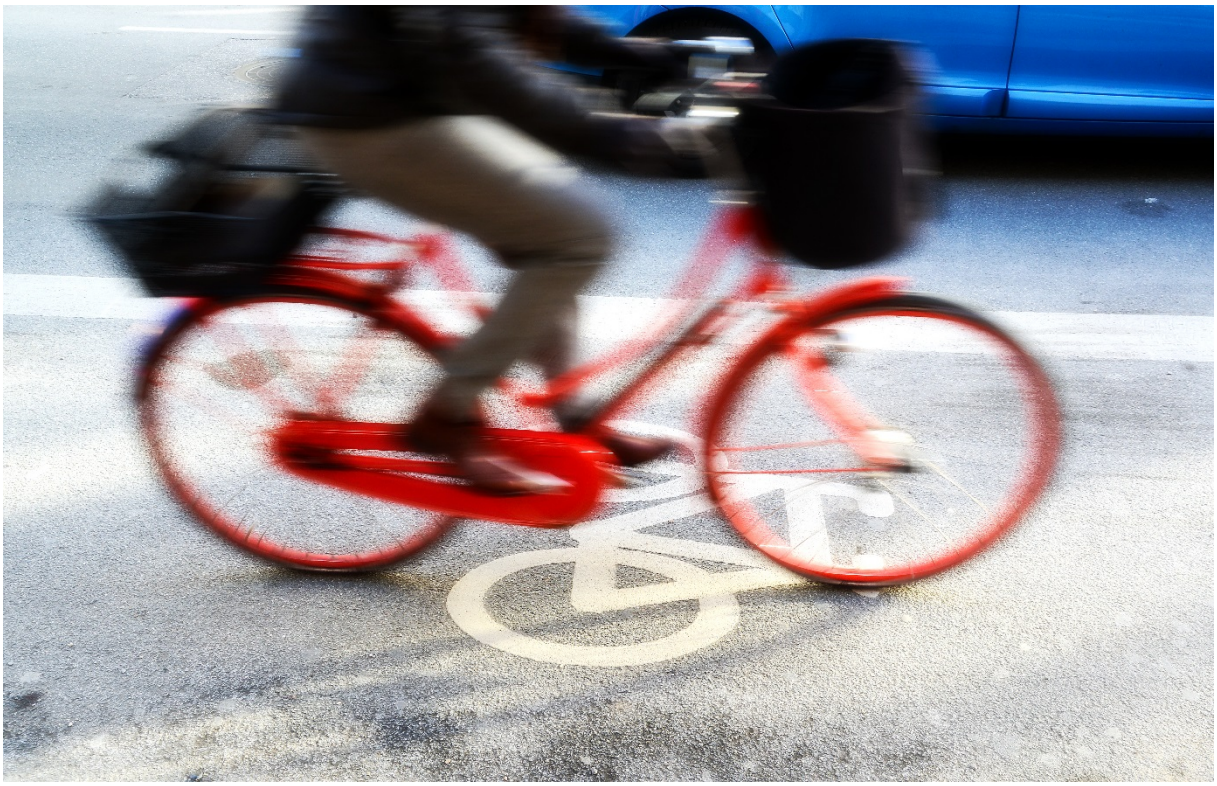
ENGLISH SUMMARY

National Transport Plan 2018-2029



AVINOR | JERNBANEVERKET | KYSTVERKET | STATENS VEGVESEN

The National Transport Plan (NTP) outlines how the Government intends to prioritise resources within the transport sector. It is a twelve-year plan (extended from previous ten-year plans) that is revised every four years. This plan, which also addresses other important policy issues, provides a comprehensive basis on which to make decisions. It seeks to ensure the efficient use of resources and to strengthen interaction between the various modes of transport.

The report from the transport agencies and Avinor[1] is followed by a white paper from the Government, which is presented to the Storting (the Norwegian Parliament). This white paper is the basis for the annual national budgets in the Norwegian transport sector.

[1] The transport agencies comprise the Norwegian National Rail Administration, the Norwegian Coastal Administration and the Norwegian Public Roads Administration. Avinor is a state-owned limited company running 46 airports and Air Traffic Management services.

The work with the National Transport Plan 2018-2029 was divided into two phases. The transport agencies and Avinor presented a report on 25 February 2015 summarizing the recommendations from an analysis and strategy phase. An executive summary presenting the results from the following planning phase was handed over to the Ministry of Transport and Communications on 29 February 2016. Both reports respond to guidelines set by the Ministry. It is the fifth time the plan is being presented. The Government aims at present the report to the Storting as a white paper during the first half of 2017.

