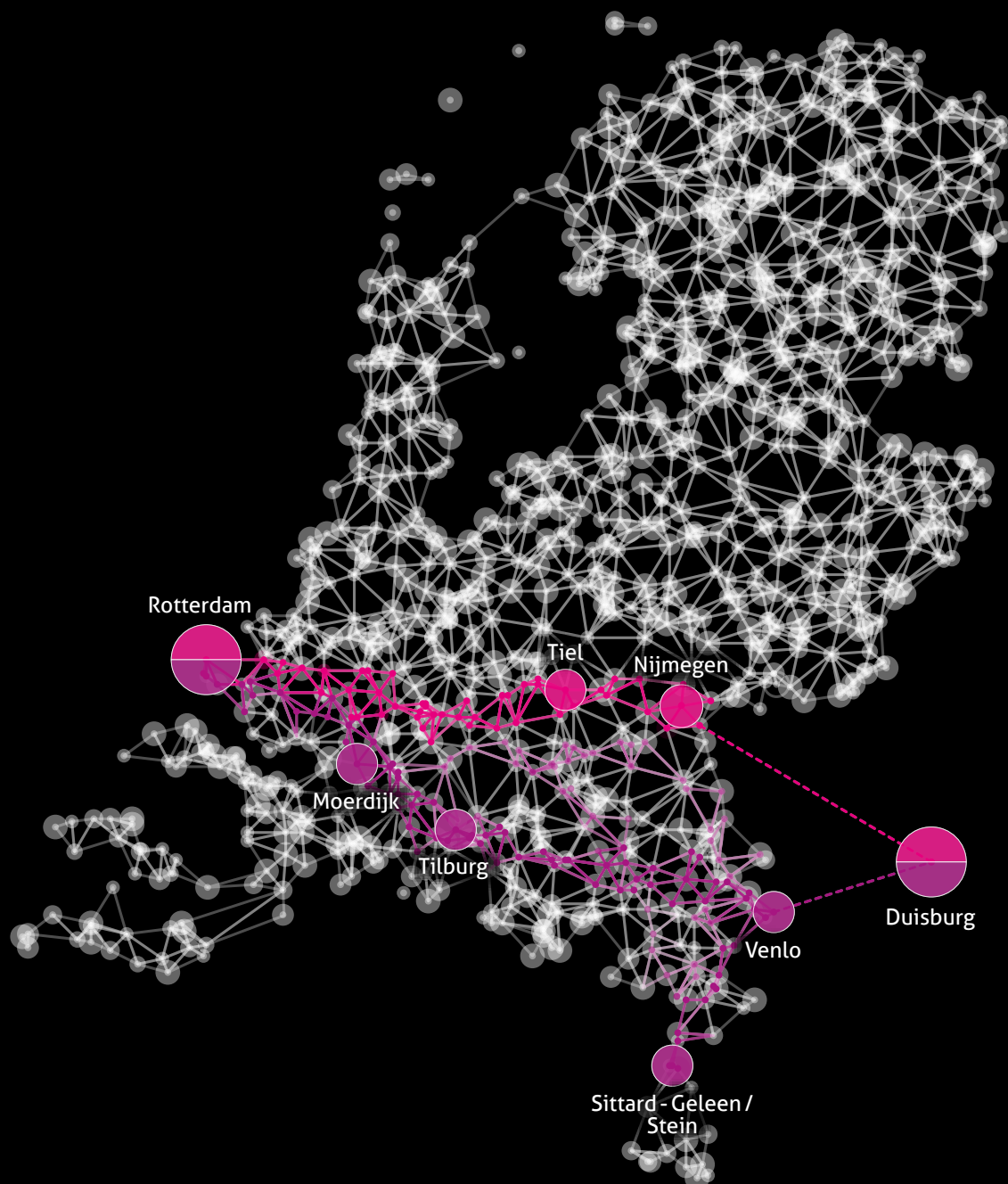
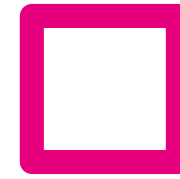


MIRT study
of the East and Southeast
freight transport corridors

The Dutch Logistic Corridors





FOREWORD

The East and Southeast freight transport corridors are critical to the economic ambitions of the Netherlands. To continue to benefit from the growth in world trade, good accessibility on these important logistic corridors is of major importance. According to current projections, the demand for freight transport will increase in the coming years. With current volumes, traffic congestion is already a growing problem on the corridors. To avoid infrastructural gridlock, we need to tackle looming capacity problems sustainably and take congestion-busting measures.

