

# Nordic Road Association 2020-2024



**VERDENSMÅL**  
for bæredygtig udvikling

[www.nvfnorden.org](http://www.nvfnorden.org)





Photo: Knut Opøide, Statens Vegvesen



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## Disclaimer:

The translation into English of Nordic Road association (NVF)'s strategy 2020-2024 is to be regarded entirely as a service. In the event of any discrepancy or shortcomings in the translation the Danish version will prevail

## Foreword

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This strategy is valid from 1 July 2020 to 30 June 2024. Denmark holds the chairmanship of the Nordic Road Association (NVF) during this period. Accordingly, Denmark will lead the work until the 'Via Nordica 2024' congress, which marks the end of the work carried out during the period. Subsequently, the chairmanship of the NVF will be passed on to Finland.

The strategy presents the main lines for the NVF's work during the period 2020-2024.

The strategy has been established on the basis of a survey conducted among the national NVF associations, member organisations and the committees of the previous period to determine what themes they thought the NVF should address in 2020-2024. There was one recurring theme among the many submitted proposals, viz. that the NVF should address the road and transport sector's contribution to the realisation of the UN's Sustainable Development Goals.

We have therefore decided to make the UN's Sustainable Development Goals the strategic foundation of the work carried out during the period. To make the work operational, we have chosen to identify the sustainable development goals that are particularly important in relation to the road and transport sector.<sup>1</sup>

The sustainable development goals are as follows:



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<sup>1</sup> See also: "Analysis and Policy Recommendations From the United Nations Secretary General's High-level Advisory Group on Sustainable Transport", <https://sustainabledevelopment.un.org/topics/sustainabletransport/highleveladvisorygroup>

## Working groups

By turning the UN's Sustainable Development Goals into the strategic foundation of the period, we want to show how the Nordic road sector contributes to the realisation of the UN's Sustainable Development Goals.

The sustainable development goals constitute the framework for the specialist work during the period. The actual work will be carried out within the themes requested the most by the members. We received 87 proposals, which we have cut down to concentrate the activities of the period around the themes requested the most. It is within these themes that the NVF will develop best practices for the period 2020-2024.

Against this background, we have established 12 working groups that will be working with 12 overall themes. The working groups will be established for different periods of time. Seven working groups are established for the entire period (4 years), one working group is established for two years as it has a narrower and more specific focus, and four working groups will be established as 'workshop groups' whose main task is to organise one or more specialist workshops.

More working groups may need to be established during the period. All members may propose to the Association Board that such groups be established. Furthermore, an ideas bank has been created for any proposals that did not make the first cut.

### The 12 working groups are:

1. Urban transport and transport planning (4 years)
2. Design (4 years)
3. Road technology (4 years)
4. Road safety (4 years)
5. Climate requirements in contracts (2 years)
6. Tunnels (4 years)
7. Operation and maintenance (4 years)
8. Freight transport (4 years)
9. Recruitment to the sector (1 year, workshop group)
10. ITS - Innovative data collection (1 year, workshop group)
11. Bridges (4 years, annual workshop)
12. Nordic construction market (1 year, workshop group)

We have prepared terms of reference for all working groups to ensure as specific a recruitment as possible and so that the participants can get started quickly and work optimistically. At the same time, we have maintained the high degree of self-management (or independent working group management), which is one of the NVF's hallmarks, by allowing the working groups, in dialogue with the Association Board, to adjust their terms of reference.

With this strategy, we hope to have geared the NVF to take the road and transport sector in a direction that reflects the members' wishes and needs for knowledge sharing and experience exchange, and we hope that the NVF's member organisations will support the strategy by participating actively in the working groups.

*The strategy was adopted by the Association Board on 21 November 2019*



Photo: Vejdirektoratet

## **Vision**

Competence without border

## **Mission**

To promote development in the road and transport sector through cooperation among professionals in Denmark, Finland, the Faroe Islands, Iceland, Norway and Sweden

## **Rolle**

To exchange information, knowledge, experience and best practices among the Nordic countries

### **Vision, mission and role**

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The Nordic Road Association (NRF) (until March 2008, the Nordic Road Technology Association) was established in Stockholm on 19 June 1935. The founding members are Denmark, Finland, Iceland, Norway and Sweden, while the Faeroe Islands became a member in 1975.

The NRF is an industry cooperation with members from both the public and private sectors and has more than 320 member organisations in the Nordic countries, of which many are private.





## The NVF's organisation

### The Nordic countries

#### Association Board

Chairpersons, deputy chairpersons  
and secretaries of the national NVF  
boards

#### The Secretary Group

The national NVF secretaries

#### Communications

(and webmaster)

#### Nordic Working Groups

### Member country

The national NVF boards

The national NVF secretaries

Any local web editors

Member organisations and  
member organisation employees

## Organisation

The chairmanship of the NVF rotates and is shared between the national NVF associations in Denmark, Finland, Iceland, Norway and Sweden, respectively. Each member country has a national association connected to the NVF.

The NVF is led by the Association Board, which consists of a chairperson, a deputy chairperson and secretaries of the national associations.

The NVF is managed by a Nordic secretary group, which consists of the secretaries of the national associations.

The chairperson and deputy chairperson of the country holding the chairmanship assumes the roles of Chairperson and Deputy Chairperson of the Association Board during the mandate period.

The secretary of the country holding the chairmanship assumes the role of secretary of the Association Board. The secretaries of the national associations jointly comprise a secretary group lead by the secretary of the Association Board and the secretary group is responsible for the daily administration of the NVF. The secretary group participates in the meetings of the Association Board.

The work of the NVF takes place in working groups. Each working group has a chairperson and a secretary. The positions of chairperson and secretary are distributed between the countries.