The transport agencies and Avinor have been cooperating closely with the county administrations and the Norwegian Environment Agency. A reference group with representatives from other government agencies and from user and interest organisations has also provided valuable input to the process.

Socio-economic cost-effectiveness, as well as civil protection and consistent standards and development, have been decisive factors for the investment portfolios. The Ministry's guidelines specify that when it comes to further prioritisation in the next phase *"the structure of objectives shall be used as a priority-setting tool based on the results from the planning basis"*.

The guidelines call for four different financial framework levels to be proposed, and for priorities to be shown for 4+2+6 years. The guidelines also set out the need to propose different priorities for different strategies.

Oslo, September 2016

Summary

A high degree of mobility and efficient transports are prerequisites for welfare and economic growth. Growth in population and economy leads to increased transport demands, which require increased capacity and more efficient transport solutions.

The overall goal of the national transport policy is to develop "a transport system that is safe, promotes economic growth and contributes to the transition into a low-emission society."

Mobility is essential to modern urban areas, but it is necessary that mobility is ensured to a significantly greater extent by environmentally friendly forms of transport in the future. The growth in passenger transport in the cities is to be absorbed by public transport, cycling and walking (the zero-growth objective).

Climate considerations are the basis of the work of the transport agencies. In order to achieve the climate objective, the transport agencies are giving priority to the development of zero-emission technology, a significant increase in the use of sustainable fuels, and the promotion of walking, cycling and public transport in urban areas. The premise of this policy is that mobility must be maintained.

The transport agencies will lead the way in the investment in cycling infrastructure. The agencies will prioritise the building of bicycle express routes in nine major urban areas. A bicycle express route is a continuous cycle path of high standard, facilitating fast and direct cycling over long distances. This is a new form of investment in cycling infrastructure in Norway, and an important measure to make more people choose cycling instead of driving to work. Bicycle express routes will also make electric bicycles a more viable transport option.

A modern road network that facilitates transport of passengers and freight. The road network ties the transport modes together. The transport agencies will prioritise good road connections between regions and to neighbouring countries in order to ensure competitiveness for companies and industry, and to secure efficient and safe passenger transport.

The transport agencies will develop and enhance an efficient and future-oriented railway network. The railway will contribute to efficient and environmentally friendly passenger transport with attractive hubs where trains, trams and buses are conveniently connected. In order to increase punctuality and reliability for freight transport, it is important to have more passing loops in the national rail network. The transport agencies will prioritise simple, flexible and rational terminals. Land use that ensures direct access to sea and rail terminals for transport-intensive businesses and industries is an important measure to maintain and strengthen the competitiveness of transports by sea and rail.

The transport agencies will facilitate safe and accessible sea routes. The transport agencies will develop and make use of new technological solutions that promote environmentally sound and future-oriented sea transport with efficient transport solutions and a high safety level. The agencies recommend the building of the Stad ship tunnel to facilitate higher safety levels at sea and increased predictability for sea transport and leisure vessels on the Stad Sea.

Norway, and Norwegian competitiveness in particular, is dependent on good air transport services. Further development of Oslo Airport, Gardermoen (hereafter Oslo Airport) is of great significance because the airport is a national hub that ties the country together and provides valuable international connectivity.

Socio-economic cost-effectiveness has been a central criterion in the ranking of projects, and the transport agencies are presenting a project portfolio based on calculated net benefit. Such ranking does not reflect issues such as the effects of consistent standards and development, or requirements for civil protection. The transport agencies are therefore also presenting a project portfolio where these criteria are included, in addition to the criterion of socio-economic benefit.

Many considerations must be made concerning priorities within the transport sector. After an overall assessment based on the Ministry's guidelines, the transport agencies recommend that the National Transport Plan 2018-2029 (NTP) should be based on the following paramount priorities:

- The use of incentives for zero- or low-emission transport modes, alternative fuels and better capacity utilisation in order to achieve climate objectives without reducing mobility
- Investment in coordinated land-use and transport planning, public transport and bicycle express routes in major urban areas in order to achieve the zero-growth objective, and to contribute towards lower greenhouse gas emissions and improved air quality
- Increased use of ITS (Intelligent Transport Systems) and new technology in order to improve efficiency and achieve transport policy objectives
- Approval of a third runway at Oslo Airport to be built when existing infrastructure no longer has sufficient capacity
- An efficient, reliable and environmentally sound transport system for freight transport, where the interaction between transport modes is strengthened and the potential for modal shift from road to rail and sea is exploited
- Measures to improve safety in the transport system in line with Vision Zero and with a goal for road traffic of less than 350 fatalities and serious injuries per year by 2030. Increased emphasis on reducing the number of fatalities in leisure vessel traffic at sea
- Ensuring an optimal standard of operation and maintenance that promotes safety and traffic flow. Investment in renewal of infrastructure in order to remove maintenance backlog and achieve more robust and reliable connections
- Prioritisation of civil protection, climate adaptation and emergency response preparedness
- Investment in good international connections for both passenger and freight transport
- Increased cooperation across levels of administration, and support to transport systems operated on county and municipality levels

The transport agencies will contribute to economic growth by ensuring appropriate correspondence between resource use and effects of measures and projects that are implemented. The transport agencies will contribute to realising the potential for higher productivity in the transport sector.

The development of transport infrastructure must have a long-term perspective. The Norwegian Rail Administration has made a long-term railway strategy for the period towards 2050. This strategy emphasises passenger transport in the major urban areas and freight transport. It also contains a plan for development of the InterCity rail network. The Norwegian Public Roads Administration has made a strategy for realising Coastal Highway Route E39 within 20 years, and a strategy for developing the main road connections between Eastern and Western Norway. A strategy that describes costs and benefits with a higher standard of the national motorways towards 2050 has also been presented. Avinor has analysed the capacity situation in major airports, with particular focus on the long-term capacity needs at Oslo Airport and socio-economic impact of relocating Bodø Airport.

These long-term strategies and analyses have been important input in the planning phase. The total costs of these strategies are, however, so high that they could not be implemented in full within the framework set by the guidelines from the Ministry.

A climate strategy that cuts greenhouse gas emissions from the transport sector by 50 percent

The transport sector have a great responsibility when it comes to reducing greenhouse gas emissions in line with Norway's commitment to the Paris Agreement. The transport agencies are basing our work on the premise that mobility must be maintained.

Emissions from transport must be reduced through measures particularly in three areas: technology/fuels, the zero-growth objective for passenger car traffic in urban areas, and improved efficiency/modal shift in freight transport. For civil aviation within the EU/EEA, emissions trading is a central policy instrument for handling greenhouse gas emissions.

The transport agencies recommend the following strategies to reduce greenhouse gas emissions from the transport sector:

- *Strong investment in low- and zero-emission technology.* Differentiated purchase and use taxes on vehicles are essential for a quick introduction of zero-emission vehicles and plug-in hybrids. Shoreside electric power and electric charging power is to be available in ports where traffic and ship types provide a great potential for emission cuts, both in order to reduce greenhouse gas emissions and local air pollution while at berth, and to make hybrid solutions a viable option for ships. Within rail transport diesel is to be replaced by carbon-neutral fuels or low- and zero-emission technology. The potential for emission reduction is estimated to be 4-5 million tonnes of CO_2-equivalents per year.
- *Significant increase in the use of sustainable biofuels.* 1.7 billion litres of fossil fuels per year are to be replaced by biofuels before 2030. An increase in the use of biofuels in line with the objective provides a theoretical potential for a greenhouse gas reduction of up to 5 million tonnes of CO_2-equivalents per year. There will be a need for extensive measures and policy instruments to stimulate increased supply and demand, including measures and policy instruments for the production of biofuels.
- *Public transport, cycling and walking in cities.* The zero-growth objective in large and medium-sized cities must be met. Land use must be planned and implemented to facilitate a reduction in transport needs, at the same time as mobility is maintained.
- *Modal shift from road to sea and rail, and more efficient freight transport.* The transport agencies will give priority to projects that contribute to the transfer of cargo to rail and sea, or that increase the efficiency of freight transport.
- *Lower emissions from the construction, operation and maintenance of infrastructure.* The transport agencies are proposing a reduction of greenhouse gas emissions from construction work, maintenance, machines and operation of transport infrastructure. The long-term objective is to achieve near-zero emissions from machines, optimise the use of materials and keep the total emissions at a minimum over the lifespan of each project.