However, expanding the infrastructure takes a lot of money, lots of space, and a great deal of time. It also has a major impact on the quality of the living environment. Moreover, we do not know what the world of transport and logistics will look like in 2030. Changes and innovations are moving increasingly faster. What effect will smart mobility have on capacity? Are we going to use other forms of transport, such as air (airships) or underground transport? Will drones bring about a revolution in the transport industry? And what will be the products of the future? Will consumers manufacture their own homes, cars and clothing, and generate their own electricity? Moreover, thanks to developments in ICT and the Internet, the world is becoming more and more 'networked' and markets are being disrupted. Products and traditional chains are being swept away and we are seeing the rise of new players with completely new services and models. In short, we are living in a new economic reality. Nothing seems certain, stable or fixed. This is the background against which the MIRT study was conducted. This is why we must be adaptive and 'agile'.

To retain and strengthen our leading logistics position, the authorities and companies must cooperate to use the available infrastructure smartly and sustainably. We need to look at things differently, and do things differently. And search for new ways of cooperating. Accessibility is increasingly becoming a joint challenge for the authorities and business. And thus there is also a joint responsibility in contributing towards solutions to accessibility bottlenecks. Solutions can not only lie in expanding infrastructure. The good news is that the new technological developments are going to help. These developments are making possible smarter, cleaner and safer transport. New services will drastically optimise the link between demand and supply in freight transport, making the infrastructure smarter and more sustainable.

The high performance of the corridor is a prerequisite for maintaining our competitiveness and prosperity in the long term.

We can only achieve this by working together. In order to be the very best in logistics, and to remain so, we must prepare for a world that is developing exponentially. Courage and perseverance are needed. Those who do not transform now may no longer matter in a few years' time. It is better for us to engage in this transformation today than tomorrow.

Therefore, we must act now. In addition to a shared vision, the MIRT report comprises a comprehensive survey of possible actions for using the available infrastructure smartly and sustainably. This entails a wide range of possible measures in the fields of innovation, ICT and data, sustainability, and the relationship with spatial development, but also dealing with infrastructure selectively to use the corridors more efficiently and promote the growth of multimodal transport.

This report establishes a basis for the corridor approach and further dialogue about ways in which the transport system can be made more efficient and sustainable. The idea is to follow up the research structurally through a programme approach. We must work on innovations and stimulate the implementation of innovations in order to maintain our prosperity. The digitisation of the corridors and making data available via APIs will provide many opportunities and may contribute to real-time cooperation between the parties. Government data on the availability of the infrastructure and infrastructural elements not only provide important information for the logistics sector, but can also be used to stimulate the service and platform economy.

I would like to thank the many people involved in producing this report for their constructive contributions and cooperation.

Game on!

Zuhal Gül
Programme manager
Ministry of Infrastructure and the Environment



SUMMARY

How can we optimise the East and Southeast logistic corridors and exploit the opportunities for economic linking? This question was central to the joint MIRT study of the government, the Port of Rotterdam Authority, the Logistics Top Sector, and the provinces of South-Holland, Gelderland, North Brabant and Limburg.

This report presents the results of the joint study of opportunities and barriers for optimising the East and Southeast freight transport corridors. In addition to a vision and underlying goals, the parties made a comprehensive inventory of possible actions. However, this report does not comprise an action programme with associated governance and financial engagements. Local and central governments, private parties and knowledge institutions will have to make further agreements about this.

In the MIRT administrative consultations in October 2016, agreements were made to start a number of joint regional accessibility programmes in 2017. The parties also expressed the intention of starting a similar programme for the freight transport corridors in 2017, in which attention would be devoted to making mutual agreements about cooperation and identifying goals, tasks, governance structure, (financial) policy approach and the criteria for assigning programme funds (Parliamentary Document 34 550 A, no. 19). For that reason, it was decided to limit this MIRT study to a vision and inventory of possible actions. The parties must still make further agreements regarding follow-up to the MIRT study (what actions will be taken in the programme, the prioritisation of actions, and the parties involved). The Ministry of Infrastructure and the Environment has made 200 million euros available for the future programme, on condition of reciprocity.