*The organisation is illustrated in the table above*



## Strategic foundation

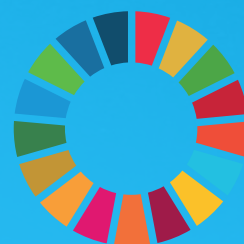
### The UN's Sustainable Development Goals

All working groups must, to the relevant extent, include the relevant sustainable development goals in their work.

**The practical inclusion of the UN's Sustainable Development Goals in the work of the working groups should, as a minimum, be ensured through the following three activities:**

- **Delimitation**  
The working group discusses and delimits those of the UN's 17 sustainable development goals that are relevant to the given theme. The delimitation creates the basis for which sustainable development goals should subsequently be followed up and reported on.
- **Ongoing updating**  
The working group will regularly update on how the work of the group can contribute to achieving the relevant sustainable development goals.
- **Reporting and summary**  
To visualise how the individual themes support and address the relevant sustainable development goals, the annual report to the Association Board will include a category named "contribution to achieving the UN's Sustainable Development Goals". Furthermore, it is proposed to summarise the working group's work to realise the sustainable development goals at the concluding Via Nordica Congress in 2024.

In order to support the working group's activities, the start-up seminar in autumn 2020 will include an introduction to the sustainable development goals and to how the updating and reporting may be organised and drawn up.



## THE GLOBAL GOALS

For Sustainable Development

### The UN's Sustainable Development Goals

The UN's 17 global sustainable development goals were adopted by the United Nations General Assembly on 25 September 2015. The sustainable development goals provide a shared global blueprint for sustainable development towards 2030 that balances the three dimensions of sustainable development – economically, socially and environmentally.

Besides the 17 overall goals, the sustainable development goals also include 169 targets that outline specific objectives and indicators which the UN member states are obligated to report on each year. Because of their universal nature, the sustainable development goals have turned into an important strategic agenda both nationally and internationally.



## The NVF has chosen to focus on the following sustainable development goals:

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Each of the sustainable development goals covers a number of targets that outlines the specific initiatives and activities needed to realise the given sustainable development goal. For more information about the UN's Sustainable Development Goals, visit: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

## Themes and organisation

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For the period 2020-2024, the NVF has chosen to address 12 overall themes in 12 working groups.

Seven working groups are established for the entire period (4 years), one working group is established for two years as it has a narrower and more specific focus, and four working groups will be established as 'workshop groups' whose main task is to organise one or more specialist workshops.

During the four-year period, the Association Board can decide to include new themes and apply other organisation formats. This might be in the form of a 'knowledge fair', which is a workshop where many specialisms are brought together to address a theme that needs to be considered from various angles (e.g. 'Road transport and the UN's Sustainable Development Goals').

*En oversigt over arbejdsgrupperne og deres kobling til det strategiske grundlag findes på næste side.*

Working group	Organisation	Sustainable Development Goals
<b>Planning and design</b>		
Urban transport and transport planning	4-year working group	Goals 9 and 11
Design	4-year working group	Goals 9 and 11
Road technology	4-year working group	Goals 12 and 13
Road safety	4-year working group	Goals 3 and 11
<b>Procurement</b>		
Climate requirements in contracts	2-year working group	Goal 13
<b>Construction, operation and maintenance</b>		
Tunnels	4-year working group	Goal 9
Operation and maintenance	4-year working group	Goal 9
<b>Transport</b>		
Freight transport	4-year working group	Goals 3, 9 and 13
<b>Workshop groups</b>		
Bridges	4-year working group (annual workshop)	Goals 9 and 12
Recruitment to the sector	1-year working group (workshop)	Goal 9
ITS – Innovative data collection	1-year working group (workshop)	Goal 9
The Nordic construction market	1-year working group (workshop)	Goals 9 and 12

Figure showing the 12 themes, their organisation and connection to the UN's Sustainable Development Goals

Terms of reference have been prepared for all working groups. Read more about these working groups in the section “Terms of Reference”.

It is not a requirement that national working groups are established in the individual countries. Each country decides whether it wants to establish working groups, and can do so independently of the Nordic working groups.

## Recruitment

The members of the working groups, including the corresponding members, must be members of the NVF via their employer or a personal member (the latter only applies to countries where this is an option).

To the extent possible, balance should be ensured between the represented member organisations. Members are expected to work within the specialist field of the working group.

Participants from areas of transport other than road transport may participate in the work under the same conditions as other member organisations. The working groups must strive to ensure an even gender and age balance.

The working groups should strive to ensure that representatives from each country participate where possible. On enrolment, members must state whether they want to be ordinary members or corresponding members.

## Working format

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Work in the NVF involves sharing and developing knowledge and best practices. This is done on the basis of an action plan prepared, at the beginning of the four-year period, by the working groups, based on their terms of reference. The working groups may also propose adjustments to their terms of reference.

The work of a working group is managed by a chairperson and a secretary. The group management may organise specialist sub-groups and appoint members as chairpersons of the sub-groups. However, this requires that the relevant members have been allowed by their employers to undertake the work as chairperson of a sub-group.

Knowledge is shared by specialists via discussions, presentations, inspections, etc. that are undertaken at the meetings and seminars organised by the working groups during the period. The meetings may be public, so that others can get access to the knowledge shared. The working groups may also prepare experience catalogues etc.

The working groups are not intended to publish large reports or undertake projects of their own; instead, they should make minor analyses etc. They must share knowledge about best practices and create ideas, and such knowledge must be communicated to the member organisations in the form of e.g. collections of links, collections of examples, etc.

The working groups may not coordinate points of view in the name of the NVF or seek to constitute one Nordic voice vis-à-vis e.g. the EU.