We recommend the following steps for road traffic:

1. Until Zero Emission Vehicles (ZEVs) take over the market, the cars that are sold should be plug-in hybrids. Most of them should be able to use biofuels.
2. After 2025, all new light vehicles, new city buses and new light commercial vans should be ZEVs.
3. By 2030, all new heavy commercial vans, 75 percent of new long distance buses and 50 percent of new lorries should be ZEVs.
4. By 2030, distribution of goods should take place almost without emissions in the largest city areas in line with the EU's White Paper on transport.

The general principles should be as follows:

- Zero- and low-emission vehicles should be competitive in price. Tax differentiation or subsidies for vehicles must continue.
- Zero- and low-emission vehicles should be cheaper to use than gasoline- and diesel-fuelled vehicles. Fuel taxes, differentiated toll rates, road pricing and other forms of road user charging in the largest urban areas can be used as policy instruments. On ferries and within ordinary toll road projects the rates should be the same as for other vehicles.
- Where there is a lack of road capacity or space (queuing, parking) zero-emission vehicles should be given priority.
- Power charging facilities or fuel supply for zero-emission vehicles should be so easily available that long distance driving is possible and unacceptable waiting times are avoided both in the city and for long-haul operations.

Access to bus lanes for electric and hydrogen vehicles should be maintained where public transport is not substantially hindered.

An urban transport policy with zero growth in car traffic

The zero-growth objective for passenger car traffic currently applies to all urban areas that are eligible for urban environment agreements. To meet this objective, it is necessary to use the policy instruments

included in urban environment agreements, mutually binding agreements between the national government, the county administration, and the local government (municipality). In regional plans for land use and transport, land use must be outlined in a way that will promote the zero-growth objective for passenger car traffic.

The transport agencies recommend a significant increase in investment in measures for pedestrians and cyclists. The agencies recommend full financing of designated cycle express routes in the nine urban areas that are eligible for urban environment agreements.

Recommendations are based on the assumption that the national government will cover 50 percent of investment costs for the Fornebu Line (*Fornebubanen*) and a new metro tunnel in Oslo, the Bergen Light Rail (*Bybanen*), and the Bus Rapid Transit systems in Trondheim (*Superbuss*) and Stavanger (*Bussveien*), in the medium and high framework alternatives.

In order to ensure a consistent use of policy instruments across administration levels, the framework for urban environment agreements should be changed, so that parts of the funds in these agreements can be spent on development of national as well as county-level and municipal public transport measures and walking/cycling facilities.

The railway system must be further developed to contribute to efficient local services and transport in and between urban areas. In the Oslo Hub concept study (*KVU Oslo-navet*), new train tunnels are proposed. Through the development of attractive transport hubs, regional and local public transport will be efficiently connected.

The national government must contribute more to the operation of county-level public transport. In the long term this must mainly take place through framework grants to county administrations. For a transition period the transport agencies recommend that incentive funds should be used exclusively for the operation of public transport in the nine urban areas currently eligible for incentive schemes and urban environment agreements.

Road projects that increase the capacity for passenger cars in urban areas will require countermeasures in order to meet the zero-growth objective. In the urban areas currently eligible for urban environment agreements, road user charging is required, both to contribute to financing the transport system and to reduce traffic volume. Some cities have introduced, or are considering the introduction of, time-differentiated rates. An investigation is now being carried out as to whether environment-differentiated rates are feasible. The transport agencies believe that environment- and time-differentiated charges will contribute to improved city air quality and more efficient traffic flow, and at the same time constitute an important step towards the zero-growth objective. More effective pricing of public transport services can also contribute in the same direction.

The agencies recommend that the zero-growth objective should be extended to include all urban areas where environment and capacity challenges call for growth in passenger transport to be absorbed by public transport, cycling and walking. The objective should as a minimum be applied to all cities eligible for urban transport packages.

A significant number of people living in Norwegian urban areas are exposed to noise levels above the recommended limits. Increased densification will lead to an increase in the number of people who are exposed to noise above the recommended limit values in their own homes. The transport agencies will give priority to measures that contribute to compliance with pollution regulations.

The use of ITS to increase efficiency and meet transport policy objectives

Technological developments within automation and remote control, computational and analytical capacities, and cooperative systems are important for the transport sector. The use of ITS will ensure improved utilisation of the transport system for all groups of passengers and road users, and for business and industry.

In order to achieve more environmentally sound and efficient freight transport, it is necessary to facilitate dependable intermodal transport solutions, exploiting the advantages of each transport mode. ITS must contribute to more efficient and intermodal transport chains, and better exploitation of transport capacity. This will contribute to increased competitiveness of Norwegian business and industry.

