NORWAY

Report on national ITS actions envisaged over the following five year period

Referred to in
Article 17 (2) of Directive
2010/40/EU

Date:
22th August 2012

Submitted by:
The Norwegian Ministry of Transport and Communications

Prepared by: The Norwegian Public Roads Administration

Table of contents

1 Introduction

The following report submitted by the Norwegian Ministry for Transport and Communications refers to Paragraph 2 of Article 17 of Directive 2010/40/EU.

1.1 Overview

Norway has a population of 5 million, with around 2.8 million cars and lorries and in total 95000 km of public roads. In addition, there are about 0.8 billion trips annually with public transport. Our freight transport sector has to overcome long distances to markets, a demanding topography and mountain passes as well as adverse weather conditions, especially during winter. Traditionally, Norway has a strong position in maritime and short sea transport.
In relation to ITS some characteristics are important; Norway is a high-income society with a solid economy, car ownership and density of smartphones is high, and the country has a good coverage of broadband infrastructure. Building of road infrastructure has been focused on maintaining economic sustainability in coastal and rural areas, reducing the risk of exposure to adverse weather and on creating better environment in our cities. This has led to a road network with many tunnels, both in rural areas and in cities with high traffic volumes. As a consequence, Norway has gained a leading role when it comes to knowledge on tunnel surveillance and safety installations as well as on electronic tolling and on the ITS systems involved. More than 60% of Norwegian cars are equipped with an AutoPASS on-board unit. We have also utilized ITS in the transport sector for traffic safety and for information services. Norway has since long put emphasis on multimodal ITS and on interoperability.

1.2 Content and limitations

This report follows the structure of the ITS Directive and ITS Action Plan. It does not cover all ITS activities in Norway. Firstly, we have exclusively focused on ITS in the road traffic sector and on the interfaces with the other modes, in line with the ITS Directive. Therefore, important initiatives in rail and sea transport are not included.

Secondly, we have focused on activities relevant to the priority areas of the ITS Action Plan. Therefore, we have not included the following prominent factors in Norwegian ITS in the road sector;

- Tolling and national interoperability based on AutoPASS
- Cross-border interoperability for tolling covering Norway, Sweden, Denmark and Austria (The EasyGO tolling service)
- Traditional traffic management schemes with traffic signals, ramp metering and VMS signage for lane control in tunnels and open roads.
- Traffic management centres internal systems for surveillance such as AID, automatic incident detection and traffic control systems.
- Air quality monitoring with information and warnings systems

We do not find any clear action point in the ITS Directive addressing interoperability of electronic fare systems for public transport. Therefore, the national interoperability framework for electronic ticketing in public transport is only mentioned under national priorities.

2 National Transport Plan and ITS Strategy

2.1 National Transport Plan

Norway has a multimodal master plan, the National Transport Plan (NTP), which elaborates on how the Government intends to prioritise resources within the transport sector over the next 10 years. It also includes a revision and approval by Parliament every 4 years. This plan includes maritime, rail, air and road transport and covers investments, maintenance and operation as well as ITS. The NTP also addresses other important policy issues in addition to ensuring an effective use of resources and strengthening of the interaction between the various modes of transport.

2.2 National ITS Strategy – Ministry of Transport and Communications

The national ITS policy is described in a National Strategy for ITS issued by The Ministry of Transport and Communications.
The main objective of the national ITS strategy is to establish some fundamental principles and to clarify the distribution of responsibility and tasks between different actors. It points to certain areas that demands special attention and specific goals. For example, it underlines the importance of privacy, data protection and consumer rights. Based on this strategy, the transport administrations for the different modes have made their own ITS strategies. The central authorities will leave most of the ITS development up to service providers, but where necessary, they will encourage cooperation with the authorities and private companies/industry, as they have the best conditions to adopt appropriate measures.

The Ministry also has a focus on achieving a modal shift in freight transport from road to rail and sea and contribute to efficient intermodality.

The Ministry have started the process of transposition of the ITS Directive into national legislation. The Directive is approved for inclusion in the EEA Agreement and will consequently be part of Norwegian legislation. To secure that all administrative levels will comply with the coming specifications we are currently exploring the possibilities to find the most suitable legislative mechanism for this purpose.

2.3 Norwegian Public Roads Administration (NPRA) – ITS Strategy and Action Plans

A revised strategy for ITS in the road sector is under development in the Norwegian Public Roads Administration, NPRA. This strategy will contribute to the implementation of NTP objectives. It will also be adjusted to get a clearer connection to the ITS Directive. Based on this strategy, the NPRA's action plans will be revised during 2013.

2.4 Transport Policy Objectives

The most emphasised objectives by the Ministry of Transport and Communications in the national ITS strategy are those presented in the NTP. In their work, the Ministry has included the use of information technology and ITS to achieve these goals.

Objective 1

Improved traffic flow and reduced time of travel in order to strengthen the competitiveness of industry and contribute to maintain the settlement pattern

Optimal use of ITS can increase capacity, reliability and predictability for transport operations and reduce travel times. Transport logistics using ITS can contribute to increased profit in many business areas.

Objective 2

A vision zero for accidents resulting in fatality or serious injury

Optimal use of ITS can reduce the number of severe road accidents. Intelligent infrastructure, management, surveillance and driver support can be effective safety measures that reduce frequency and consequences of unpredicted incidents.

Objective 3

Limit greenhouse gas emissions and reduce the environmental impacts of the transport sector, and help achieve national targets and Norway's international obligations in environmental protection

Optimal use of ITS can increase capacity utilisation of vehicles and equipment, improve route planning and traffic flow as well as offer possibility to select the most environment friendly transport option.

Objective 4

The transport infrastructure should be universally designed

Optimal use of ITS can establish access to comprehensive traffic and travel information and offer solutions for real time information of traffic and timetable deviations. Interoperable payment and ticketing systems can contribute to easier transfer between transport modes. ITS can also offer better information of available transport means for disabled people and reduce the need for assistance.

ITS Strategy objectives

The NPRA's ITS strategy for the road sector lists more detailed objectives for the use of ITS:

- *Improved priority and attractiveness for public transport*
- *Efficient and optimal use of available transport capacity with better traffic management*
- *Our systems are in line with the ITS directive and part of a harmonized service provision in Europe*
- *Services handling personal data are based on accepted principles of privacy protection*
- *Norwegian corporations exploit the business opportunities and markets that are created*
- *Availability of public road and traffic data*

2.5 Expected Challenges

Privacy protection

Use of ITS often requires a degree of control and surveillance which can result in large privacy challenges in all sectors. Within the transport sector there are solutions which can map details in a driving and travelling pattern. The result may be that personal information can be misused. Due to this, it is necessary to balance transport and safety concerns against privacy concerns to ensure the individual's rights to protect their integrity and privacy. The Government believes it should be put emphasis on how ITS solutions are designed, so that the opportunities for misuse of personal information is reduced or eliminated.