The Association Board may give the working groups special tasks.

The working groups must follow the NVF's language policy.

The working groups must submit an annual status report to be considered by the Association Board.

All members participate actively in the work. This also applies to “corresponding members” who participate actively by responding to consultations and similar.

## Meetings and seminars

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At least once a year, a Nordic working group meeting should be held for all members of the working group. Otherwise, the working group may freely choose how often it convenes and how the meetings are organised, and whether the meeting takes place in a physical setting or as e.g. web-based. However, attendance via the web should always be an option to allow participants who are unable to travel to the meeting to attend anyway and benefit from the meeting. Physical meetings must be held in a central location, in the country in which the meeting is held, to prevent extensive travel time to and from the meeting location. The working groups are encouraged to organise open seminars during the four-year period, preferably with other working groups.

Once a year (in autumn), the chairpersons and secretaries of the working groups meet at the NVF meeting, in which the Association Board will also participate.

The Association Board convenes twice a year.



## Terms of reference

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## Urban transport and transport planning

Planning of transport infrastructure should be an integral part of society planning. This work should also help promote sustainable mobility. Accordingly, a working group is established to address the following issues:

### a) Mobility strategy (national, regional and local mobility planning)

The group will work with how transport planners may best ensure that the overall political development strategies, in the best possible way, may be integrated in the planning. The group's focus should therefore be targeted at:

Good examples of mobility strategies and transport infrastructure plans where mobility is considered in conjunction with business and housing development, the development of supporting societal functions (e.g. hospitals and educational institutions) as well as climate and environmental considerations.

Good examples of models, processes and tools that can be applied to create strategic mobility. This includes planning tools, forecast models, communication tools, administrative procedures and processes, economic models, etc.

Good examples of combined transports (road-rail-maritime) and good examples of transport hubs. Where should these be located in order to create strategic mobility? What types of transport should it be possible to shift between? Etc.

Significant development trends like e.g. e-commerce: How does increasing e-commerce and the need for goods to be delivered in the cities affect our planning?

Micro-mobility and new mobility formats: How do the new mobility offers (shared cars, electric bicycles, city cars, driverless busses, etc.) affect the transport planning?

### b) Sustainable mobility

We need to think along new lines in order to reach the sustainability goals. Transport planning has traditionally focused on new infrastructure. New infrastructure is important, yet other tools also need to be used. The group's focus should therefore be targeted at:

Development of planning systems so that they are better able to handle requirements for economic, social, climate and environmental sustainability, which will enable them to handle goal conflicts and promote goal synergies.

Knowledge sharing of memos and idea catalogues. One example could be the Swedish Transport Administration's memo "Transport Planning 2.0".

The journey as an experience. The journey as an experience affects the choice of means of transport, housing area, business areas, destination and travel times, just as various groups of individuals (age, gender, social group, etc.) have qualitative preferences. Thus "The journey as an experience" also affects where the active users stay, whether they e.g. choose to walk or ride a bicycle, and can thus help promote health and sustainable mobility. MAAS (mobility as a service) can advantageously be integrated in the work with "The journey as an experience".

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	Planners, consultants, researchers, etc.
<b>Knowledge sharing and communication of best practices</b>	Seminars and workshops Experience catalogue The group may benefit from exchanging ideas with the working group for "Design".
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure Goal 11: Sustainable cities and communities
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## Design

### Terms of reference

A working group is established, which must share and develop knowledge in road design. Road design is about how you design streets and roads so as to consider the users' and society's interests as best as possible. The working group should address the following matters:

#### a) Universal design

Transport is often what ties daily activities together. The transport system should therefore be designed so as not unnecessarily preventing anyone from fulfilling their need for mobility, including old people, children and functionally impaired users. Roads and streets should also be designed to provide a high degree of 'liveability' so as to create the optimum conditions for the mobility users. When addressing 'liveability', the group may benefit from exchanging ideas with the group 'Urban transport and transport planning' (particularly 'The journey as an experience').

#### b) Urban design

This theme deals with how you plan and design urban traffic areas in the most expedient manner. This theme should be approached from different angles. One significant angle will involve looking at how traffic areas should be designed to support the sustainable transport solutions. A second angle the group could adopt is to look at how to incorporate new transport offers like electric bicycles, scooters, electric scooters, wave boards, etc. in the design of urban traffic areas. A third angle could be to address best practice in the design of urban transport hubs: How do you design urban traffic areas in places where it is relevant to shift between various means of transport (e.g. car-public transport-bicycle, walking)? A fourth angle could be to look at best practices in relation to goods delivery to ensure that the design of urban traffic areas takes the increasing need for goods delivery into account. The working group can, as a starting point, use the many pilot studies on goods delivery undertaken in the Nordic countries.

#### c) Future requirements for road design

What road design and specific geometric solutions will allow automated cars on motorways, national roads and in urban areas? This theme should be addressed to generate greater knowledge about relevant road designs and new geometric solutions supported by the emergence of automated cars. There are several relevant sub-themes to look into in relation to the increasing level of automation. One important angle is e.g. to study the requirements and needs posed by the Lane Keeping Assistance (LKA) technology in automated cars in relation to the width of lanes, which has a considerable impact on road accessibility.

#### d) Climate adaptation solutions

Climate adaptation solutions increasingly include the road network in the solution design, thus placing requirements on the current as well as future design of the road network. It may therefore be a good idea for the working group to study best practice in road technical solutions and discuss how to coordinate future road design and climate adaptation solutions. Focus should preferably be highly specific, e.g. it might be interesting to exchange knowledge about how the parameter 'climate' is priced in the countries' optimisation systems.