Data used for ITS solutions will in many cases be the same for several services and systems, and there will often be a need for data from several different systems and actors. The transport agencies will therefore establish standards and guidelines to enable communication between the systems, re-use of data, computer security and data protection.

A third runway at Oslo Airport is highly cost-effective from a socio-economic perspective

Norway, and Norwegian competitiveness in particular, is dependent on good air transport services. Further development of Oslo Airport is of great significance because the airport is a national aviation hub that ties the country together and provides valuable international connectivity. Forecasts indicate that there will be a need for a third runway around 2030. A third runway will have major ripple effects and is socio-economically cost-effective.

Greenhouse gas emissions deriving from a third runway must be viewed in comparison with the alternatives to constructing it, and in relation to expectations for technological advances and the phasing in of biofuels. Expected price development in the price of carbon credits does not seem to reduce the growth in demand enough to make the construction of a third runway an undesirable option.

The Storting has agreed that the potential sites are to be subject to land-use restrictions, and there are currently two siting alternatives, east and west of the airport respectively.

The choice of site will be able to free areas currently affected by uncertainty regarding the location of the new runway. The transport agencies therefore recommend that the Storting when discussing NTP 2018-2029 should adopt the plan to begin construction of a third runway when the need arises. The eastern siting should be chosen.

An efficient, reliable and environmentally adapted transport system for freight transport

International trade has increased faster than both value creation and production of goods, and the growth in freight transport is greater than the economic growth. Sea transport dominates our foreign trade. Domestically, road transport dominates on short distances, while sea transport is most significant on long distances. The railway has a large market share between end points, and air transport is increasingly used when delivery is urgent. Forecasts towards 2050 show that sea transport will absorb 70 percent of the total growth in transport, while long road transports (more than 300 km) will increase more rapidly than rail and sea transports.

The transport agencies propose a strategy that will facilitate a modal shift from road to sea and rail. This takes place through increased investment in freight transport by rail, grant schemes for freight by sea, and better connection between transport modes at hubs. However, the volume growth in each transport mode will exceed the potential for a modal shift. Thus, in addition to encouraging a transfer from road to sea and rail, efforts must be made to make each transport mode more efficient, safe and environmentally sound.

Around 5-7 million tonnes of freight can be transferred from road to sea and rail. The largest potential for transfer relates to consolidated shipments and domestic container transports, timber transport by rail, fresh fish and other temperature-controlled cargo domestically and internationally, and cargo in connection with foreign trade with Sweden and other states surrounding the Baltic Sea. The measures concerning freight transport have been calculated to be socio-economically cost-effective. Investments in railways make up the largest part of the investments in modal shifts. A grant scheme for port development is also proposed.

An increase in freight transport is expected for all transport modes, at the same time as emissions are to be significantly reduced. This requires a quick phasing-in of zero-emission solutions, or low-emission solutions where zero-emissions technology will not be available in the near future.

Allowing longer and heavier vehicles on the road network will lead to fewer vehicles and reduced traffic volume, relatively speaking. The increasing competitive power of road transport must be neutralised for example by minimising the drawbacks of switching between transport modes.

For the railway, terminal handling will be made more efficient through the development of a number of terminals and by upgrading the cargo terminal at Alnabru. Priority is given to the establishment of simple, flexible and rational terminal solutions. The railway must become more reliable and punctual, both in order to retain current market shares and to develop new markets. Construction of more passing loops in the national rail network will be important.

Measures to increase safety in the transport system in line with Vision Zero

Vision Zero implies that all traffic safety work should be based on a vision of no accidents where people are killed or seriously injured. At the same time, it is an objective that there should be no incidents causing acute pollution.

The challenges related to traffic safety are greatest in the road transport sector, even though in the last few years there has been a significant reduction in the number of serious accidents. For the other transport modes, it is important to maintain and increase the current high level of safety. The agencies propose a new reduction target within the road transport sector: that the number of people killed or seriously injured should not exceed 350 in 2030. This represents more than 50 percent reduction of today's level (from 810 in 2015). Reaching this target requires, among other things, increased investment in dual carriageway roads, roads with reinforced central lines, and measures to prevent off-the-road accidents and accidents involving pedestrians and cyclists.

Onshore helicopter operations, general aviation and air sports activity all involve challenges related to safety. All actors within aviation and the aviation authorities should strengthen their cooperation, and take new initiatives to improve the level of safety. For railways it is important to continue the efforts to secure or improve level crossings. The Coastal Administration will give priority to efforts to increase safety for leisure vessels at sea.