The East and Southeast logistic corridors are of vital importance for the Netherlands Ltd. These corridors not only connect the port of Rotterdam with the German hinterland (and beyond), but many economic activities in the region that add considerable value also take place along them.

The world is changing rapidly. Economic centres are shifting, new ports and regions are strongly on the rise (Gdansk and the Mediterranean), while geopolitical developments and new transport routes (One Belt, One Road) are influencing transport flows. The environment and climatic conditions are also having a significant impact. These developments mean that the position of the ports in Northwest Europe is changing, and coming under increasing pressure. That also applies to the Mainport Rotterdam.

A number of developments will be disruptive, such as developments surrounding digitisation, ITS and transitions to bio-based. The main challenge is to speed up these changes. This challenge is also the most important opportunity. By taking a lead, the Netherlands will build up a competitive advantage and, together with other European countries, find a new role in the changing geopolitical and economic balance of power.

In the coming decades, organising the transport of goods optimally and sustainably will be one of the most important issues for both the logistics and shipping industries, and for various levels of government.

We need a compass to guide the further development of these two important economic arteries of the Netherlands. In the coming decades, organising freight transport optimally and sustainably will be one of the most important issues for both the logistics and loading industries, and for public authorities at different levels (state, provinces and municipalities). There are common challenges and problems:

- Reducing congestion, on motorways in particular.
- Increasing the reliability, capacity and robustness of the multimodal network.
- Improving the visibility and predictability of travel times.
- Limiting damage to the surrounding area (environment and safety).
- Improving facilities for users
- Stimulating the innovation dynamic.
- Making the industrial and logistics sectors more competitive.

Based on a shared vision of the future and an analysis of trends and developments, we want to strategically position the corridors as Top Corridors: the most sustainable and innovative transport corridors in Europe.

Our vision

Our vision is that in 2030 the Top Corridors will facilitate a smooth, reliable, robust, safe and sustainable transport system that contributes to sustainable economic growth, with satisfied users. This growth should also go hand in hand with the optimum quality of life and living environment along the corridors.

The following applies to our Top Corridors:

- The transport of cargo through the corridors is efficient, predictable, safe, flexible, sustainable and reliable from origin to destination. There are no major bottlenecks in the use of the infrastructure. The network is robust and provides space for alternative routes and choices of transportation.
- The corridor approach and efficient management ensure that the best modality can be chosen for transporting the cargo, fulfilling the wishes of the customer, and maximising use of the network. In addition, the lead times are easy to predict and can be followed in real time thanks to wide availability of data.
- Aside from excellent environmental and network quality, the corridors also have a high-quality digital infrastructure, logistic nodes and amenities. For shippers, the corridors offer synchromodal transport that meets their needs for the transportation, storage and distribution of goods in specific chains. Also, users are satisfied with the way the corridors operate.
- The supply of and demand for logistics services are optimally brought together. The services on the

corridors are easy to find and the quality is clearly apparent for users (visibility).

- The corridors are innovation-driven and are test-beds for innovative concepts.
- The corridors are attractive places to establish a business. Value is added to a significant part of the flow of goods in the logistics Top Regions along the corridor.
- The parties involved (the authorities, companies and knowledge institutions) work together at different levels (international, national, regional) and dimensions (economic, spatial, infrastructure) on continuously improving and optimising the corridors, and there is optimum coordination of public and private investment.

We have a great starting position: an excellent infrastructure and a leading position in the logistics field. This has resulted from our open culture, our willingness to cooperate, our geographical location, and our creative business acumen. We are at the forefront of innovation and we have an open, neutral market, which makes us an attractive business location for the logistics industry. However, in view of the developments facing us, this leading position cannot be taken for granted. The world around us is changing fast. To retain and strengthen our leading position in the logistics industry, we must continue to focus on innovation and our spirit of entrepreneurship, because that is what we do best. We want to be number one in the world of logistics.



Growth goes together with the optimum quality of life and living environment along the corridors.

Our goals

To realise this vision, we are focusing on the following goals:

1. Improving traffic flow and road safety

A smooth and reliable flow of traffic on the road, waterways and rail is vital to our economy and welfare. Moreover, we are continuing to work on safety for all road-users by constantly seeking possibilities for improvement, and integrating new knowledge and technology. Traffic management and innovative solutions play an important role in this. To deploy these correctly, it is important that the parties work well together. To optimise traffic flow on the main roads of the corridor, we will also take the secondary road network and regional planning developments into consideration, so that everything can be viewed and assessed as a whole.