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	Road engineers, researchers, etc.
<b>Knowledge sharing and communication of best practices</b>	The group may benefit from exchanging ideas with the working group 'Urban transport and transport planning'.
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure Goal 11: Sustainable cities and communities
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.



## Road technology

The UN has decided that global CO<sub>2</sub> emissions must be reduced by 40% by 2030 compared to 2005. At the same time, natural resources must be used more efficiently. The choice and use of materials in the construction of road infrastructure contribute significantly to the use of natural resources, and both construction and operation contribute to CO<sub>2</sub> emissions. That is why the road sector plays a pivotal role in the work of realising the UN's climate goals. Accordingly, a working group is established to address the following matters:

### a) Sustainable approach to choice and recycling of materials in the road sector

In order to promote better use of natural resources, the working group can exchange experience, knowledge and best practices about the methodologies and approaches that may support a sustainable choice of materials. The working group can also look at recycling of materials and incorporation of waste products in road pavement and the use of machines and tools that promote a sustainable choice of materials.

### b) The functional properties of the road

The group can also look at the function of the road over time. There is, i.e., a need to share knowledge about how the road degrades and how to best measure the degradation of the road. This particularly concerns functional properties such as noise, evenness and rolling resistance.

It is important to promote methods for objective measuring and to share knowledge about how to use the measurements optimally in the road maintenance systems. Currently, a lot of method development is undertaken, and the group may advantageously discuss this development, and look at the advantages and disadvantages of the new methods and how the introduction of new methods affects the need to replace corresponding older methods in the countries' road maintenance systems. The group should also share knowledge about how best to measure the road's CO<sub>2</sub> footprint and how to reduce the CO<sub>2</sub> footprint by minimising rolling resistance.

The working group should keep in contact with the ad hoc group for 'Climate requirements in contracts', which will work on experience with CO<sub>2</sub> documentation requirements in tender documents and experience with EPD work in the transport sector.

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	Pavement and climate/environmental competences Employees with competences in road materials and road degradation.
<b>Knowledge sharing and communication of best practices</b>	Webinars and seminars, slides and other material from meetings and seminars.  The group can also benefit from exchanging ideas with the working group 'Climate requirements in contracts' and the working group 'Operation and maintenance'.
<b>Relevant sustainable development goals</b>	Goal 12: Responsible consumption and production Goal 13: Climate action
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## Road safety

The number of fatalities and injured persons in traffic has reduced significantly in all the Nordic countries during the past 40 years. Many road safety measures have already been implemented, and it therefore becomes increasingly difficult to reduce further the number of fatalities and injured persons in traffic. It is therefore important to exchange experience across the Nordic countries, particularly when it comes to improving safety for vulnerable road users who have not experienced the same progress as other road users. Accordingly, a working group will be established to share knowledge about effective road safety measures and to provide examples of best practices. The group should address the following themes:

### a) Behaviour:

The use of road safety campaigns in the Nordic countries. Examples of successful campaigns from the Nordic countries, particularly aimed at vulnerable road users.

Lack of attention. How does the road user's usage of 'distractors' like mobile phones affect road safety? How is it ensured that traffic information apps do not become distractors as well, but indeed create good road user behaviour?

### b) Road safety and road design:

Experience in using nudging in road design (e.g. MeBeSafe)

Best practice in improving road safety at roadworks (for both road users and road workers). The group should look at what works in the individual countries and where new solutions may need to be developed.

Design of safe road infrastructure. Examples of how the infrastructure of the future is designed to ensure safe road user behaviour with focus on vulnerable road users and new, small vehicles like electric scooters etc.

Exchange of experience across the Nordic countries on the link between the condition of the road and the number of road accidents.

### c) Controls:

Police controls. What experience does the Nordic countries have on making police controls, and can the countries learn from each other? Automatic traffic control: Experience from the Nordic countries' use and organisation of automatic traffic control with focus on accident reduction.

### d) Accident data:

Review of accident data: What is the reason for the differences in the Nordic countries' accident statistics? Why is it sometimes possible in one country to reduce the number of fatalities and injured persons, while the other Nordic countries are less successful? Can an in-depth review of data, including the way in which we use and analyse accident data, help us understand these differences?

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	Road engineers, traffic engineers, police, campaign experts, traffic psychologists, nudging experts, researchers, etc.
<b>Knowledge sharing and communication of best practices</b>	Webinars, seminars
<b>Relevant sustainable development goals</b>	Goal 3: Good health and well-being Goal 11: Sustainable cities and communities
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## Climate requirements in contracts

These years, the road sector is facing ambitious environmental and climate requirements. How to ensure optimum competition in a market that imposes ambitious climate requirements will therefore become an important issue.

A working group will therefore be established to, over a two-year period, address how to reduce the sector's CO<sub>2</sub> footprint while ensuring optimum competition via its tender procedures.

The working group should be in contact with the 'Road technology' working group, which also focuses on reducing the CO<sub>2</sub> footprint of the road sector and which will apply methodologies in sustainable choice and use of materials.

The group may work with several topics, including:

### a) Competition in a market that imposes ambitious climate requirements

The group may benefit from sharing knowledge and obtaining experience about the countries' work to ensure a well-functioning, competitive market for construction and maintenance tasks under new, stricter climate requirements. This includes the countries' concrete experience in involving the sector, including market dialogue about the use of LCA calculation tools, environmental product declarations (EPDs), baselines and implementation of climate requirements.

### b) Experience with EPDs in the transport sector

It is increasingly required that the process of procuring construction and maintenance tasks should focus on climate, entailing still greater demands to document the CO<sub>2</sub> footprint of products and services. Environmental product declarations (EPDs) document the environmental properties of construction materials and play a crucial role in this respect.