Optimal standards of operation, maintenance and renewal in order to eliminate backlog

In order to achieve a more robust and dependable transport system, the transport agencies will give priority to the operation, maintenance and renewal of infrastructure. Maintenance backlog must be eliminated, and future maintenance must be sufficient to prevent new maintenance needs from accumulating. A well-maintained transport infrastructure built to withstand climate changes and other challenges will also reduce the costs for infrastructure owners, travellers/road users and operators.

Operation of infrastructure must ensure a socio-economically optimal level of service that provides efficient mobility, a high level of safety, and satisfactory accessibility, with environmentally sound means. The costs of operation and maintenance will increase because of increased traffic and more infrastructure to be maintained.

The agencies believe that it is necessary to increase efforts to remove accumulated maintenance backlog and achieve a more robust and dependable infrastructure. We therefore recommend that all accumulated maintenance backlog on national roads and railways should be eliminated. The Coastal Administration will eliminate the decay from their aids to navigation within the current plan period, i.e. before 2023. The maintenance backlog for piers and quays will be eliminated by 2029.

More priority to civil protection, climate adaptation and preparedness

Today's challenges regarding risk, threat and vulnerability in the transport sector are in particular related to climate changes, major accidents and terrorist threats. At the same time, energy security and ICT security have become increasingly important for the reliability of the transport system.

Most major incidents and crises affect several transport modes at the same time. There is a need for close cooperation between the transport agencies and the Norwegian Communications Authority, the Norwegian Water Resources and Energy Directorate, the Norwegian Directorate for Civil Protection, and the county governors. Cooperation with transport agencies across national borders has proven useful for the management of cross-border traffic during extreme weather.

The significance and the consequences of climate changes are increasing. It is necessary to consider climate change forecasts during the planning, development, operation and maintenance of infrastructure. New infrastructure must be designed to resist increasingly severe climate impacts. It is particularly important to prevent floods and avalanches.

It is important to carry out vulnerability assessments and to increase surveillance to prevent adverse incidents. In order to handle adverse incidents, it is necessary to have effective emergency response preparedness, exercises and increased competence to be able to restore mobility following an operational breakdown.

Valuable international connectivity for both passenger and freight transport
Globalisation and internationalisation have made Norway dependent on well-functioning international connections. Requirements for the transport sector are largely decided internationally, and binding international cooperation and international regulatory developments are significant for the transport sector.

International connections are very different from one transport mode to another. Road and rail transport is by definition channelled into specific corridors. Sea transport has more open connections, often across geographical corridors. Aviation has an international hub at Oslo Airport, but operates with an increasing number of international routes also from other major airports.

Sweden and Norway are in dialogue concerning cross-border connections. Commissioned by the Ministry of Transport and Communications, the Norwegian National Rail Administration and the Swedish Transport Administration are cooperating with regard to an analysis of the development of the railway line between Oslo and Gothenburg. The work will be completed in the spring of 2016. In February 2016, Rail Freight Corridor 3 opened on the railway network between Scandinavia and Palermo (ScanMed).

The transport agencies wish to continue the international cooperation in the High North. Work is continued regarding the Joint Barents Transport Plan, and a bilateral cooperation project has been initiated between Norway and Finland when it comes to the development of the E8 and the Rv 93. Within the railway sector, cooperation is taking place with Swedish authorities regarding LKAB and the development of the Ofoten line (*Ofotbanen*). The transport agencies wish to increase maritime safety in the Arctic area further through BarentsWatch and other multilateral cooperation.

Regulations and standards within all transport modes are to a large extent drawn up in various international fora. Norway is an active participant, among other reasons to protect Norwegian interests. The transport agencies will increase our focus on international work.

County administrational transport challenges

There is significant maintenance backlog on the county road network. The costs of repairing critical infrastructure such as tunnels, bridges and ferry quays are so extensive that the transport agencies believe a separate programme for county road renewal should be considered.

The standard of safety on the county road network is poor in many places, and the average risk of being killed or seriously injured per driven km is 50 percent higher than on the national road network.

There are major challenges related to avalanches on the road network. The county administrations are also facing the challenges of having to cover the costs of stabilisation measures in quick clay areas.

The Norwegian Public Roads Administration has been tasked with establishing whether there is a need to transfer ownership of county roads that are particularly important for national business and industry to the national government. The NPRA proposes that 787 km of today's county roads should be converted into national roads.