For optimising traffic flow, it is important that there are alternative routes in the event of incidents and disruptions (robustness). This mainly applies to the inland shipping and rail modalities.

2. Promoting economic growth

The corridors must facilitate further economic development. Better accessibility and excellent logistics services are contributing factors in attracting new and existing business to base themselves in the region. We also want to pull together to increase attractiveness for investment and to get the right company in the right place in order to embed economic activities. We are focusing on attracting freight flows to which more value can be added along the corridor. In this regard, we must also focus on education and the availability of a trained workforce.

3. Focus on users

and strive to enhance user satisfaction. The level of user satisfaction is an important measure of the quality and functioning of the network. For that reason, we are going to actively involve users in identifying common bottlenecks and opportunities. The users need:

- Smooth and efficient traffic flow.
- Good availability and reliability.
- Adequate safety.
- Up-to-date, reliable information.
- Adequate facilities and amenities such as moorings and vehicle parks.

4. An increase in liveability and sustainability

It must be made safer, cleaner and quieter. The flow of goods must be organised in a safe, socially responsible, environmentally friendly and future-proof way. This goes beyond simply reducing CO2 emissions. It is also about reducing negative effects such as congestion, the transportation of hazardous substances and noise pollution in urban areas along the corridor, and about the efficient use of public space, and the reuse of resources. A full introduction of synchromodal trans-

port on the corridors can contribute to increasing the sustainability of freight transport, because cargoes are optimally combined, and the road may be freed-up.

5. Keeping management and maintenance up to standard

Management and maintenance of the infrastructure and infrastructural elements are crucial for good accessibility and traffic flow. If roads, bridges, locks or viaducts are inadequate and regular repairs are necessary, this leads to traffic jams, inconvenience and irritation for users, and economic damage to the Netherlands. It is therefore important to optimise the programming of maintenance and replacement & renovation projects on the corridors as best as possible and to integrate these fully with other maintenance work on the corridors. New technology for using sensors to gather data can help to identify problems in time, and solutions. Classical solutions in the form of preventive and corrective maintenance are no longer enough. Challenges regarding infrastructural issues call for just-in-time maintenance: just in time to prevent failures, but not too early to prevent excessive expenditure. That requires a smart approach: smart maintenance, in which we make full use of new developments such as the deployment of sensors, data prediction models, big data, and the Internet of Things (IoT).

Solution paths

To realise an efficient and sustainable transport system (such as synchromodal transport, for example), the availability/high quality of all modalities and adequate freight handling facilities are crucial. This involves the possibility of deploying the various modalities in a flexible way (making better use of the corridor), as well as flexibility within a modality (making better use of the modality). Technology can play an important role in this. However, to achieve results, cooperation and a change of mindset are needed. We can find possible solutions, and thus steps towards realising the vision, in:

- A. Digitisation and data
- B. Innovation: technological, social and institutional
- C. Optimisation of logistic nodes
- D. Optimising all modalities and making them sustainable.

Re A Digitisation and data (chapter 4)

Digitisation can play a valuable role in the more efficient, transparent, predictable and sustainable transport of freight on our corridors. Digitisation and information exchange can contribute to the robustness of the corridor. Digitisation is the driving force behind innovation, dynamism and major changes in sectors. By the use of data and by strengthening the digital infrastructure, the Netherlands can become the smartest logistics centre in the world.

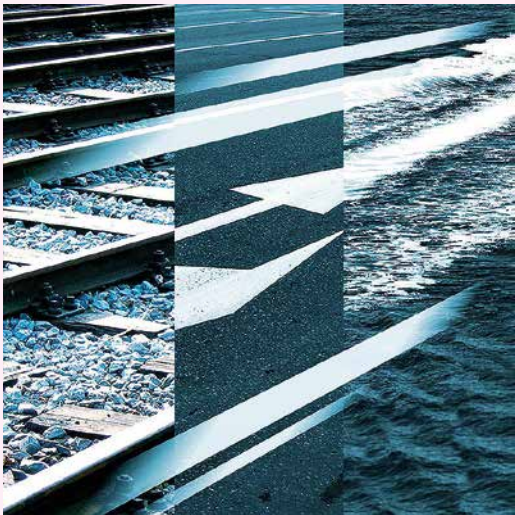
Re B Innovation: technological, social and institutional (chapter 5)