Traffic safety

ITS is a tool for traffic safety and has a large potential. At the same time, ITS equipment and in-car systems must be designed, placed and have user interfaces that will not impede the driver's alertness and focus on the traffic situation. ITS may cause the driver to override the safety effects by driving faster or more hazardous. ITS equipment can distract and represent "information overload" for some drivers. Especially the use of nomadic devices must be given great attention. The Norwegian transport authorities will aim to influence standardisation and specifications to prevent ITS equipment to become a new safety hazard.

Interoperability

Even if interoperability is a universally accepted objective it is demanding to achieve. There are so many aspects that have to be taken into account in order to have full interoperability.

Technical compliance to standards is not enough. Interoperability must be identified as a major challenge to ITS development. Terminology, legislation, ITS architecture, standards, business models, contracts and test regimes must be in place as basis to achieve the crucial quality of interoperability.

Intermodality

The ITS Directive includes the interfaces with other transport modes. This aspect is vital for future transport solutions. In order to meet our environmental policy goals, all countries must stimulate a shift towards intermodal freight and collective passenger transport. ITS must reduce existing barriers in order to increase the use of rail, sea and inland waterway transport. Norway has a long and positive experience of cooperation and interaction between the different modes and has relevant competence in this area.

Costs

Norwegian transport authorities have a serious concern related to the need for physical infrastructures for ITS. To support cooperative mobility systems there is a need for communication systems, sensor equipment and variable message signs that all need cabling, power and physical installations. This will be part of the road infrastructure and, therefore, a responsibility for the road owner. We notice expectations from other stakeholders that road authorities must deploy this type of infrastructure. Based on our long experience with city tunnels and sub-sea tunnels that have the same type of equipment, we foresee at least two clear challenges related to costs of possible large extensions and upgrading of this type of infrastructure. Firstly, it will be expensive to deploy and maintain. Secondly, it may be obsolete after a short period of time due to evolution of technology and transition to wireless systems.

Universal design

ITS can create new barriers, for example to people who are not comfortable with electronic systems and modern user interfaces. Self-service solutions, like ticket machines and smart phone apps, may be inaccessible for certain groups, such as visually impaired, blind or orientation inhibited people. The Norwegian Government has initiated work on a standard for universal design for all electronic self-service solutions (ATMs, etc.). In the monitoring of the Anti-discrimination Act, the Ministry of Transport and Communications has recommended that this standard also should be applied to self-service solutions in public transport.

3 Norwegian strategies and activities on the European priority areas

3.1 General considerations

Transport to and from Norway

Due to a substantial increase in international traffic, a converging Nordic and European market, and a demand for more environmental friendly transport, prioritising and coordination needs to be at an international level. The Government therefore emphasises the need to actively participate and cooperate in the building of cross-border ITS solutions, at both a European and regional level. The guidelines for the Trans-European Transport Network (TEN-T programme) are incorporated in the EEA Agreement but without any financial commitments for Norway.

Participation in EasyWay and VIKING

NPRA participated in the Euro-regional project VIKING during the years 1995-2007 and carried on the co-operation on both Nordic and European level through the EasyWay project from 2007. Norwegian participation in EasyWay has a high priority (with reference to NPRA's revised ITS strategy 2012) and technical experts in NPRA are currently representing Norway in all the Deployment Areas and co-ordination teams in EasyWay VIKING as well as the Project Management Board. In addition, NPRA is represented in the EasyWay Supervisory Programme Board and technical experts from NPRA are representing VIKING in one of the European Studies and Expert Groups in EasyWay and a few of the Task forces and Viabilitiy Studies. If EasyWay is going to continue into a phase III, Norwegian participation will carry on. Norway's efforts in EasyWay are funded 100% over national budgets.

Public transport

The Norwegian Ministry of Transport and Communications has the national responsibility for the public transport sector and will facilitate accessible and safe public transport. ITS can offer a variety of solutions to achieve this.
The Ministry of Transport and Communications and NPRA have initiated the establishment of a standard for a common interface between electronic ticketing systems to prevent the development of proprietary standards among providers of public transport. The standard was established in agreement with the county administrations and NSB, Norwegian State Railways, who both support the establishment of consistent products across administrative and commercial boundaries. The Ministry of Transport and Communications has contributed to the establishment of a company for management of technical, economic, and administrative tasks attached to electronic ticketing in all parts of the country. This company will probably perform national tasks for both ticketing and public transport information data bases.

ITS Norway

ITS Norway is a national member organisation for businesses, industry and commerce. All transport agencies has been central in the establishment of ITS Norway. Currently, the organisation has got 70 member enterprises who represent expertise in relation to development and implementation of ITS. The organisation receives financial support and gives advice on ITS matters to the Ministry of transport and communications. The Ministry will continue the relation to ITS Norway as it in national interest to have active arenas for public-private cooperation for ITS and for Norway to be a part of a valuable international ITS network for cooperation and information exchange.

3.2 European priority area I: Optimal use of road, traffic and travel data

3.2.1 DIT.NO, The Traffic and Travel Portal

European priority area I: Optimal use of road, traffic and travel data	
(a) the provision of EU-wide multimodal travel information services	
Activity	*DIT.NO, The Traffic and Travel Portal*
Description	In 2009, NPRA, a national broadcaster (NRK) and two major stakeholders within Public Transport (Ruter and Trafikanten) signed an agreement regarding the establishment of a new official online traffic and travel portal. Traffic and travel information from road authorities and public transport will be collected and made available for users from a common web portal. The vision of the portal is to offer Norwegian route and traffic information for all purposes when the individual needs it. The portal will be the largest and most complete route and traffic information service for Norwegians and in some areas be world leading in functionality, data scope and other services. It will: • offer relevant and reliable route and traffic information; i.e. information based on the best data quality at all times • offer this information in a way that is *accessible* for as many as possible; i.e. in a way that is intuitive for the user and as far as possible follow open standards • present this information in a *professional* way • offer relevant additional information in cooperation with other actors
Period	2012 -
Stakeholder(s)	NPRA, NRK, Ruter, Trafikanten and NSB
Contact person(s)	Odd Willy Aas, NPRA. odd.aas@vegvesen.no
Major milestones	• Traffic and Travel Portal will be launched autumn 2012 • The portal will be the first service provider to use data from NPRA's DATEX-node in their Traffic and Traveller Information Service.
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	The Traffic Portal represents an "all-in-one" solution where both public transport data and road transport data are available from the same web-portal.

