

SWOV

Research program
2021 - 2022



**DATA AND ANALYSIS
FOR POLICY**

Letty Aarts



ROAD USER BEHAVIOUR

Ragnild Davidse



**HUMAN FACTORS AND
VEHICLE AUTOMATION**

Nicole van Nes



**INFRASTRUCTURE
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COMMUNICATION

Maura van Strijp





DATA AND ANALYSIS FOR POLICY

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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



In 2021, the work will comprise managing, preparing and providing access to basic statistics for the purpose of road safety analyses, for determining the number of serious road injuries, for the annual ‘Status of Road Safety’ and the ‘Road safety comparator for Dutch municipalities’ (both in Dutch).

In addition, the following research will be started or continued in 2021:

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- Method development for the benefit of road safety research, a.o aimed at under-registration of road crashes;
 - research into policymakers’ awareness of the effectiveness of measures and their considerations when choosing countermeasures;
 - research into post-traumatic stress disorders ensuing from road crashes.



For various projects, collaboration with third parties will take place and will be expanded whenever possible and relevant. Thus, we will collaborate, both nationally and internationally, with research institutes and data providers. Areas of collaboration concern crash and injury data, exposure data and data on risk indicators (SPIs).



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. They research the prevalence of this behaviour, the road safety effects and the effectiveness of countermeasures.

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, prevalence and risk of alcohol and drug use, fatigue 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 2021, we will continue our ongoing research into

- safe driving in the event of early dementia;
- preconditions for safe mobility scooters; and
- factors at play in the origin and outcome of bicycle-car crashes on 30km/h-roads (in-depth study).

In addition, we will initiate the following new studies:

- simulator study into the effectiveness of newly developed hazard recognition training;
- simulator study into the effect of laughing gas on driver behaviour;
- pilots for future prevalence research into alcohol and drug use in traffic; and
- in-depth study into the factors at play in the origin and outcome of motorcycle crashes.

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:

Interaction of driver and vehicle

It is of utmost importance that drivers know how to deal with the new systems in their cars. This line of research focuses on experimental research into the question whether and how this interaction may take place safely.

Interaction with other road users

Studying the interaction of 'other road users' with (partly) self-driving vehicles. Among other things, field trials will be carried out to determine the interaction with platoons or automatic shuttles.

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).

In addition, attention will be paid to other innovative vehicles, the so-called Light Electric Vehicles (LEVs).

Light Electric Vehicles (LEVs)

This project follows trends in the development of small electric vehicles and promotes knowledge concerning the question whether and how safe interaction with these new vehicles will be possible.

In all these areas, we actively collaborate with national knowledge institutions and companies, such as [Delft University of Technology](#), [KiM Netherlands Institute for Transport Policy Analysis](#), and the Netherlands Organisation for Applied Scientific Research [TNO](#). Internationally, we actively collaborate in European projects [MEDIATOR](#) and [LEVITATE](#) in which, together with international knowledge institutes and companies, knowledge is developed concerning (partly) self-driving vehicles.



INFRASTRUCTURE AND TRAFFIC

Wendy Weijermars

Research by the department of 'Infrastructure and Traffic' focuses on the relationship between the structure, use and layout of the road network on the one hand (including the cycling infrastructure) and road safety on the other. This does not only involve what is safest from a scientific point of view, but also how things work out in practice and what the consequences are of solutions that are sub-optimal (for road safety).

INFRASTRUCTURE AND TRAFFIC

Wendy Weijermars

In the coming years, we will carry out research on three themes: 'urban traffic and road safety,' 'safe and credible road design' and 'cyclists and pedestrians.' Furthermore, time has been allotted to follow certain developments, for example those concerning 'connected and automated vehicles', and knowledge exchange and co-ordination of research/results with other parties.

Urban traffic and road safety

Among other things, PhD research will be carried out into how an urban environment and cycling infrastructure affects bicycle densities and road safety. In addition, the relationship between spatial planning and road safety in Dutch cities will be researched.

Credible road design

This theme focuses on the rationale behind the relationships between road design and road safety. In 2021, research will be carried out into the relationship between parking facilities and road safety on the one hand,

and the instrument of Safe Speeds and Credible Speed Limits (Dutch abbreviation: VSGS) on the other. A first step towards layout requirements of road category GOW30 will also be taken.

Cyclists and pedestrians

Within this theme, the relationship between cycling infrastructure characteristics and road safety will be researched. In 2021, the location of fatal crashes involving pedestrians will also be studied.

For the different projects, we aim to collaborate with other knowledge institutes, such as the University of Twente, the Dutch technology platform for transport, infrastructure and public space CROW, and road authorities. Furthermore, we will make maximum use of knowledge and data from external projects and experiences from the knowledge network for the Road Safety Strategic Plan 2030 (KennisnetwerkSPV), for example when assessing roads on SPIs.



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.

COMMUNICATION

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 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 lighting, speed or the road safety of freight traffic.

In 2021, 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 Library portal collection management);
- Public service advertising and communication; and
- Programme Advisory Board (Dutch abbreviation: PAR), Scientific Advisory Board (Dutch abbreviation: WAR) and programming 2022.

In 2021, we will also contribute to disseminating knowledge through different European projects, such as VIRTUAL, LEVITATE and MEDIATOR.

CRITERIA

Research & collaboration

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;
- added policy value: results should help policymakers interpret road 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 three spearheads in SWOV's multi-annual strategy:
 1. ITS/automation of traffic system;
 2. older road users;
 3. urban traffic.
- The research should be compatible with available expertise, research facilities and instruments, and available data sources.