The group should therefore share knowledge and obtain experience about the road sector's experience of working with EPDs. The group can also obtain experience from other sectors' work with EPDs if deemed relevant to strengthen the road sector's work with EPDs.

<b>Period</b>	July 2020 to July 2022
<b>Relevant competence profiles</b>	Employees working with climate in contracts, market dialogue, tender coordinators
<b>Knowledge sharing and communication of best practices</b>	Webinars, meetings and seminars  The group may benefit from exchanging ideas with the working group for 'Road technology'.
<b>Relevant sustainable development goals</b>	Goal 13: Climate action
<b>Follow-up on sustainable development goals</b>	The group will make proposals for how to follow up on the relevant sustainable development goals. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.



## Tunnels

Presently, a lot is happening in the tunnel area – especially because of digitisation – of which the potentials and challenges, including safety challenges, must be addressed. Accordingly, a working group is established which will address some of the following matters:

### a) Innovation and renewal of methods and materials

Innovation and renewal are important areas in both tunnel construction and maintenance. The group can therefore benefit from sharing knowledge about new materials and new, innovative methods and their consequences, including economic and environmental consequences. For example, it is important to address the environmental aspects of using new, alternative materials that may entirely or partially replace concrete, sprayed concrete, etc.

### b) Safety

The group may consider various safety topics. A key topic will be to address the safety challenges related to automated driving. Driverless cars will also be using the tunnels, and the requirements which automated driving place on the technical installations should therefore be considered, together with how these ITS installations will affect tunnel safety. A second topic could be to consider the safety challenges of alternative fuels like batteries, hydrogen and gas, particularly in relation to road users and emergency services. A third topic is cyber security and the importance of being able to ensure reliable and robust communication between emergency services and road traffic information centres.

### c) Simulation in virtual reality

Simulation in virtual reality (VR) is already used during the planning and construction phase, however, simulation in VR will also be important during the operation and maintenance phases. The simulation allows tunnel operators and others to train in a virtual environment, organise emergency drills, test up and down grading, safety, innovations, etc. in a safe, but identical environment. In the same way, new procedures etc. can be tested by the competent authorities such as the Danish Working Environment Authority without affecting the accessibility and safety of the tunnels. VR will thus be able to generate a lower Total Cost of Ownership (TCO).

### d) Efficient tunnel operation

It is important to know the actual condition and life time of the tunnel in order to be able to carry out predictable maintenance. Practical knowledge within this field is lacking, and the group should therefore communicate knowledge about topics like 'degradation of tunnel components', 'ageing models for concrete' and 'ageing models for joints, transition structures, foundations, etc'. The group may also look at the relationship between (changes in) the physical surroundings of the tunnel (soil, groundwater, changes in water depths and widths, construction of other structures, etc.) and the expected life time. A third topic could be the matter of how changed traffic volumes and changes in urban environment and the national road network will affect tunnel life time. We lack knowledge about the relationship between these parameters and the identification of future risks. This knowledge might be obtained by looking at experience of using data-driven models that, based on new sensor technology, can help monitor and predict the need for future tunnel upgrading.

Finally, simulation also has a potential in relation to efficient tunnel operation and maintenance of the 'tunnel capital'. A simulation based on data collected from all tunnels makes it easier to predict degradation and faster to detect errors in the technical installations. The budget needed to retain the 'tunnel capital' may be defined more accurately and ensure future-proof capital management.

<b>Period</b>	July 2020-July 2024
<b>Relevant competence profiles</b>	Tunnel engineers, planners, road safety experts, IT and ITS competences (data engineers), Researchers, Tunnel safety experts
<b>Knowledge sharing and communication of best practices</b>	Webinars, seminars and workshops
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## Operation and maintenance

A working group will be established to address operation and maintenance and will, over a four-year period, deal with i.a. the following matters:

### a) Digitisation (3D, use of drones)

What experience exists in digitisation of work tasks, i.a. use of 3D imaging, image recognition tools (e.g. to show the development in damage level, cleaning, etc.), use of drones, etc.

### b) Asset management focusing on other assets (not structures and surfacing)

What are management-relevant data, including life time, replacement intervals, etc.? And how do you prioritise across assets?

### c) Winter operation

The group should address the following topics in winter operation:

Data from vehicles, mobile sensors, etc. for winter services: How can these be included in warning systems for the slippery roads?

Dynamic salting: How can increased knowledge about section-related data be exploited operationally in winter services?

The relationship between winter services and road user behaviour and safety: What is the relationship between the quality of winter services, speed, choice of tyres, etc. in relation to accidents?

How can we better use existing knowledge about winter services?

How can existing winter services become more sustainable, including in connection with recovery and recycling, transport and spreading of salt as well as snow clearing?

The group may benefit from exchanging ideas with the working group for 'Road technology'.

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	<p>Consultants, researchers, contractors and employees in government and municipal road administrations who work with operation and maintenance.</p> <p>The group may benefit from exchanging ideas with the working group for 'Road technology'.</p>
<b>Knowledge sharing and communication of best practices</b>	Webinars, workshops and seminars
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## Haulage

Commercial transport plays an important role for the growth and development of society. This is reflected in the increasing transport activities of transport work. As other transport businesses, the haulage sector plays an important role in relation to the Nordic countries' national goals of reducing the CO<sub>2</sub> footprint of the transport sector. However, the haulage business is particularly challenged, since some of the solutions that may be applied in the passenger transport area cannot be applied directly on the haulage area (e.g. current technologies would make the battery in an electricity powered lorry extremely big).