In recent years, there has been a huge cost increase in the ferry sector. Allocations to county administrations have not reflected this cost increase. The average age for the ferry fleet is high, and there is a large potential for emission cuts in the transition to low- and zero-emission solutions.

Several of the challenges faced by county administrations are related to public transport.

Investments in transport corridors

Efficient utilisation of existing infrastructure requires a socio-economically optimal level of operation and maintenance. Combined with efforts to reduce decay, this will provide increased reliability and significant benefits to society.

The existence of major compulsory activities makes it challenging to meet expectations regarding development of new infrastructure. In the first part of the plan period, the investment framework will largely be spent on compulsory projects. This is in order to achieve optimal progress. In addition, operation, maintenance and management tasks must be carried out regardless of the financial framework. The plan also presupposes that *Nye Veier AS* ("New Roads Ltd") will be allocated the same amount of money each year of the plan period. Altogether, this means that new priorities will have to wait until the final six-year period. It is not possible to carry out all compulsory projects within the deadlines in any of the framework alternatives, given the fixed allocations from the Ministry of Transport and Communications per year. This applies first and foremost to the inner InterCity network and the Ringerike Line (*Ringeriksbanen*). Especially in the two lowest framework alternatives will there be a very limited activity within the programme areas during the first six years.

Greenhouse gas emissions must be reduced through the development of new technology, and through various incentives that encourage the use of new technology. Other important contributions are InterCity development, the freight strategy, more environmentally friendly urban transport, and investments in cycling and walking.

The Norwegian Coastal Administration, the National Rail Administration and the Norwegian Public Roads Administration have based our work on a common financial planning framework. Avinor's investments are not included in the framework, but will be decided by Avinor's Board of Directors within the powers vested in the company.

The financial baseline framework for the three agencies is on average NOK 59.7 billion per year, including funds to *Nye Veier AS* ("New Roads Ltd") amounting to NOK 5.1 billion per year. The agencies have been asked to propose different framework alternatives for the use of capital input, excluding the NOK 5.1 billion per year that is set aside for *Nye Veier AS*. There are three alternative framework levels: A low framework alternative of NOK 47.8 billion, a medium framework alternative of NOK 71.7 billion, and a high framework alternative of NOK 77.7 billion per year. The financial framework alternatives distribute the funds over 4+2+6 years, in line with the guidelines from the Ministry of Transport and Communications.

The guidelines from the Ministry of Transport and Communications strongly emphasise that the use of resources must be based on socio-economic analyses. It is a requirement that the measures as a whole are socio-economically cost-effective for all framework alternatives. Investment projects are ranked according to their cost-effectiveness, as well as according to their impact on civil protection, and on coherent standards and development. Costs of implementing laws and regulations, for example on tunnel safety, are also included in the financial baseline.

	Low	Baseline	Medium	High
ITEM (NOK million, 2016 kroner)	2018-2029	2018-2029	2018-2029	2018-2029
TOTAL FRAMEWORK	**573 600**	**716 400**	**860 400**	**932 400**
Chapter 1330 item x Urban Environment Agreements	15 100	33 090	49 910	49 910
Chapter 1330 item 61 Incentive Scheme	13 620	13 620	16 620	16 620
ROADS				
Chapter 1321 Road Development Enterprise	61 620	61 620	61 620	61 620
Chapter 1320				
Item 23 Operation and maintenance of national roads, supervision of road users and vehicles etc.	160 410	161 300	162 180	162 670
• Item 23.1 Management of national and county roads	28 520	28 520	28 520	28 520
• Item 23.2 Supervision of road users and vehicles	25 020	25 020	25 020	25 020
• Item 23.3 Research & Development	1 240	1 240	1 240	1 240
• Item 23.4 Norwegian Road Museum etc.	450	450	450	450
• Item 23.6 Operation of national roads	49 100	49 790	50 460	50 880
• Item 23.7 Maintenance of national roads	56 080	56 280	56 490	56 560
Item 26 Road supervision	210	210	210	210
Item 29 Compensation to PPP projects	17 400	22 4000	22 400	22 400
Item 30 National road investments	84 790	141 110	181 150	224 510
• Item 30.1 Major projects	38 630	61 040	75 010	116 300
• Item 30.4 Programme areas	11 420	33 010	42 170	42 170
§ Item 30.4.2 Renovation and repairs	3 050	10 270	12 320	12 320
§ Item 30.4.3 Facilities for pedestrians and cyclists	520	4 100	5 650	5 650
§ Item 30.4.4 Traffic safety measures	6 160	13 350	17 790	17 790
§ Item 30.4.5 Environment and service measures	1 180	2 720	2 820	2 820
§ Item 30.4.6 Public transport measures and universal design	510	2 570	3 590	3 590
• Item 30.5. National Tourist Routes	880	1 380	1 560	1 560
• Item 30.6 Renewal	20 490	24 650	35 950	35 950
• Item 30.7 Planning and land acquisition	8 440	16 100	21 530	23 600
• Item 30.8 Funds not allocated by corridor	4 930	4 930	4 930	4 930
Item 31 Avalanche protection national roads	3 170	10 720	13 270	13 270
Item 35 Road development in Bjørvika	0	0	0	0
Item 36 E16 Filefjell	510	510	510	510
Item 37 E6 west of Alta	110	110	110	110
Item 61 Interest compensation for county transport measures	2 830	2 830	2 830	2 830
Item 61 Grants for avalanche protection on the county road network	5 500	7 130	9 760	9 760
Item 63 Grants for pedestrian/cycle paths	2 000	2 000	2 000	2 000
Item 72 Purchase of national road ferry services	18 900	18 900	18 900	18 900
Increased ICT needs	2 620	4 620	4 620	4 620
Efficiency gains	-13 970	-15 000	-16 030	-17 060
ROADS, TOTAL	**346 100**	**418 460**	**463 530**	**506 350**