Various innovations will make transport and logistics in the future look very different to what they are now. Technological innovations will make a major contribution to solving social problems relating to mobility, such as emissions, congestion, safety and noise. Possible solutions lie not only in technology, such as Intelligent Transport Systems, but also and especially in social (behaviour and mindset) and institutional innovation (cooperation/governance). The elimination of possible institutional barriers in legislation, for example, also plays an important role in this

Re C Optimisation of logistic nodes (chapter 6)

Logistic nodes are important business locations for loading and logistical companies and add considerable value. They are therefore important for employment in the region. Moreover, in terms of space they play a major role in relieving the burden on the port of Rotterdam, and the establishment of European Distribution Centres (EDCs) inland results in an increase in transshipments in Rotterdam.

In addition to their added value, these nodes also play an important role in the efficient, sustainable use of multimodal corridors as places where cargoes can be combined and assigned to the different modalities. These logistic nodes are therefore multimodal and preferably accessible by road, water and rail. Making better use of these multimodal nodes will enhance the



All modalities are needed to cushion the growth of freight transport, and to achieve the optimum, sustainable use of the corridors.

robustness of the corridor and accessibility. Selectivity and focus are crucial in this respect. By jointly focusing on a limited number of nodes, it is possible to generate economic advantages (scale, scope, network and cluster benefits) that would otherwise be impossible. As is apparent from the MIRT study, there is a significant potential for cost-effectively transferring 30.1 million tonnes of continental cargo from roads to the rail and inland shipping modalities. The MIRT study has provided building blocks for compiling business cases for synchromodal continental transport using a limited number of logistic nodes in the corridors. This will lead to a modal shift.

Re D Optimising and increasing the sustainability of all modalities in the corridor (chapters 7 to 10)

All modalities are needed to cope with the growth of freight transport and to achieve the optimum, sustainable use of the corridors: road, rail, inland shipping and pipelines. Terms such as multimodality, intermodality and synchromodality are used to describe the use of the appropriate modality or multiple modalities in a single transport chain. The important issue in this MIRT study is that the user/shipper will be enabled to move goods from A to B using the most socially appropriate modality. Various modalities can be deployed for this. However, these modalities must be sustainably available. In order to use the capacity of the modalities as efficiently as possible and guarantee this for the future, the main bottlenecks will have to be addressed and work should focus on meeting the objectives of the National Policy Strategy for Infrastructure and Spatial Planning (SVIR) for the respective modalities.

Value for money for the taxpayer

Cooperation is crucial if these objectives are to be attained. Not everything can be done at the same time, and funding is also scarce. We have to make choices and set priorities. Future investments by the government will have to lead to value for money for the taxpayer. Where will investments deliver the most, and where will they contribute the most to strengthening the competitiveness of the Netherlands Ltd? Data analyses and SCBAs provide thorough decision-making information.

Cooperation

Given the importance of the corridors, we want to cooperate on continuously improving them. Good accessibility of the hinterland will not only depend on the availability and quality of infrastructure such as roads, railways and waterways. Also important is the extent to which stakeholders succeed in collaborating to improve the efficiency and quality of the services, and reduce the cost of inland transport, as part of the total transport costs. Because the logistics process is strongly interwoven with the production process, an efficient, high-quality freight transport system will

be deemed of strategic importance for the competitive position of the Netherlands Ltd. The contribution of the logistics sector to the GDP is about 10 per cent (55 billion euros) and there are approximately 813,000 people working in the logistics industry. That is 12 per cent of total employment. *Source: TNO/BCI on the basis of CBS, 2012.*

Actions (opportunities and obstacles)

Further development of the solution paths described above has led to an inventory of possible actions that may lead to realising the vision and its underlying goals. Some of the actions are very specific, and others are more general in nature, in the form of activities or

further investigation. This report marks the end of the MIRT study.

The parties must still make further agreements regarding follow-up of the MIRT study. Furthermore, as much as possible will be linked to past or current activities of, among others, the Logistics Top Sector, SmartwayZ.NL and Greenports (particularly for developments regarding Coolports).