Accordingly, a working group is to be established addressing the following matter:

Climate-friendly haulage, including how to reduce the climate challenges of lorries and haulage. The group will look at which technologies and means might be used to achieve a reduction in haulage emissions.

More specifically, the group may look at:

- a)** Energy-efficient haulage on roads (e.g. HCT transports and transports over long distances)
- b)** Vehicle technology that may make lorries more energy efficient
- c)** Combined transport, including in particular the combination of road-railway with focus on road infrastructure to node points
- d)** Environment-friendly fuels: What relevant fuels are available and what experience do the countries have in using them?
- d)** Better knowledge about haulage through e.g. better data and information technologies to allow optimisation of the use of the road infrastructure.

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	Participants from the haulage business, vehicle manufacturers, researchers, officials.
<b>Knowledge sharing and communication of best practices</b>	Webinars, workshops and seminars
<b>Relevant sustainable development goals</b>	Goal 3: Good health and well-being Goal 9: Industry, innovation and infrastructure Goal 13: Climate action
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## Recruitment to the sector

The road and transport sector is in need of qualified labour. This need will increase in future, and it is therefore necessary to look at, how we can get young people to take an interest in the road and transport sector and choose a career in this sector. One initiative could be to strengthen Nordic cooperation between the sector and the universities, i.e. between infrastructure owners, consultants, contractors and institutions of higher education, in terms of road infrastructure and road transport.

Accordingly, a workshop group will be established to plan and convene a Nordic workshop that must focus of the recruitment of the future. The workshop should consider the following matters:

- a) How can we become 'attractive' as a sector?
- b) What is the potential of establishing cooperation with or between the Nordic universities and colleges on roads and road transport, and is it possible to establish such cooperation?

about the cooperation between the sector and the universities, i.e. between infrastructure owners, consultants, contractors and institutions of higher education.

<b>Period</b>	July 2020-June 2021
<b>Relevant competence profiles</b>	Participants from universities, road-specialist competences, HR employees
<b>Knowledge sharing and communication of best practices</b>	Recommendations from the workshop that the Association Board can discuss.
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.





## ITS – Innovative use of data

Intelligent Transport Systems (ITS) is an area that is undergoing rapid development. This is the same reason why a lot of fora share knowledge about ITS and develop best practices and standards in the area.

The NVF does not want to contribute to duplication of efforts. However, the NVF would like to contribute to the knowledge developed in other fora, being shared and discussed with the entire road and transport sector. Two important fora in this respect are the EU-supported projects NordicWay and Next-ITS, which, i.a., have been working on how to integrate data from vehicles in the data set that serves as background for the traffic information issued by the road administrations.

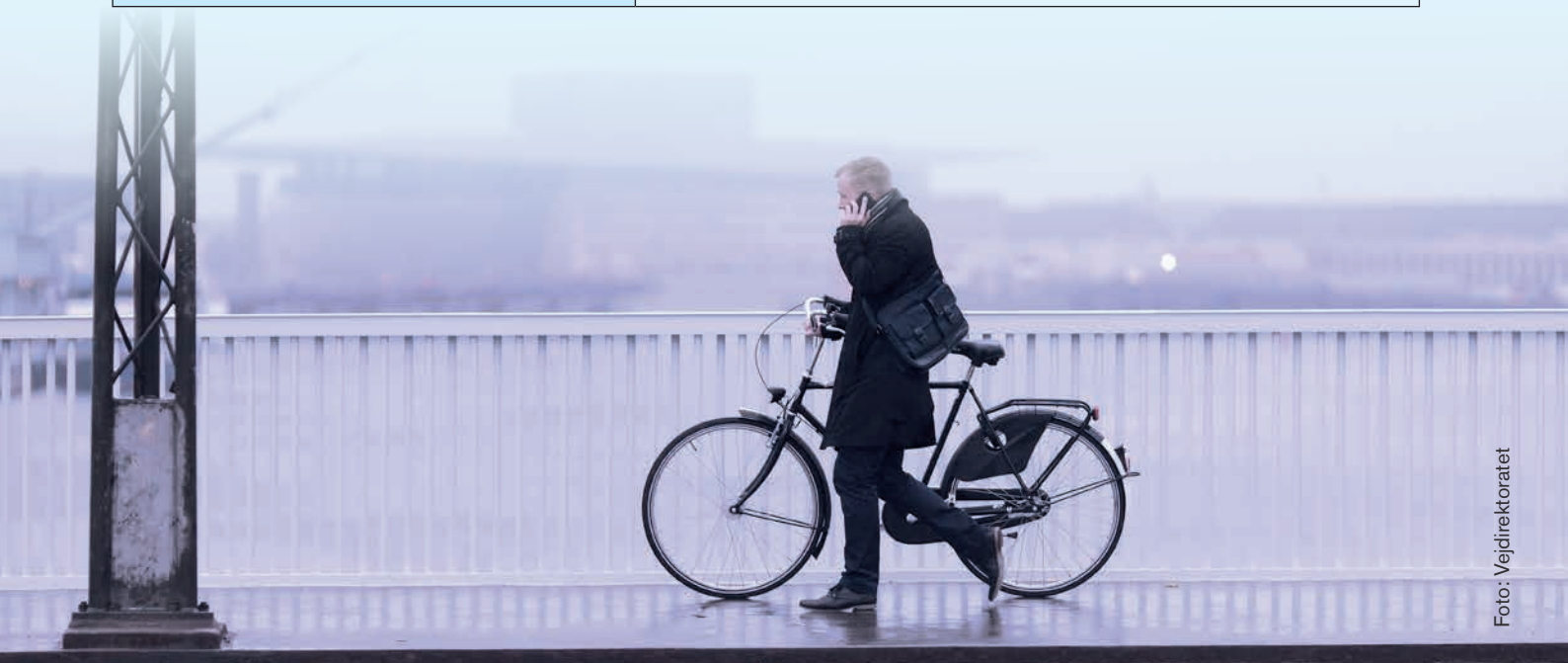
A one-year working group will be established to study the ideas behind NordicWay and Next-ITS and organise a workshop with focus on 'innovative use of data'. Focus should be aimed at both administration and industry data and on how, innovatively and intelligently, this data can be applied together. Both road administrations and the industry thus possess a lot of data that may be used more innovatively and intelligently. An outcome of the workshop might also be to communicate knowledge about the different data collection methods (from sign systems, roadworks, car data, etc.).