3.2.2 DATEX2 implementation in Norway

European priority area I: Optimal use of road, traffic and travel data	
(a) the provision of EU-wide multimodal travel information services	
Activity	*DATEX2 implementation in Norway*
Description	NPRA is currently establishing a Datex-node which will expose data from a number of NPRA's systems on the Internet in DATEX II, version 2.0 format. Data will be password protected and NPRA will sign contracts with all users. Data will be available free of charge for media and service providers of which the multimodal traffic and travel portal will be one (ref table 3.2.1).
Period	2010-2013
Stakeholder(s)	NPRA
Contact person(s)	Kjersti Leiren Boag, NPRA. kjersti.boag@vegvesen.no
Major milestones	• December 2012: The first version of a national DATEX service will be launched containing road weather data (both observations and forecasts/prognoses) and travel times. • June 2013: A full scale DATEX2 service including incidents, road works from the TIC system to be launched
Related co-operation activities with other member states	NPRA will start exchanging road weather data and travel times on DATEX II format with the Swedish Transport Agency autumn 2012. By June 2013 information / data from the Norwegian TIC system about incidents, road works and closed roads will be included in the cross-border data exchange
Interoperability and continuity issues addressed	The DATEX2 standard is chosen as a basis for all exchange of dynamic road and road traffic information in confidence that DATEX2 will be part of the specification for the priority areas

3.2.3 Harmonised Multimodal Travel Information Service

European priority area I: Optimal use of road, traffic and travel data	
(a) the provision of EU-wide multimodal travel information services	
Activity	*Harmonized Multimodal Travel Information Service covering Norway, Sweden and Finland*
Description	This harmonised travel information and planning service is planned to contain pre-trip and on-trip information especially intended for mobile devices. Relevant data from national TICs and other sources will be open for several service providers in parallel. The cooperating countries are establishing open data bases based on DATEX2.
Period	2013 -
Stakeholder(s)	NPRA
Contact person(s)	Kjersti Leiren Boag, NPRA. kjersti.boag@vegvesen.no
Major milestones	The project is expected to be selected as Flagship project in Easyway
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	The DATEX2 standard is chosen as a basis for all exchange of dynamic road and road traffic information in confidence that DATEX2 will be part of the specification for the priority areas

3.2.4 NorSIKT

European priority area I: Optimal use of road, traffic and travel data	
(a) the provision of EU-wide multimodal travel information services	
Activity	*NorSIKT – Nordic System for Intelligent Classification of Traffic*
Description	The NorSIKT project is carried out in cooperation between all Nordic countries (Sweden, Denmark, Island, Finland and Norway) and is financed by the NordFOU Research Cooperation (ministered by the Director Generals in each country). The main objective of the project is to standardize the system for classification of motor vehicles in the Nordic countries in order in order to: • Determine new joint Nordic method for converting data between different classification methods • Create a larger Nordic market for measuring equipment and road traffic monitoring systems • Reduce the cost of collecting road traffic data There are a variety of reasons in the current situation for the need to make accurate comparisons of traffic data between the Nordic countries. At present it is not possible to make such comparisons because each country has developed its own way of classifying vehicles. Within each country, it has also developed a separate market for the measurement of traffic flow based on the requirements that exist within each country. These developments have led to different measurement systems and measurement equipment between the countries.
Period	2010 - 2013
Stakeholders	Norwegian Public Roads Administration, Swedish Transport Administration, Finnish Transport Administration, Danish Ministry of Transport, Icelandic Road Administration
Contact	Torgeir Vaa, NPRA. torgeir.vaa@vegvesen.no
Major milestones	
Related co-operation activities with other member states	In addition to test facilities operated by project partners, the NorSIKT project is also linked to test sites and testing activities in Germany and Netherlands within the ITS area
Interoperability and continuity issues addressed	Interoperability is one of the main goals addressed in the NorSIKT project. The goal is that the classification system will be both technologies independent and open for all vendors meeting the specifications. Continuity is another important issue addressed in the project by developing routines to "translate" older data to the new Nordic classification method

3.2.5 Action Plan for Traffic Data

European priority area I: Optimal use of road, traffic and travel data	
(b) the provision of EU-wide real-time traffic information services	
Activity	*Action Plan for traffic data*
Description	An action plan to update the national system for traffic data will be started in 2013 and will run for five years until 2018. The objective is to establish a data collection network and to store all data in a standardised format. The traffic flow and the speed on the national road network will be monitored. The methods for collecting, processing and distributing traffic data will be upgraded. Data and statistics will be made available for points and for road sections. Technically all roadside equipment will be connected in a national communication network enabling remote data collection and setting of parameters. Both data for cars and bicycles are included.
Period	2013- 2018
Stakeholder(s)	NPRA and other public authorities
Contact person(s)	Kristin Gryteselv, NPRA. kristin.gryteselv@vegvesen.no
Major milestones	Test of roadside equipment and the communication network are carried out in 2012.
Related co-operation activities with other member states	Cooperation with the other Nordic countries is established.
Interoperability and continuity issues addressed	All data will be made available through a DATEX2-communiucation service.

3.2.6 Implementation of AutoPASS Traveltime

European priority area I: Optimal use of road, traffic and travel data	
(b) the provision of EU-wide real-time traffic information services	
Activity	*Implementation of AutoPASS Traveltime*
Description	NPRA will implement the first phase of a service called AutoPASS Traveltime. The system is based on DSRC technology with probable extensions based on Bluetooth. More than 65% of the Norwegian vehicle fleet are equipped with the AutoPASS on-board unit (OBU) for tolling. The OBU Id number is detected at successive points on the road and travel time is calculated without involving any user contract data. The information will be available on the DATEXII node. The system will collect and provide travel times on the main road network in the four largest urban areas; Oslo, Bergen, Trondheim and Stavanger. One inter-urban corridor will also be part of the first implementation phase; E18 between Oslo and Larvik. Real time travel times and delays will be expected to be distributed by several information channels, traffic radio broadcasting, smart phone apps, internet traffic portals, and to a limited extent; road side information boards (VMS). The back-office system for this service and the smart-phone app is operated on a contract with a private company (CIBER). Dedicated DSRC antennas are procured through a separate national tender.
Period	2012-2013
Stakeholder(s)	NPRA
Contact person(s)	Thor Gunnar Eskedal, NPRA. thor.eskedal@vegvesen.no
Major milestones	The first phase, which started with a pilot in Trondheim, will cover main national roads in 4 city areas with bi-directional travel time information.
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	A large percentage of foreign vehicles travelling in Norway are equipped with the AutoPASS OBU for tolling. The system can be adapted to read all OBUs based on CEN DSRC.