ACTIONS FOR DIGITISATION AND DATA (CHAPTER 4)

- Increase the flow of information relating to corridors and logistic nodes, and appoint a data team for this. The data team brings together market players and data owners to address the questions of parties involved. Who has access to what data, and what are the needs of the various parties? The data team will also map freight flows (origin to destination) so that this information can provide insight into the bottlenecks that need to be addressed. The data team works out a proposal as to whether, and if so how, a platform can be created that can be used at all levels (national, regional and locally at node level).
- To set things in motion, make a start with, among others, the Directorate-General for Public Works and Water Management (Rijkswaterstaat), ProRail and the Port of Rotterdam Authority on making available real-time data on the availability of infrastructure, infrastructural components and facilities, and exchange these with the data of relevant parties in the chain.
- Commit to improving the range and quality of the digital infrastructure. First map the quality and coverage of the communications infrastructure in order to assess whether these meet the wishes of users. This applies to cooperative systems based on IEEE 802.11p roadside systems and connected systems based on 3G/4G networks and, for the future for both systems, on the basis of 5G networks. Research the desirability of the further roll-out of existing initiatives by so-called target-group networks for Wi-Fi access in ports, civil engineering works, and car parks.
- Stimulate the implementation of shipment tracking & tracing in the corridors and roll out the TKI project Smarter Data Usage, Rotterdam and Venlo/Venray region to other logistics chains in the corridor.
- Roll out the Corridor-Focused Control & Supervision (Corridorgericht Bedienen & Begeleiden (CBB)) concept developed by Rijkswaterstaat as part of its Traffic Management Centre of Tomorrow (Verkeersmanagement Centrale van Morgen (VCM)) on the waterways of the freight corridors and investigate how this concept can be applied to the other modalities, and thus can be developed into a multimodal corridor management system. Use the experiences with the Innovation Centre in Helmond.
- Use the corridors as a testing ground for developing paperless transport through so-called Edocuments, and for developments in digitising supervision and enforcement (Ecompliance, and iShare).
- Investigate the opportunities for scaling up and rolling out to other modalities the 'measuring at the exhaust pipe' initiative (part of the Green Deal in the shipping industry). Also investigate how this can contribute to improving the sustainability of freight transport in our corridors.

ACTIONS FOR TECHNOLOGICAL, SOCIAL AND INSTITUTIONAL INNOVATIONS (CHAPTER 5)

Technological innovations (ITS)

- ▼ Set the ambition that the Netherlands will be the first country where cooperative systems are applied to the key corridors and arrive together at an ITS Strategic Plan for the Netherlands. National coordination is needed to make smart choices, for example about how to achieve higher penetration and thus greater impact for the ITS measures.
- ▼ Further develop the ITS quick-scan analysis of the A15 motorway to explore in more detail the combined impact on traffic of the various ITS measures and to further work out the relationship with logistics.
- ▼ Extend the study carried out for the A15 on the potential impact of ITS measures on traffic flow, safety, environment and logistics (hereinafter referred to as the ITS Study) to Duisburg at least, because the corridor does not stop at the border - certainly not for the ITS smart routing measure.
- ▼ Link the ITS Study on the potential impact of ITS on the A15 (including high-level automated driving, including truck platooning) to the experiences with Smart Mobility in the SmartwayZ.NL programme and extend this to the Southeast corridor. The effects for the A15 were computed on the basis of tailbacks (divided according to cause). The Southeast corridor has a different congestion pattern, and the road network also has different characteristics. So the magnitude of the effects will also be different.
- ▼ Then extend the ITS Study to rail and inland shipping (this is required from a corridor management perspective: cross-modality coordination and what is needed for that).
- ▼ Extend experiments with ITS and automated transport to all modalities on the corridors and link to current projects with a view to standardisation and legislation.

Social and institutional innovations

- ▼ Also include in the corridor approach encouraging changes in behaviour among users to improve traffic flow, prevent traffic congestion and accidents, and decrease emissions and noise pollution. Technology can be helpful in this regard. The government could play a role in deciding which desired behaviour the technological innovations should promote.
- ▼ Strengthen cooperation on the corridor and - based on a shared vision - work out a flexible, task-oriented governance model that is robust and can be applied at different levels (local, regional, national and international). The starting point is horizontal cooperation where the aim is to create smart combinations and a linking of interests between the state, region, market parties and knowledge institutes.
- ▼ Encourage cross-functional and cross-organisational cooperation in teams, as was experimented with during the MIRT study. Hold an annual corridor conference with users about the issues involved in order to jointly identify opportunities and bottlenecks, and draw up a corridor agenda for this.
- ▼ In the governance, organise coordination with other programmes such as SmartwayZ.NL, Smart Logistics Centre Venlo and the Logistics Top Sector, in order to arrive at joint or mutually reinforcing actions.
- ▼ Strengthen collaboration with Germany, and especially North Rhine-Westphalia, in the fields of ITS, LNG, data, sustainability, multimodal transport, the management and maintenance of infrastructure, etc. For projects, investigate possibilities for cross-border cooperation and European funding.