The workshop may be narrowed down to the following data types:

1. Data from roadworks
2. Data from traffic light systems

The group must contact participants of NordicWay2 and Next-ITS, who should be invited to use the NVF as a platform for communicating the results of their work to relevant stakeholders in the road and transport sector.

<b>Period</b>	(One year)
<b>Relevant competence profiles</b>	ITS specialists, traffic information specialists
<b>Knowledge sharing and communication of best practices</b>	Proceedings from the workshop
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.



## Bridges

A working group will be established to exchange experience in construction and operation of bridges and to plan an annual bridge seminar.

The topics for the seminars are to be determined by the group, however, the topics 'climate', 'digitisation' and 'asset management' must be considered during the period 2020-2024.

The group should address the following:

### a) Climate

Bridge construction and maintenance face still greater demands for climate and environmental management. The group should therefore look at the experience obtained in the use of climate and environmental models, including models for CO<sub>2</sub> footprint, from bridges (both construction and maintenance). A key topic in this connection will be statement of reductions and models for preparing baselines. The Nordic road sector is facing requirements to reduce its climate footprint, compared to a selected baseline year, and therefore needs to consider what the CO<sub>2</sub> footprint was for a similar bridge built in the selected baseline year (e.g. 1990), i.e. to define a 'baseline'. The group should therefore obtain and exchange knowledge about best practices for defining baselines. In this connection, the group may look at how CO<sub>2</sub> is calculated in the various models, and how choice of materials and optimisation of design may help reduce the CO<sub>2</sub> footprint of structures.

### b) Digitisation

The potential of digitisation in bridge construction and maintenance should be exploited to the fullest. The group may therefore benefit from sharing knowledge about the potentials of digitisation and the specific experience of the sector regarding digitisation of the construction and maintenance of bridges. A key topic is the experience in using sensor technology and artificial intelligence. This particularly concerns artificial intelligence used for condition assessments and risk-based maintenance. The group may therefore also choose to deal with new inspection and monitoring methods and share knowledge within this topic. Finally, the group should look at the digitisation within bridge maintenance and exchange experience in online condition assessments.

### c) Asset management

A substantial part of road management assets are bridges. Asset management is an important discipline for the stakeholders in the bridge sector. The group should therefore look at the experience in asset management of 'bridge' assets with focus on how best to maintain the value and functionality of bridges. In this connection, it is important to share knowledge about processes.

Other seminar topics could be timber bridges and structural codes for existing bridges.

<b>Period</b>	July 2020-June 2024
<b>Relevant competence profiles</b>	Employees working with construction and maintenance of bridges
<b>Knowledge sharing and communication of best practices</b>	Fire workshops or seminars
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure Goal 12: Responsible consumption and production
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.

## The Nordic construction market

A Nordic working group will be established to look at the experience of using new forms of contract and the opportunities this experience offers the Nordic construction market.

The group should study under which conditions it makes sense to use the forms of contract, and under which conditions it makes less sense.

This is expected to result in an idea catalogue with some key points and an overview table illustrating how projects and the forms of contract should be matched.

The group decides on its own study design, but is expected to include (some of) the following topics in its work:

- a)** New tender formats (e.g. negotiated procedure, early contractor involvement, etc.)
- b)** New contract formats (e.g. design-build contract, Alliance project, IPD (Integrated Project Delivery, etc.)
- c)** New forms of cooperation (e.g. partnering)
- d)** Risk balance/risk distribution
- d)** Execution models and their interaction between factors such as procurement method, calculation method, description level, degrees of freedom, etc.

The group has been given the defined task of organising a workshop in 2021. The group's deliveries may be one outcome of this workshop.

The group may consult the work which the NVF undertook during the previous four-year period on design-build contracts.

The group may also choose to organise two workshops (the first at the beginning of the NVF period, e.g. start of 2021, and the second at the end of the NVF period, e.g. end of 2023/start of 2024). The outcome of these workshops must be documented in the form of e.g. an experience catalogue or a table that outlines the forms of contract that may be applied under specific conditions.

The group will discuss these terms of reference at its first meeting. As the other groups, this group may propose adjustments to the terms of reference. The adjustments must be approved by the NVF Association Board.

<b>Period</b>	July 2020-July 2021 (possibly with an extension)
<b>Relevant competence profiles</b>	Lawyers specialising in procurement procedures and with business sense. Employer project manager Contractors Consultants
<b>Knowledge sharing and communication of best practices</b>	Workshop Experience catalogue Overview table
<b>Relevant sustainable development goals</b>	Goal 9: Industry, innovation and infrastructure Goal 12: Responsible consumption and production
<b>Follow-up on sustainable development goals</b>	The group will make proposals for follow-up on the sustainable development goals in autumn 2020. In this connection, the group can also discuss whether the activities mentioned in the terms of reference align with other sustainable development goals which the group would like to follow-up on.