3.2.7 Road Weather Information

European priority area I: Optimal use of road, traffic and travel data	
(b) the provision of EU-wide real-time traffic information services	
Activity	*Road weather information*
Description	The NPRA has 250 road weather stations along national and county roads. A central system is collecting, storing and processing the observations from these stations. The observations form the basis for forecasts of road surface temperatures and driving conditions. Both weather observations and forecasts in the form of maps and graphs will be available on web portals for winter maintenance operators and also the general public. Better information about weather and driving conditions will help us to achieve our goals for traffic safety, accessibility and the environment. Dit.no, the Traffic and Travel Portal will offer the user interface for the general public.
Period	2008-
Stakeholder(s)	NPRA
Contact person(s)	Stine Mikalsen, NPRA. stine.mikalsen@vegvesen.no
Major milestones	The launch of the web portal for winter maintenance operators by winter 2012/2013. A framework agreement for the procurement of road weather stations will be signed in 2012. All of the existing 250 road weather stations are to be upgraded and 60 new road weather stations will be purchased by 2014.
Related co-operation activities with other member states	Close cooperation with Swedish Transport Agency and University of Gothenburg.
Interoperability and continuity issues addressed	A DATEXII publication to expose weather observation data to internal and external partners and customers will be implemented by winter 2012/2013

3.2.8 Web camera services

European priority area I: Optimal use of road, traffic and travel data	
(b) the provision of EU-wide real-time traffic information services	
Activity	*Web camera services*
Description	NPRA has installed web cameras on a large amount of their road weather stations and on several other locations. More than 200 cameras can be accessed on the agency's web site. The service includes a possibility to export the images to service providers. This has resulted in a widespread dissemination of web camera images through web sites and smartphone apps. The NPRA service will be extended in the coming years with an increased number of available cameras, better image quality and more rapid updating. The web camera service will also be part of the DATEX II node and available on the Traffic and Travel Portal.
Period	2012-
Stakeholder(s)	NPRA
Contact person(s)	Terje Solheim, NPRA. terje.solheim@vegvesen.no
Major milestones	
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	Standardised formats and inclusion in the DATEX node will secure access for foreign services

3.2.9 Real time traffic information in public transport

European priority area I: Optimal use of road, traffic and travel data	
(b) the provision of EU-wide real-time traffic information services	
Activity	*Real time traffic information in public transport*
Description	There is a national and regional priority to enhance public transport traffic information. In parallel with the development of travel planners and securing the data sources for these services we have a positive development of real time information systems in many cities. The Oslo area started this many years ago and they are gradually enlarging the system to cover all stops and stations and covering all modes of public transport. New systems are now being implemented in many other cities. All systems have electronic information boards on stops and additionally their own apps and internet services. Related to the NRD, National Time Table Data Base, (table 3.2.11) we will consider the feasibility to integrate the information systems for real time data on a common platform in standardised format.
Period	2012-2013
Stakeholder(s)	Ruter, NPRA and county administrations
Contact person(s)	Mette Hendbukt, NPRA. mette.hendbukt@vegvesen.no
Major milestones	
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	

3.2.10 Web access service for National Road Data Base

European priority area I: Optimal use of road, traffic and travel data	
the provision of road, traffic and transport services data used for digital maps	
Activity	*Web access service for National Road Data Base*
Description	A standardised web application based on the standard REST-API, for retrieving road and road traffic data. Data types will be road network geometry, road characteristics, traffic regulations, speed limits and many other types relevant for digital maps and information systems such as travel planners and navigations services. The data will be available for use by service providers and digital map producers. Access will be based on a standard agreement called NLOD, Norwegian Licence for Public Data. The first data sets will be available from early 2013. This activity will be coordinated with the eMaps project and the ROSATTE platform (see activity 3.2.12)
Period	2013-
Stakeholders	NPRA
Contact person(s)	Magnus Haugsand, NPRA. magnus.haugsand@vegvesen.no
Major milestones	Service will be opened January 2013. Full operation with the complete sets of data from late 2013.
Related co-operation activities with other member states	Information exchange and cooperation through the ROSATTE partners, the eMaps project and other European activities
Interoperability and continuity issues addressed	The service will be based on standardised formats and interfaces

3.2.11 National Time Table Data Base for Public Transport, NRD

European priority area I: Optimal use of road, traffic and travel data	
the timely updating of available road and traffic data used for multimodal travel information by the relevant public authorities and stakeholders	
Activity	*NRD, National Time Table Data Base for Public Transport*
Description	The Ministry for transport and communications have decided that Norway shall establish a commercially neutral and comprehensive travel planning service for public transport with national coverage. To fulfil this objective we have divided it into two main tasks. One is to establish the end user interface which will be delivered by the Traffic Portal (see activity 3.2.1) and probably also other services. The second task is to establish a national data base. This will include traffic data and characteristics for stops and stations. The data base will be multimodal and include all forms of collective transport services for passengers. Data sources will be county administrations, transport operators and other stakeholders. In 2012 specification are developed to define data acquisition and quality requirements. The data will be available for use by service providers. Access will be based on a standard agreement called -NLOD, Norwegian Licence for Public data. The service will be operated by a public company also responsible for national interoperability tasks for ticketing in public transport under a contract with NPRA.
Period	2013-
Stakeholders	NPRA
Contact person(s)	Mette Hendbukt, NPRA. mette.hendbukt@vegvesen.no
Major milestones	Full operation from late 2013.
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	Data and interfaces will be based on international standards

3.2.12 eMaPs - a ROSATTE implementation platform for exchange of digital maps

European priority area I: Optimal use of road, traffic and travel data	
(b) The provision of accurate digital maps data to digital map producers and service providers.	
Activity	*eMaPs. Definition of a ROSATTE implementation platform for exchange of digital maps*
Description	The ROSATTE project (2008-2010) established an efficient and quality ensured data supply chain from public authorities to commercial map providers with regards to safety related road content. The follow up project eMaPS (2011-2013) aims to establish an EU wide independent platform (Rosatte Implementation Platform) that enables public authorities and mapmakers to publish and use road and traffic data according to priority action 1.2 and 1.3 of the ITS directive. This platform will serve as an enabler for implementation of actions 1.2 "Collection and provision of road data" and 1.3 "Accurate Public Data for Digital Maps" of the ITS Directive. The establishment of a Rosatte Implementation Platform is seen as a necessary step to help the member states to setup and run the needed infrastructure for publication of road and traffic data. Moreover, it is recognised that the ROSATTE framework will facilitate the dissemination of any kind of publicly owned geolocated data from public authorities/road operators to map makers including attributes needed for ecodriving and enhanced traffic efficiency. It is expected that in the long term the ROSATTE recommendations will contribute to a decrease in the number of fatalities and injuries on European roads by enabling the deployment of map-based advanced driver assistance systems.
Period	2011-2013
Stakeholder(s)	NPRA
Contact person(s)	Erik Olsen, NPRA. erik_olsen@vegvesen.no
Major milestones	There are 6 milestones in the eMaPS project: (1) Project Kick-off, (2) Initial plans for the Implementation Platform, (3) Promotion planning ready, (4) MoU ready for signature, (5) Reports on promotion of the Implementation Platform, (6) Creation of the Implementation Platform
Related co-operation activities with other member states	Cooperation through other EU projects, e.g. EasyWay. Also cooperation through member organisations like CEDR and POLIS.
Interoperability and continuity issues addressed	The objective of eMaPs is to contribute to European interoperability and continuity.

