated.

The traffic development plan includes network concepts, development goals and recommendations for measures concerning all means of transport. The main emphasis was on three sectors:

- To accumulate the motorized vehicle traffic on a capable network of few main roads, with traffic calming measures in all other streets, particularly by 30 km/h speed limit zones,
- To reconstruct and modernize the tram system, and
- To create a pedestrian-friendly downtown district with pedestrian zone, central tram and bus stop and management of parking facilities.

An important component of the local road safety work is the structure of communication and cooperation between the different involved institutions and interest groups. There are several subject-related "committees" working continuously on topics like traffic safety, school route safety or bicycle traffic planning, so that close cooperation nowadays in Cottbus seems to be a special local "culture" of discussing and tuning topics of traffic planning and traffic safety.

The development of accident figures from 1993 to 1998 shows a continuous improvement.

Average accident victims' costs could be reduced from 180 Euros per inhabitant and year in 1993 to 130 Euros in 1998.¹ This result can be put down to the fact that the number of killed and seriously injured persons could be clearly reduced.

However, precise study of the accident figures showed:

- a continuous decrease of injured children as pedestrians, particularly on school routes,
- an alarming increase of injured children and adults as bicycle riders and
- a continuous decrease of injured persons as drivers or passengers of motor vehicles.

This allows the conclusion that the measures implemented till the end of 1998 have served primarily for road safety of motor vehicle traffic and that, on the other side, bicycle traffic (and also pedestrian traffic) obviously presents a significant requirement for further action.

¹ These data are based on average rates of about 820,000 Euros per killed person, 36,000 Euros per seriously injured person and 3,600 Euros per slightly injured person.

BEST IN EUROPE 2002 – SAFER CITIES, BRUSSELS, JUNE 25, 2002

Speed zones in Gladsaxe, Denmark

Ivan Christensen, Head of Roads and Park Department, Municipality of Gladsaxe

The Municipality of Gladsaxe in the northern Copenhagen area has 62,000 inhabitants.

In 1996, the local authorities in Gladsaxe established 40 km/hour speed zone in a residential area Mørkhøj. This pilot project became a success with marked reductions of speed level and 76% reduction of traffic accidents. Generally, the 6,000 inhabitants in Mørkhøj have been satisfied with the new speed limits. The general speed limit in Danish urban areas is 50 km/hour.

Before implementation of the project in Mørkhøj the local authorities received a financial contribution from the Danish Government through the Road Directorate. The whole project was divided in two parts, a Speed Management Plan for the Municipality of Gladsaxe and a pilot project in Mørkhøj.

A project committee including local people, the Danish Road Directorate, the local traffic police and traffic engineers from the local authorities had major influence on the project. In fact the first idea of 30 km/hour speed zone was changed subsequently to a 40 km/h zone in order to be more realistic.

The physical changes in Mørkhøj in 1996 included a speed zone and a number of speed bumps and plateaus or raised crossings. The distance between bumps was chosen to be much greater than in traditional calming projects. Residential roads in Mørkhøj encompass 15 km of public roads. The implementation of the zone was followed by intensive information.

The pilot project showed such good results, that the local authorities in 1998 decided a new 40 km/h zone in a similar residential area Maglegård. In 2000 the Municipality of Gladsaxe expanded the project to encompass all residential roads. This 40 km/h zones includes 130 km of the 160 km local public roads in Gladsaxe. In the period 1996-2002 some projects from the Speed Management Plan have been realised on the traffic roads too.

Results from the pilot project in Mørkhøj – zone established in 1996

Area	Traffic accidents [1992-95]	Traffic accidents [1997-00]	Reduction	% Reduction
Denmark	78695	68564	10131	13%
Gladsaxe Municipality	423	215	208	49 %
Mørkhøj	21	6	15	76 %

Table 1. Traffic accidents in Mørkhøj, Gladsaxe and Denmark (accidents without police rapport excluded)

Year	Traffic accidents (no.)	Accidents with injuries (no.)	Mortality (no. pers.)	Serious injuries (no. pers.)	Mild injuries (no. pers.)	Accidents without police rapport (no.)	Accidents, total
1992-1995	21	14	1	10	4	9	30
1997-2000	6	3	0	0	3	3	9

Table 2. Mørkhøj – Traffic accidents and injuries

Selected roads in Mørkhøj	Average vehicles pr. day	Average speed level 1995	Average speed level after implementation of zone	Average speed level 2 years later
Septembervej	300	46	30	36
Juni Alle	1900	54	42	43
Ryberg Alle	2400	49	36	34
Stavnsbjerg Alle	650	53	35	36

Table 3. Traffic and speed level before and after the pilot project in Mørkhøj