Innovation agenda

- ▼ Draw up a joint innovation agenda for the corridors, which not only focuses on optimisations, and making better use of and improving the existing system (on which this MIRT study focused), but also on system innovations. Use the 'three horizons' strategy paradigm for this.
- ▼ In order to achieve the innovations, we need innovative government that is agile and able to eliminate institutional barriers. To this end, map the institutional barriers (for example in legislation and regulations, granting subsidies and permits, division of tasks and roles, and the lack of standardisation) that hinder the scaling up and roll-out of innovations that are necessary for the shift towards a reliable and sustainable transport system.

ACTIONS FOR OPTIMISING LOGISTIC NODES (CHAPTER 6)

- ▼ In the case of future investments, ensure a joint focus on the 'above-average nodes' (East corridor: Nijmegen and Tiel; Southeast corridor: Moerdijk, Tilburg, Venlo and SittardGeleen/ Stein) and use these nodes as a testing ground for the roll-out of promising developments such as best practices in the fields of ICT, park management, and the development of multimodal LNG filling stations.
- ▼ The state, provinces and municipalities work together to develop an agreement framework regarding the location of companies on the multimodal logistic nodes.
- ▼ Identify the multimodal potential of promising maritime and continental container flows and develop this into business cases in coordination with the parties concerned.
- ▼ **Nijmegen node:** Take steps towards creating a rail terminal in Gelderland, near the Nijmegen and Tiel nodes. RTG (Rail Terminal Gelderland) offers opportunities for the further development of the East corridor and for continental cargo for rail transport. The parties involved will investigate how they can arrive at a conclusive business case and what is needed to situate the RTG within the Betuwe Route so that the regular non-stop freight shuttles are not adversely affected by this additional transshipment facility. According to the motion De Boer/Hoogland (*Parliamentary document 34 550A, no. 30*) the state will enter into consultation with the province of Gelderland as to whether and where there is an investment requirement.
- ▼ **Tiel node:** Improve accessibility and safety on the A15 motorway and the secondary road network surrounding the node. See also the in-depth A15 traffic survey in chapter 7 about the road modality.
- ▼ **Moerdijk node:** On the basis of the research into the whole situation of rail facilities, both at the port and industrial area and outside them (ready in Q1 2017) further choices should be made with respect to the capabilities and corresponding investments in order to improve the capacity of the railway and its competitiveness, where the study shows this to be necessary. In addition, partly based on monitoring the effectiveness of the measures, it should be examined whether further agreements are necessary regarding an adequate structural solution for the lack of embankment radar coverage around the intersection Dordtse Kil – Hollands Diep
- ▼ **Tilburg node:** Improvements to the rail terminal and the connection with the barge terminal are possible in order to set up even better continental services and be able to expedite them more efficiently. With regard to accessibility on water, the availability of the Wilhelminakanaal for class IV vessels up to Loven is an important action point that has already been addressed (Ministry of Infrastructure and the Environment, the province and the municipality up to Kraaiven, and the province and municipality up to Loven). According to the province of North Brabant, bridge heights on the Wilhelminakanaal between Oosterhout and Tilburg are a further concern
- ▼ **Venlo node:** Research complying with the motion of De Boer/Hoogland (*Parliamentary Document 34 550A, no. 29*) into which investments are needed to increase rail capacity in order to develop Venlo further as an international transport hub.
- ▼ **Sittard-Geleen/Stein node:** Study the usefulness and necessity of a railway connection by VDL Nedcar. Specific agreements have been already made about this in the context of BOMIRT 2016. Completion of the study of the environmental effects of more intensive freight traffic on the route between Heerlen and Herzogenrath. Investigate the Southern Chemelot rail connection.