3.2.13 Traffic Information Service

European priority area I: Optimal use of road, traffic and travel data	
(c) data and procedures for the provision, where possible, of road safety related minimum universal traffic information free of charge to users	
Activity	*Traffic Information Service*
Description	NPRA has over many years developed a national traffic information service based on 5 regional Traffic Management Centres (TMC). The TMCs collect data and information about traffic and road conditions from different sources (cameras, road weather stations, traffic monitoring stations, police, contractors and road users). Information is registered in the TIC-system and distributed to media and private service providers through different channels (www.vegvesen.no, RDS-TA, RDS-TMC, automatic telephone service 175). The TMCs also operate VMS along the road network where road users will get information about incidents, diversions and travel times. Data from the TIC system has up to this point been distributed on a tailor-made format for data exchange. During 2013, however, data from the TIC system will be available in Datex2-format free of charge for service providers. (ref. table 3.2.2 Datex2 implementation in Norway) The transfer of the Traffic Information Service to the DATEX-format is expected to improve availability of traffic information considerably
Period	2012 – 2013 (work package in NPRAs DATEX2-project 2010 – 2013).
Stakeholder(s)	NPRA
Contact person(s)	Gro Ihler, NPRA. gro.ihler@vegvesen.no
Major milestones	1. December 2012: data from TIC-system available in Datex2-format. Start test data exchange with Swedish DATEX-node. 2. June 2013: DATEX service including data from TIC-system launched
Related co-operation activities with other member states	The road information service may be included in a European network of similar services in other countries, and exchange information through the network. Cooperation through participation in TISA.
Interoperability and continuity issues addressed	By using DATEX2 as exchange format and utilizing the RDS-TMC service interoperability is secured

3.3 European priority area II: Continuity of traffic and freight management ITS services

3.3.1 ARKTRANS

European priority area II: Continuity of traffic and freight management ITS services	
Activity	*ARKTRANS*
Description	ARKTRANS is the Norwegian multimodal framework for ITS. The whole transport sector is addressed, and the specifications are valid for all transport modes (road, sea, rail, and air), as well as freight and passenger transport. ARKTRANS provides a multimodal (common to all transport modes) specification of responsibilities, functionality, processes, and information flows in the transport sector. ARKTRANS has been influenced by and has contributed to several different projects; both national and European projects. Below is a list of projects where ARKTRANS has been used and/or applied as the conceptual architecture. • **Freightwise** – Management Framework for Intelligent Intermodal Transport • **SMARTFREIGHT** – Freight Transport in Urban Areas • **MarNIS** – Maritime Navigation and Information Services • **ROSATTE** – Road Safety Attributes Exchange Infrastructure in Europe • **EasyWay** – ITS Deployment in European Transport Corridors • **EFFORTS** – Effective Operations in Ports • **Door-2-Door** – Management and Intermodal Transport Chains • **MultiRIT** – Multimodal Travel Information Services • **INTRANS** – Intelligent Goods
Period	2001 -
Major milestones	National Project META will further define interfaces supporting interoperability and intermodality. Results in 2013.
Stakeholder(s)	NPRA, SINTEF, ITS Norway,
Contact person(s)	Marit Natvig, SINTEF. marit.natvig@sintef.no
Related co-operation activities with other member states	ARKTRANS is based on comprehensive studies of the transport sector. Stakeholders, projects and activities representing all transport modes, freight transport, passenger transport, and different responsibilities have contributed to the establishment. ARKTRANS is used in national and European projects, which address co-modal as well as modal solutions, and ARKTRANS is continuously updated based on results and new knowledge from these projects.
Interoperability and continuity issues addressed	By being a common multimodal framework, ARKTRANS promotes more efficient co-modal transport solutions. System interoperability, efficient information flows, coordination across transport modes, etc. are supported by common concepts and specifications that bridge the current gaps in semantics, and arrange for interoperability and efficiency.

3.3.2 Dynamic Ridesharing Service

European priority area II: Continuity of traffic and freight management ITS services	
Activity	*Dynamic ridesharing service*
Description	To increase the car occupancy (i.e. number of persons per car) NPRA is setting up a real life trial in Bergen in cooperation with local authorities and private companies. Technically an Internet portal will provide real time information about travel times in the transport network. Smartphones with GNSS positioning are used communication device between system and users. If PT is not available, the need of the traveller will be announced through the ridesharing service. If a convenient trip is scheduled the ridesharing will take place, if not, the traveller will be connected to taxi service.
Period	2012-2015
Stakeholder(s)	NPRA
Contact person(s)	Eirik Skjetne, NPRA. eirik.skjetne@vegvesen.no
Major milestones	Initial test in 2014.
Related co-operation activities with other member states	Discussions with other European authorities are initiated.
Interoperability and continuity issues addressed	We will stress the need to develop a system based on standardised data exchange (DatexII) and mobile communication solutions (3G and 4G). If successful the service will be made available in other urban areas.

3.3.3 Methodology and content from ARKTRANS

European priority area II: Continuity of traffic and freight management ITS services	
The definition of the necessary interfaces to ensure interoperability and compatibility between the urban ITS architecture and the European ITS architecture	
Activity	*Methodology and content from ARKTRANS (see table 3.3.1)*
Description	ARKTRANS provides a holistic and mode-independent understanding of the responsibilities, relations and dependencies within the transport sector. It defines multimodal terminology and concepts (semantics) for the transport sector and supports specification and implementation of ITS solutions. ARKTRANS supports analyses and simplifications of transport solutions by different abstraction levels and views. The framework is well suited to be a basis for and offer methodology for processes to establish the link between different architectures.
Period	2012-
Stakeholder(s)	NPRA, SINTEF, ITS Norway
Contact person(s)	Hans Westerheim, SINTEF. hans.westerheim@sintef.no
Major milestones	National Project META will further define interfaces supporting interoperability and intermodality. Results in 2013
Related co-operation activities with other member states	ARKTRANS is used in national and European projects
Interoperability and continuity issues addressed	ARKTRANS offers common concepts and specifications that bridge gaps in semantics, and arrange for interoperability and efficiency.

