

SWOV

Research program 2022



**DATA AND ANALYSIS
FOR POLICY**

Letty Aarts



ROAD USER BEHAVIOUR

Ragnhild Davidse



**HUMAN FACTORS AND
VEHICLE AUTOMATION**

Nicole van Nes



**INFRASTRUCTURE
AND TRAFFIC**

Wendy Weijermars



COMMUNICATION

Maura van Strijp



SWOV

Research & collaboration

SWOV is the Dutch institute for road safety research. Our mission is to improve road safety by means of knowledge gained by scientific research: on a non-profit basis and for the purpose of finding answers to questions policymakers and other traffic professionals have to deal with.

Apart from the central government, we also collaborate with provinces and municipalities, and with other public domain organisations. The same goes for consultancy firms, civil society organisations and the private sector. We also participate in international research projects, such as those of the European Union.

SWOV knowledge is available to the public. The website [swov.nl](https://www.swov.nl) presents the results of our research in SWOV reports, numerous fact sheets, but also in (scientific) articles and books to which SWOV researchers contributed.

Apart from Communication, SWOV has four research departments:

- Data and Analysis for Policy;
- Road User Behaviour;
- Human Factors and Vehicle Automation;
- Infrastructure and Traffic.

In the four departments, some fifty experts work together in multidisciplinary teams. Road safety subjects can be researched by different departments. Research into safe driving speeds, for example, can be approached from the angle of infrastructure, or human behaviour or from the angle of the vehicle. Therefore, the research projects are designed by experts with the different research departments in mind.

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Program criteria

SWOV applies the following general criteria in programming research and entering into collaborations:

- added societal value: results should be recognisable as contributing to road safety;
- added scientific value: results contribute to the scientific rationale behind and further development of road safety knowledge, and;
- safety problems and should contribute to decisions in policy practice.

Additional criteria are:

- feasibility: the study should be achievable;
- innovative character: SWOV research is in line with current insights and preferably contains new/innovative elements in questions and approach;
- the research is compatible with available expertise, research facilities and instruments, and available data sources.



DATA AND ANALYSIS FOR POLICY

Letty Aarts

The department 'Data and Analysis for Policy' is responsible for accessibility of road safety statistics and analysis of these data to advance knowledge for the purpose of road safety policies. The department also develops and shares knowledge about how to organise a safe traffic system.

DATA AND ANALYSIS FOR POLICY

Letty Aarts

From 2022 onwards, work in the following areas will proceed in a multiannual program (2022-2026):

Ongoing: the state of road safety

- Basic data on road safety will remain available through our data centre on the SWOV website. Attention is paid to regional focuses and to quality improvement due to new techniques;
- Determination of the number of serious road injuries (MAIS2+ and 3+) by linking data sources (police data, hospital data and, in the future, possibly ambulance data);
- Annual overview The State of Road Safety, based on the abovementioned components, looking back on and looking ahead to developments.

New research: transitions and the road safety of the future

- Research into changes in society (i.a. mobility shifts due to the COVID-19 pandemic, vehicle automation, migration to the city or the countryside, changes in behavioural trends) and their effect on road safety;
- Road safety exploration: research into the feasibility of road safety targets, which may involve the insights gained by studying transitions.

New research: implementation of road safety knowledge

- Further research into the hurdles of and solutions for implementing road safety knowledge, particularly aimed at municipalities. We will, for example, elaborate on knowledge about data, budget priorities, and the role consultancy firms play in decision-making.
- In addition, the (emerging) role of citizens will be studied, not only as road users, but also as policy influencers.



ROAD USER BEHAVIOUR

Ragnhild Davidse

The studies carried out by the department of 'Road User Behaviour' are concerned with road users' behaviour and their physical and mental condition, among which alcohol and/or drug consumption, distraction and impairments such as dementia. The department researches the prevalence (how often it occurs), the road safety effects and the effectiveness of countermeasures to affect behaviour.

ROAD USER BEHAVIOUR

Ragnhild Davidse

The department Road User Behaviour carries out research that generates knowledge concerning conditions for safe behaviour and concerning the occurrence and prevention of conscious or unconscious violations. The research varies from (driver) training and education, self-assessment and hazard recognition, prevalence and risk of alcohol and drug use and distraction, effectiveness of enforcement, to safe traffic participation by older people and people suffering from different illnesses or conditions.

In addition, the department houses the multidisciplinary SWOV team for in-depth studies into road crashes. In 2022, we will continue our ongoing research into 1) prevalence and risk of alcohol and drug use in traffic 2) safe driving in the event of early dementia 3) preconditions for safe mobility scooters; and factors at play in the origin and outcome of 4) motorcycle crashes and 5) bicycle-car crashes on 30km/h-roads (in-depth study).

In addition, we will initiate the following new studies:

- The effectiveness of teaching methods of driver training;
- The effect of depression on road safety;
- Distraction and traffic behaviour of delivery bike users; and
- Speed and traffic enforcement.

In our research, we collaborate with various parties such as police, hospitals and the Dutch driving test organisation CBR. For research that is still to be started we will expand this collaboration, whenever possible, to include partners such as the Dutch Traffic Safety Association and TeamAlert.



HUMAN FACTORS AND VEHICLE AUTOMATION

Nicole van Nes

The department 'Human Factors and Vehicle Automation' mainly researches how road users cope with new automated technology increasingly installed in their own vehicles and those of other road users.