Item	Low	Baseline	Medium	High
ITEM (NOK million, 2016 kroner)	2018-2029	2018-2029	2018-2029	2018-2029
RAILWAYS				
Chapter 1350				
Item 23 Operation and maintenance	119 440	119 690	133 430	141 000
• Item 23 Operation and maintenance	62 340	62 590	65 400	65 900
• Item 23 ERTMS	16 020	16 020	16 020	16 020
• Item 23 Other renewal projects	41 080	41 080	41 080	41 080
• Item 23 Backlog	-	-	10 930	18 000
Item 25 Operation and maintenance Gardermobanen	1 540	1 540	1 540	1 540
Item 30 Railway line investments	56 520	103 380	165 720	180 410
• Item 30 Major projects	45 830	87 150	143 300	157 610
• Item 30 Programme areas	10 690	16 230	22 420	22 800
§ Item 30 Technical measures	1 380	1 560	2 140	2 140
§ Item 30 Safety and environment	5 110	7 380	11 740	11 740
§ Item 30 Stations and hubs	4 200	7 290	8 540	8 920
Item 31 Double track Oslo S - Ski	11 300	11 300	11 300	11 300
Efficiency gains	-6 100	-6 100	-6 100	-6 100
RAILWAYS, TOTAL	**182 700**	**229 810**	**305 890**	**328 150**

Item	Low	Baseline	Medium	High
ITEM (NOK million, 2016 kroner)	2018-2029	2018-2029	2018-2029	2018-2029
SEA Chapter 1360				
Item 01	8 155	9 215	9 710	10 170
• Aids to navigation	3 750	4 290	4 490	4 490
• ITS services and development	720	800	930	990
• BarentsWatch	220	220	290	340
• Vessel Traffic Services (VTS)	340	340	340	340
• Leisure vessels	245	325	390	510
• Transport planning and coastal management	2 160	2 160	2 160	2 160
• *Kystverkmusea* - the Coastal Administration's Museums	120	120	150	140
• Pilotage services (tax reductions)	600	960	960	1 200
Item 30				
• Aids to navigation	1 730	1 980	2 070	2 070
• Leisure vessels	245	325	390	510
• Port and fairway measures	1 430	3 060	4 420	8 060
• Programme area: Minor port and fairway measures	1 360	2 400	3 000	4 200
Item 45				
• Aids to navigation	290	330	340	340
• ITS services and development	1 320	1 490	1 700	1 820
• BarentsWatch	330	330	450	510
• Vessel Traffic Services (VTS)	260	480	560	560
• Vessels	360	360	360	720
Grants				
• Item 60 Grants for fishing ports	420	730	720	720
• Item 71 Grants for port cooperation	180	180	180	180
• Item XX Grants for modal shift	0	300	300	300
• Item XX Grants ports	0	240	240	1 200
SEA, TOTAL	**16 080**	**21 420**	**24 440**	**31 360**