3.3.4 POSSE, ITS related interoperability

European priority area II: Continuity of traffic and freight management ITS services	
Activity	*POSSE, ITS related interoperability*
Description	NPRA is a partner in POSSE (Promotion of Open Specifications and Standards in Europe), a project financed under INTERREG IVC. POSSE aims to encourage the use of ITS for sustainable urban policies through the transfer of good practice form UK (UTMC) and German (OCA) experience to follower cities elsewhere in Europe and to support the development of appropriate Europe-wide open specifications and standards. It will build on existing EC initiatives such as the FRAME ITS architecture. The purpose of POSSE is not to prescribe one or other approach, but rather to provide means to learn from the experience of UTMC and OCA. Each country has its own unique institutional and organisational set up and will therefore ultimately adopt the approach most suited to its context.
Period	2012-2014
Stakeholder(s)	NPRA
Contact person(s)	Anders Godal Holt, NPRA. anders-godal.holt@vegvesen.no
Major milestones	Technical workshops and site visits. Development of an updated Guideline on Open Systems and standards (2014).
Related co-operation activities with other member states	Following countries are represented in the project: Belgium, Czech Republic, Germany, Italy, Lithuania, United Kingdom, Spain and Norway.
Interoperability and continuity issues addressed	

3.4 European priority area III: ITS road safety and security applications

3.4.1 eCall

European priority area III: ITS road safety and security applications	
(d) the harmonised provision for an interoperable EU-wide eCall	
Activity	*Norway is following the development of eCall closely and has in 2007 signed the MoU for eCall. We have activity related to the standardisation process in CEN.*
Description	A national eCall committee has been established chaired by the Ministry of Transport and Communications and with representatives from The Ministries of Justice and Public Security, and Health and Care Services as well as other stakeholders
Period	2014-
Stakeholder(s)	Ministries for Transport and Communications, Justice and Public Security, Health and Care Services, KOKOM and NPRA
Contact person(s)	Egil Bovim, KOKOM. egil.bovim@kokom.no
Major milestones	
Related co-operation activities with other member states	Norway has not been a part of the HeERO projects, but we have been following the project closely and attended conferences and workshops.
Interoperability and continuity issues addressed	Norway has participated in standardisation of eCall. We have actively submitted views and concerns from the health sector and on privacy aspects, this relates especially to third party eCall. It is vital for pan-European implementation of eCall that all stakeholders have trust in this service and that privacy principles are respected.

3.4.2 Safe and secure parking places for trucks and commercial vehicles

European priority area III: ITS road safety and security applications	
(2) Specifications for priority actions e) and f)	
Activity	*Measures to provide ITS based information services and reservation services for safe and secure parking places for trucks and commercial vehicles.*
Description	NPRA is providing information on dedicated parking places for trucks and commercial vehicles. Information is available in the National Road Databank and has also been distributed to the IRU database. There are no reservation services in operation or in preparation. There is not any specific information for security in truck parking areas. Until now the security has not been a relevant problem. This will be under continuous consideration. If such information should be relevant for the future it will be based on European guidelines/practise.
Period	2012-
Stakeholder(s)	NPRA
Contact person(s)	Gudmund Nilsen, NPRA. gudmund.nilsen@vegvesen.no
Major milestones	This is an ongoing activity.
Related co-operation activities with other member states	NPRA is involved in EasyWay, Viking, group A3 Freight and Logistics where action e) and f) is on the agenda.
Interoperability and continuity issues addressed	Road freight transport is an international business and Norway will follow regulations and specification under the ITS Directive when services are established

3.4.3 Intelligent Speed Adaptation, ISA

European priority area III: ITS road safety and security applications	
Activity	*Promotion of ISA, Intelligent Speed Adaption*
Description	NPRA has implemented mandatory installation of ISA in new agency owned cars. All NPRA owned vehicles will eventually be equipped with this safety measure. The authorities encourage transport service providers and large fleet owner to do the same. NPRA performs quality enhancement projects and offer guidelines to support correct speed limit data updated on the web application for NVDB (se activity 3.2.10)
Period	2012 -
Stakeholder(s)	NPRA
Contact person(s)	Anne Beate Budalen, NPRA. anne-beate.budalen@vegvesen.no
Major milestones	
Related co-operation activities with other member states	Close cooperation with the Swedish Transport Agency (Trafikverket)
Interoperability and continuity issues addressed	Interoperability will be secured through updated digital map data available in standardised format, see activity 3.2.2 and 3.2.10

3.4.4 Automatic Speed Control, ATK

European priority area III: ITS road safety and security applications	
Activity	*Automatic Speed Control, ATK*
Description	Speed limit enforcement cameras have been in use for over 25 years with significant effect on reducing accidents. These cameras are now upgraded to digital technology and shall increase in number and usage over the next years. In addition we have started using automatic section speed control based on the same camera technology on sections of roads with a safety problem.
Period	2012 -
Stakeholder(s)	NPRA, Norwegian Police
Contact person(s)	Anne Beate Budalen, NPRA. anne-beate.budalen@vegvesen.no
Major milestones	
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	

3.4.5 Ignition interlocks detecting alcohol

European priority area III: ITS road safety and security applications	
Activity	*Promotion of ignition interlocks detecting alcohol*
Description	NPRA has implemented installation of ignition interlocks in new agency owned cars. All NPRA owned vehicles will eventually be equipped with this safety measure. The authorities encourage transport service providers and large fleet owners to do the same. Many bus companies have deployed ignition interlocks in their fleet. There is a strategy decision to consider the feasibility of introducing a requirement for ISA and ignition interlocks in all vehicles employed by NPRA and other national public administrations. The feasibility of imposing ignition interlock as alternative to suspending driver permits after violation of alcohol and driving legislation will also be considered.
Period	2012 -
Stakeholder(s)	NPRA
Contact person(s)	Anne Beate Budalen, NPRA. anne-beate.budalen@vegvesen.no
Major milestones	
Related co-operation activities with other member states	
Interoperability and continuity issues addressed	

3.4.6 Nonstop heavy vehicle inspection

European priority area III: ITS road safety and security applications	
Activity	*NonStop heavy vehicle inspection*
Description	NPRA will make the inspection of heavy vehicles more effective by using ITS to select candidates for inspection. This is done by using Automatic Number Plate Recognition (ANPR) for vehicle identification, weight-in-motion for weight control and check of the vehicles inspection history. Only candidates that are overloaded or have are marked in the inspection records will be stopped for manual inspection.
Period	2012-214
Stakeholder(s)	NPRA
Contact person(s)	Bjørn Andreas Lund, NPRA. bjorn.lund@vegvesen.no
Major milestones	Trial site will be operational by 2013.
Related co-operation activities with other member states	Cooperation will be established with EU member states with similar systems.
Interoperability and continuity issues addressed	

3.5 European priority area IV: Linking the vehicle with the transport infrastructure

3.5.1 Test site Norway

European priority area IV: Linking the vehicle with the transport infrastructure	
Activity	*Test site Norway*
Description	Test Site Norway is a field operational test-bed facility for ITS in the city of Trondheim with advanced communication, sensor and monitoring infrastructure on full scale stretches of roads. It is a major goal for NPRA to invite suppliers to install and compare the quality of new equipment with calibrated monitoring points on the test site. One section of the test site is equipped with technology from the CVIS-project enabling testing of Cooperative Systems. The test site also includes an advanced vehicle simulator. It is open for national and international projects and companies to test new application and equipment.
Period	2010-
Stakeholder(s)	NPRA, Norwegian University of Science and Technology (NTNU) and SINTEF.
Contact person(s)	Terje Reitaas, NPRA. terje.reitaas@vegvesen.no
Major milestones	
Related co-operation activities with other member states	Several European research projects related to cooperative mobility systems are using the test site.
Interoperability and continuity issues addressed	The infrastructure is based on international standards.