## Cooperation with other organisations

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The NVF would like to cooperate with other international organisations. The NVF engages in close cooperation with the following organisations:

1. World Road Association (PIARC): PIARC is an organisation with almost the same structure as the NVF. Only, this organisation is global. PIARC's work is primarily undertaken by road administrations. The NVF countries coordinate proposals for the Nordic chairpersons of PIARC's technical committee, but the individual country nominates its own employees.

PIARC has previously considered the NVF a 'national committee'. This is no longer the case. It is therefore up to each NVF country to decide, whether it wants to establish a national committee under PIARC. The individual countries are also free to decide, whether they would like to participate in PIARC's scheme of stationing employees at PIARC's secretariat.

2. Baltic Road Association (BRA): BRA is the cooperation between the road administrations in Estonia, Latvia and Lithuania. In 1992, BRA and NVF signed a cooperation agreement that was revised in 2001. From 1999 until 2012, the cooperation consisted of a joint seminar programme (NordBalt) and an annual joint Association Board and secretariat meeting. However, there is no longer a need for formalised cooperation between NVF and BRA. The parties have therefore agreed to continue the cooperation on an ad hoc basis, and the parties invite each other's specialists to open seminars, which, where relevant, are held in English.



## Testimonials



**John Hultén,**  
K2Centrum



Det är väldigt värdefullt att kunna jämföra svenska erfarenheter med vad som sker i andra länder, regioner och städer. Nordiska jämförelser är särskilt viktiga eftersom vi på många sätt har likartade utmaningar och möjligheter."

*John Hultén, K2Centrum*



Jag har fått ett kontaktnät som jag utnyttjar varje vecka och vill man få snabba svar så är det värdefullt med personliga kontakter. Vi har även tagit fram rapporter som varit till nytta i mitt arbete. Vid möten i utskottet har vi ofta diskuterat specifika frågor som jag sen kunnat dra direkt nytta av."

*Thomas Asp, Trafikverket*



**Thomas Asp,**  
Trafikverket



**Trine Bye Sagen**  
Banenor



NVF er en unik arena for utveksling av informasjon, kunnskap og erfaringer mellom de nordiske landene. De nordiske landene har mange av de samme faglige utfordringene, og NVF er en god møtearena som kan bidra til felles forståelse og løsninger."

*Trine Bye Sagen, Banenor*



Jeg har fått eit godt kjennskap til fagpersonar innan same fagområde, som ein kan «spele» på og samarbeide med i aktuelle samanhengar. I tillegg ein god del fagleg «påfyll», også på område som ein ikkje jobbar med til dagleg. Her har i første rekke webinar-serien vore til stor nytte"

*Helge Mork, NTNU*



**Helge Mork**  
NTNU



De nordiske lande ligner hinanden kulturelt og klimaforholdene er meget ens. Det betyder at Landsverk ved at deltage i NVF kan følge med i de andre Nordiske landes udvikling av deres vejnet. Landsverk får på en måde en nordisk synsvinkel på den udvikling og nytænkning der hele tiden sker med vejnettene i verden.

Landsverk har fået en nordisk synsvinkel på hvordan vejnettene bedst udbygges. Vi har fået kontakt til de andre vejmyndigheder, hvad de synes er værd at forske i og deres syn på udviklingen. Vi har fået kontakter i den private sektor som udvikler teknologier til trafik og vejnet"

*Sølvi Sjúrdarson, Landsverk*



**Sølvi Sjúrdarson**  
Landsverk



**Finn Bjerremand**  
DTL



Engagementet har givet indblik i flere spændende områder indenfor hele transport- og trafiksektoren samt afledte brancher. Desuden har det også givet mig en uvurderlig forøgelse af mit netværk i hele Norden, hvilket i høj grad hjælper mig i mit daglige arbejde."

*Finn Bjerremand, DTL*



Det har været spændende at høre hvad der foregår i de forskellige lande, forskning, planlægning, anlæg, kampagner, undervisning, alt indenfor trafikssikkerhed. Jeg har fået mange personlige kontakter og vi ringer eller skriver til hinanden når vi har brug for at få info om aktuelle ting. Vi har også arrangeret møder, fx hvis nogen fra Island kommer til Danmark for at høre om aktuelle projekter."

*Anne Eriksson, Vejdirektoratet*



**Anne Eriksson**  
Vejdirektoratet



NVF offers expert as well as public-private knowledge sharing

- Benefits of collaboration and connections as well as solutions and innovations for transport and mobility
- As a chairman have learned valuable lessons of Nordic collaboration and the innovative culture of public and private industry that we have. It has been an honor to meet and work together."

*Ilkka Kotilainen, Traficom*



**Ilkka Kotilainen**  
Traficom



Jeg deltager í NVF-samarbejdet fordi det giver mig oversigt over hvad der sker, m.h.t. trafikssikkerhed, i de andre nordiske lande. Ved sammenligning af resultater for vi oversigt over hvilke midler duer og vilke skal gennemgås.

Deltagelse i NVF kan sammenlignes med efteruddannelse dersom deltagere har stor interesse i sit fag og formidler gerne oplysninger, andre til nytte. Ingen middel er lige stærk som at mødes, diskutere og selv at se de forskellige projekter.

*Guðrún Þóra Garðarsdóttir, Vegagerðin*



**Guðrún Þóra Garðarsdóttir**  
Vegagerðin



**Erna Bára Hreinsdóttir**  
Vegagerðin



Jeg deltager i NVF både fordi jeg vil lære hvordan andre nordiske lande løser problemerne der opstår og også dele information om hvordan vi løser dem her hjemme.

Jeg har lært at kende andre mennesker der arbejder i samme sektor. Det har også været meget støtte ved mit arbejde og også udfordring at lære noget nyt."

*Erna Bára Hreinsdóttir, Vegagerðin*





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