HUMAN FACTORS AND VEHICLE AUTOMATION

Nicole van Nes



Research into interaction with self-driving vehicles runs along three substantive lines. In addition, attention is paid to safe interaction with other innovative vehicles.

Safe interaction of driver and vehicle

It is of utmost importance that drivers know how to deal with the new systems in their cars. Examples of focus areas are transition of control, mode awareness, workload management, and driver state detection. This line of research focuses on the question whether and how this interaction may take place safely.

Safe interaction with other road users



Not only the driver, but also other road users must be able to safely interact with (partly) self-driving vehicles. This line of research focuses on the question how safe interaction with ‘other road users’, such as cyclists, pedestrians and other motorvehicles, is to be safeguarded.

Driver performance and crash risk when using ADAS/SAE L2 systems

This line of research studies the question whether driver performance and/or involvement in (near-)crashes differ when driving with

or without driver assistance systems (ADAS), such as Lane Keeping Systems (LKS), Lane Departure Warning systems (LDW), (Advanced) Cruise Control (ACC), and Intelligent Speed Adaptation (ISA).

Safe adoption of new forms of urban mobility



A growing variety of (new) vehicles can be seen on our roads. This project will look into the question whether and how new vehicles (such as LEVs, scooters and shuttles) can safely be integrated into our traffic system.

Collaboration



In all these areas, we actively collaborate with national knowledge institutions and companies, such as Delft University of Technology, the Netherlands Organisation for Applied Scientific Research TNO, Netherlands Aerospace Centre NLR, Rijkswaterstaat, and the Netherlands Vehicle Authority RDW. Internationally, we actively collaborate in European projects MEDIATOR and LEVITATE in which, together with international knowledge institutes and companies, knowledge is developed.



INFRASTRUCTURE AND TRAFFIC

Wendy Weijermars

Research by the department of 'Infrastructure and Traffic' focuses on the relationship between road safety and the infrastructure, use and layout of the road network (including the cycling infrastructure).

INFRASTRUCTURE AND TRAFFIC

Wendy Weijermars

In the coming years, the focus will be on the following themes:

1. Stedelijk Verkeer en Verkeersveiligheid
 - a. Vulnerable road users
 - b. Road safety in relation to design and use of the urban road network
2. Safe and credible road design
 - a. Road safety of intersections
 - b. Credible layout of 30 and 60km/h roads
 - c. Instruments and data

In 2022, we will be working on the following (partly) multiannual projects:

- PhD research into the impact of the urban environment and cycling infrastructure on bicycle volumes and road safety;
- Safe cycling routes and the role of different kinds of bicycle provisions in a safe bicycle network;
- Road safety of bicycle streets;
- Safety of pedestrians and other road users at signalised intersections;

- Recalibration of risk figures and feasibility of the development of Crash Prediction Models (CPMs);
- Evaluation of SPIs for the road and cycling infrastructure;
- Credible layout of 30 km/h distributor roads: contribution to guidelines for layout and advice concerning evaluation.

For the different projects, we actively aim to collaborate with other parties, such as Knowledge Network SPV, the Dutch technology platform for transport, infrastructure and public space CROW, road authorities, universities and consultancy firms. For the validation of road and cycling infrastructure SPIs, for example, we will use experiences and data from the Knowledge Network, subsequently using the acquired knowledge for further SPI improvement. Guidelines for the layout of 30km/h distributor roads will be drafted in a CROW study group. Time will also be set aside for monitoring a PhD study at The University of Twente and for knowledge sharing with e.g. consultancy firms and road authorities.



COMMUNICATION

Maura van Strijp

The department 'Communication' focuses on transferring knowledge gained by research to traffic and transport professionals, and to those working in adjacent policy areas.

COMMUNICATIE

Maura van Strijp

Knowledge gained by research is made available on our [website](#), for example in the form of [fact sheets](#) and [accessible reports](#). We also organise knowledge cafes and other events, either in our Knowledge Centre or at other external venues.

Our researchers also contribute to improving road safety by participating in various working groups. To disseminate our knowledge we communicate with traffic professionals and the media. Moreover, [swov.nl](#) offers access to the collection of the only Dutch library specialised in road safety.

SWOV's knowledge spans the entire field of road safety. It is obviously important to keep this knowledge up-to-date by supplementing it with new insights gained by our own research and research by others, and by actively exchanging knowledge with fellow experts at home and abroad. This is also important for topics that SWOV is not actively researching at the moment; for example submerged vehicle crashes, the road safety of freight traffic or (light) moped riders.

In 2022, we distinguish the following activities in updating, exchanging and disseminating SWOV knowledge:

- Updating and sharing knowledge, complying with ad hoc requests;
- Participation in (inter)national working groups (such as [UN Road Safety Fund](#), [FERSI](#), [Humanist](#), [ETSC](#), [OECD](#));
- [Fact sheets](#);
- [SWOV website](#) (including collection management);
- [Public communication](#), including the organisation of events such as the [NVVC](#) and the [FERSI conference](#);
- Programme Advisory Board ([PAR](#)), Scientific Advisory Board ([WAR](#)) and 2023 programming.

In 2022, we will also contribute to disseminating knowledge through different European projects, such as [VIRTUAL](#), [LEVITATE](#) and [MEDIATOR](#).