3.5.2 Pilot cooperative ITS Station (C-ITS) in cooperation with Norwegian ITS suppliers

European priority area IV: Linking the vehicle with the transport infrastructure	
Activity	*Development of a pilot cooperative ITS Station (C-ITS) in cooperation with Norwegian ITS suppliers.*
Description	NPRA, together with Norwegian universities, research institutes and industry, has for several years been involved in technology demonstration projects in Cooperative Systems. This involves both international EU research projects as well as national research projects. Hence, in Trondheim there has been established a fully equipped cooperative test site along the main approach road to the city. This cooperative test bed is part of a wider ITS test infrastructure in Trondheim. One objective is to extend the test infrastructure to other Norwegian cities and regions like e.g. Oslo. Deployment issues are now the focus of cooperative system activities in Europe. This is also the case for NPRA. For NPRA it is the deployment perspective of the cities that is important as seen from a public authority. This perspective and subsequent priorities is still deviating somewhat from that of vehicle manufacturers. One challenge is therefore to bridge this gap.
Period	2012-2015
Stakeholder(s)	NPRA, Norwegian universities, research institutes and industry
Contact person(s)	Erik Olsen, NPRA erik_olsen@vegvesen.no
Major milestones	The first phase in 2012/2013 is to develop functional specifications for a C-ITS Station for Norwegian purposes. The next phase in 2013/2014 is to develop, test and evaluate a C-ITS Station. The third phase following 2015 may constitute deployment of the first small scale cooperative systems in Norway. The third phase is very dependent on how the marked evolves for cooperative systems in Norway and not least in Europe.
Related co-operation activities with other member states	The development of a Norwegian version of a C-ITS Station will be harmonised with standardisation in ETSI, CEN, research projects in EU framework programmes. The efforts are also harmonised with EasyWay, CEDR, and POLIS.
Interoperability and continuity issues addressed	

4 National priority areas

NPRA works actively with the development of new ITS solutions which can contribute to the achievement of the overall transport policy objectives of road safety, climate and environment, transport efficiency and universal design.
Our national priorities will be adapted to the implementation of EU's ITS Action Plan and the regulations and priorities of the ITS Directive. NPRA has chosen to adjust the agency's own action plan for ITS so that the relation to the national strategies and the EU Directive would be clearer.
It is important to increase the understanding of the benefits and effects of ITS. Most ITS activities will have effects on several priority areas. By combining several different activities, goals can be achieved more successfully than by putting activities into operation in an isolated way. It is therefore important to have a total approach to both problems and solutions.
For the purpose of this report we have selected and grouped our priorities into eight areas. The following areas cover our main priorities and complement the descriptions given in the preceding chapters.

Priority area 1

Increased road safety for all groups of road users

In 2011 there were 168 fatalities on Norwegian roads. This is the lowest death toll in traffic since 1958. Norway and Sweden has the lowest risk of accidents with fatal outcomes in the world, at 3.2 killed per 100.000 citizens. The Norwegian Government will continue to work for intelligent infrastructure, surveillance and driver support and towards the "Vision Zero". This policy which is implemented nationally leads to a number of priorities for the deployment of ITS solutions.
Speed cameras have been in use for over 25 years with significant effect on reducing accidents. These cameras are now upgraded to digital technology and shall increase in number and usage over the next years. In addition we have started using automatic section speed control based on the same camera technology on sections of roads with a safety problem.
Norwegian road authorities support the introduction of ISA, Intelligent Speed Adaption. Trials have been performed, the national road data base has been enhanced to secure accurate speed limit data and the NPRA has implemented mandatory installation of ISA in all agency owned cars.
The same applies for ignition interlocks detecting alcohol. All NPRA vehicles will be equipped with this safety measure. The authorities encourage transport service providers and large fleet owner to do the same. Some bus and truck companies have deployed ignition interlocks in their fleets. There is a strategy decision to consider the feasibility of introducing a requirement for ISA and ignition interlocks in all vehicles employed by NPRA.

Priority area 2

Reduce the impact from road transport on climate and environment

ITS offers a tool box for supporting possible new measures and regulations to reduce greenhouse gas emissions from road transport. The overall objective is to reduce the consumption of fossil energy sources in the transport sector. Norway has adopted a national policy for this, consisting of a number of targets and measures. Electrification of vehicles, both cars, lorries and ferries, is a political priority. The same applies for climate-neutral fuel sources such as bio-fuels and gas.

ITS is also necessary in local schemes to reduce air pollution, and especially the levels of particulate matter and NOX. The latter will be in focus on both national and local level over the next years due to long periods when air pollution is exceeding health risk levels especially during cold winter weather. The government are defining regulations and secure legislative basis for a number of possible measures that may be activated permanently or temporary to prevent pollution levels with sincere health risk. Low emission zones, restrictions for diesel engine vehicles, congestion pricing, traffic management and information are among the measures that can be introduced in cities with a pollution problem. ITS is a vital part in all these measures.

Priority area 3

Improving prioritisation and attractiveness for public transport in the larger cities

The Ministry of Transport and Communications should ensure the establishment of a National Route Planner (NRP) for all public transport. Providing information and data necessary for the operation of a National Route Planner will require close cooperation between central government, county municipalities and public transport companies.

A well-functioning route planner is essential to attract new passengers to public transport – maybe especially from private car users – and to retain those travelling publicly today. The NRP should be complete, commercially neutral, updated, user-friendly, and contribute to increased public transport. It has to include the information necessary for potential public travellers to easy obtain an overview of available transport alternatives, and therefore be able to offer the required information for people with special needs so that they can evaluate whether the route is feasible with their special need.

Another element is payment and ticketing. Convenient and user friendly solutions are an important factor for attractiveness of public transport. We have a goal for future development to integrate purchase of tickets with travel planning so that the customer is able to pay for her complete journey without having to visit different internet sites or apps. There is a trend towards more interoperability for electronic tickets based on smart-cards and also a trend towards using universal credit cards and smartphones as ticket media. This is a promising development. To facilitate our national development of interoperability in electronic fare systems for public transport we have for many years had a cooperation platform open for all relevant stakeholders. The work is coordinated by NPRA and has resulted in a national

framework for interoperability. This framework is described in NPRA's Handbook 206 which is constantly being upgraded. In 2012 the guidelines will be upgraded for NFC based mobile ticketing. All county administrations and other stakeholders in Norway adhere to the framework and this has secured the basis for an increasing number of interoperable schemes. Handbook 206 is based on international standards, is written in English and can be of interest to other countries.

Priority area 4

Optimal use of transport capacity through better traffic management

NPRA has 5 regional traffic management and information centres (TMC) which together cover the whole road network. The centres' main tasks are surveillance, traffic information, incident management and traffic management. There is currently a high increase in number and complexity of road tunnels, especially in cities with heavy traffic. We also have an increasing amount of sub-sea tunnels. All this puts a demand on the traffic centres. We plan to make the traffic management centres better equipped and staffed for coordinated traffic management in cooperation with public transport in the larger city areas. There is also a priority to have closer cooperation with the police and the emergency agencies to make incident and crisis management better.
The regional traffic management and information centres are the hubs of communication, data collection and preparedness for the road authorities and operators.

Priority area 5

Improved accessibility for all, based on a universal design

To make the transport system available and accessible for impaired users is a priority. An increasing number of functions are changed from manual to electronic and digital systems. This creates new challenges, and we have to include ITS systems and user interfaces in our efforts to demand universal design suited for elderly, children and all types of physically impaired.

Therefore, the government aims to encourage the transport agencies and other relevant stakeholders to follow these principles in the development, specification, procurement and operation of ITS. We also aim to encourage European standardisation and recommendations to focus on these issues when addressing HMI for ITS. User interfaces and functions designed for impaired users is as a rule better for all users.

Priority area 6

Personal data are based on accepted principles of privacy protection

Protection of privacy and secure handling of personal data is a priority for the Government of Norway. Road transport, both for individual and collective modes, is a domain where privacy and data protection is a challenge. We encourage service providers to develop ITS solutions under the principle of "privacy by design". For example, there should not be any exchange of travel information between the various services that makes it possible to identify an individual's travel pattern. Use of personal data must be well-reasoned. Users should, as far as possible, be able to choose untraceable and anonymous options in the transport sector. It is more cost-effective to build privacy into the service from the beginning than make changes afterwards.
The Ministry of Transport and Communications is responsible for a legislation regarding electronic communications. The Electronic Communications Act regulates the use of frequencies infrastructure, privacy in electronic communications and services.

Priority area 7

The Norwegian business areas benefit from opportunities and markets that are created

Our national policy for ITS includes aspects of business opportunity and growth of knowledge and education to make us as self-supported as possible in our development of ITS. At the same time we welcome foreign companies to exploit the Norwegian market in a fair balance with Norwegian companies on the international ITS market. To support the business area and create awareness to the growing market for ITS we encourage public-private cooperation networks. ITS Norway represents the most prominent network in the field. The organisation is multimodal with members from all transport sectors. This helps bring a broader competence and experience into the ITS domain.
The government encourages the business area, both transport companies and other types of industry, to seek knowledge and to invest in ITS systems for their operation. The Ministry of transport and communications has over many years financed a national research program called SMARTRANS with the aim to create smarter logistics and freight solutions in cooperation with transport authorities and research institutions and universities. The program is multimodal and is expected to be continued.

Priority area 8

Availability of public road and traffic data for service providers

Availability of this type of public data will be the fuel for many applications and also support the other priority areas. NPRA, the Norwegian Public Roads Administration, gives high priority to make relevant road and road traffic data available to both end users and to service providers on open and standardised platforms. The chosen format for real time information will be DATEX II. A node is under development and will be in fully operational in 2013. All types of service providers or developers can have free access and utilise the data in their own applications under a standard contract and free of charge. The number of available data types will gradually be extended.
NPRA, the public national broadcaster (NRK) and major stakeholders within Public Transport will in 2012 launch a new official online traffic and travel portal, www.dit.no. Integrated traffic and travel information from road authorities and public transport will be collected and made available for users from a common web portal. The portal will be the first service provider to use data from NPRA's DATEX-node in their Traffic and Traveller Information Service. The vision of the portal is to offer Norwegian route and traffic information for all purposes where and when the individual needs it.
The DATEX-node and dit.no are developed to be suited for a common European travel information service. As soon as the European specifications for such a service are adopted we will start the work to be compliant.

4.1 Regional and/or local priority areas

Urban ITS in the Oslo area

The capital region is a hub for Norway's rail and road transport infrastructure, and is close to the main airport Gardermoen. The city has important functions related to industry and commerce, culture, organisations, and public and private businesses. The transport infrastructure to the rest of the country has to be well-functioning to reduce the geographic distances. It is expected that the population in the region will increase by 20 pct between 2003 and 2025, while the growth in passenger transport demand will increase by 30 pct.
The main challenges for the capital region when it comes to area and transport is the increase in car traffic, crowding of the transport system, and environmental disadvantages caused by road traffic. The challenges are especially difficult as this area is the largest housing and labour market in the country. Trends point towards further centralisation and concentration of the region in the future. If we do not introduce measures to influence people's choice in mode of transport, especially the number of car rides will increase. Such a development will worsen the conditions for industry and commerce, residents, road users and the environment. Rather than helping achieve the objectives in the NTP, this development complicates it.

To handle the growth in transport demand in a sustainable way, and to reach the defined objectives in the NTP, all increase in passenger transport demand must be handled by public transport. Both local and national objectives involve a sustainable and environmental friendly capital region, and therefore it is considered especially important to protect the inner-city area against increased traffic.

The region's challenges tied to area and transport development demands binding interaction between local, county and national authorities to reach well-functioning solutions.

Urban ITS in the larger city areas

The same considerations as in the Oslo area apply in other city areas in Norway, but to a lesser degree. Due to considerations for climate, air pollution and health there is national, regional and local policy to strengthen modal shifts towards public transport, bicycling and walking also in the urban areas of Trondheim, Bergen and Stavanger.
One example is The Green Traffic Scheme of Trondheim was approved by the City council in 2008, accepted by the Norwegian government in June 2009, implemented from beginning of 2010. It prescribes priorities related to local transport and policy issues. The upgrade of the public transport system has been very successful. The number of passengers has increased by 11 % in 2011. ITS measures taken are electronic ticketing, real time traveller information, enhanced bus priority by dedicated bus lanes and priority in signal intersections and utilisation of new smartphone apps for information and payment.

The City of Trondheim will take part in the EU FP7 MOBiNET project which envisages a new "Internet of Mobility" where transport users meet providers of next-generation mobility services.

Contacts

Questions and comments related to this report can be directed to

Ivar Christiansen, Norwegian Public Roads Administration,
ivar.christiansen@vegvesen.no, + 47 900 43 195

Eirik Skjetne, Norwegian Public Roads Administration,
eirik.skjetne@vegvesen.no, +47 930 58 630

Cathrine Ruud, Norwegian Public Roads Administration,
cathrine.ruud@vegvesen.no, +47 220 73 657

Anders Martin Fon, Ministry of Transport and Communications,
anders-martin.fon@sd.dep.no, +47 909 26 758