Stimulate freight transport by water and rail from the logistic nodes

- ▼ Interpret the DikFaber/Bishop motion (*Parliamentary Document 34 300 XII, no. 58*) for the freight transport corridors. In this motion, it was requested to include the project "Every fourth truck synchromodal" in the Freight Transport Corridors programme. The motion focuses on a shift of mainly maritime flows from road to water. In early 2016, the government assigned the practical development of this motion to the Logistics Top Sector (Synchromodal Transport Action Line).
- ▼ The MIRT study shows that there is significant potential for 30.1 million tonnes of continental cargo to be transferred cost-effectively from road to the rail and inland shipping modalities. In this, use can be made of existing intermodal services between the European intermodal terminals and the above-average nodes on the corridors. 3.3 million TEU of container transport would be deployed. Further develop the building blocks of business cases that this MIRT survey has yielded for the above-average nodes on the corridors and involve a neutral third party in this.
- ▼ Carry out further research into what opportunities European funds offer for funding multimodal freight carriers from the CEF, the EIB or other sources, for example. Funding digital freight exchange platforms might also be considered in order to stimulate the use of multimodal services. Also research possibilities

for connecting with initiatives within European corridor cooperation in this field, such as the EGTC 'Corridor Capacity Platform' project, for example.

- ▼ Map the social benefits associated with intermodal transport.

LNG

- ▼ Create a complete network of LNG bunkering points for inland shipping and road transport. To this end, draw up a map showing strategic locations for LNG filling points, giving preference to the development of filling points in the vicinity of above-average logistic nodes, and - for external safety reasons - preferably along waterways, so that the LNG can be transported by water. Involve the LNG National Platform in this.
- ▼ Look for cooperation with Germany and examine opportunities for European funding.
- ▼ Provide support for the purchase of vehicles and vessels powered by LNG and support for the longer term in the production of BioLNG.

ACTIONS TO OPTIMISE THE ROAD MODALITY (CHAPTER 7)

A15/A16/A58/A67

- ▼ Carry out an in-depth traffic study based on the NMCA 2017 to account for bottlenecks on the A15 and come up with appropriate measures.
In order to do justice to the A15 Ambition Document and the focus areas that this MIRT study has yielded, the following elements must be included in the traffic study (scope: Rotterdam – Germany):
 - Traffic calculations: traffic counts, NMCA 2017 and other forecasts.
 - Planning developments that may have a pull effect on traffic or could reduce traffic on the main road network.
 - Origins and destinations: what are the main flows?
 - Causes of congestion: incidents, insufficient capacity, freight traffic, entering/leaving the highway, and the traffic behaviour and psychology of the road user.
 - Road safety: number of accidents, types of accidents, time of accidents.
 - Explore solution paths: multimodal transport (public transport for passengers, rail/inland shipping for freight), ITS / cooperative, connected and automated transport (divided into sections where there is already signalling and where not), incident management and, where necessary, enlargement of road capacity.
- ▼ Involve in the A15 approach the adopted Hoogland/Visser motion (*Parliamentary Document 34 550A, no. 36*), which calls for the prioritised inclusion of the A15 Ridderkerk - Gorichem assignment in the East freight corridor programme.
- ▼ Further roll out the experience with SmartwayZ.NL to the A16 and include the insights from the NMCA 2017 in this. The translation of the ITS/Smart Mobility solutions, including the hybrid test environment, to the logistics sector will be further adopted for the entire corridor from Rotterdam to Venlo. With regard to ITS/Smart solutions, also include the A15 to enable sharing and learning in both directions.

Road facilities: truck parking facilities

- ▼ Ensure that there are sufficient, safe truck parking facilities on the corridors. In the coming years, there must be close cooperation with market parties and the regions concerned to assess promising locations for additional parking facilities for long rests, and under what conditions (necessary facilities, planning constraints and financial) it is feasible to develop a network that provides the desired/necessary functionality. In this respect, learn from experiences with secure truck parks in the Port of Rotterdam. A possible tightening of the European rules on remaining in the truck cabin during long rest periods (weekends) should also be taken into account. This development may have significant effects on the need for facilities for the weekend rest period.
- ▼ Stimulate changes in parking behaviour. Research is needed to explore the way in which the desired parking behaviour can be stimulated and how the facilities can be made as attractive as possible for the drivers, entrepreneurs, shippers and insurers. Rijkswaterstaat is preparing the Behaviour Measures pilot scheme for this.
- ▼ Prevent/eliminate nuisance in truck parks. In addition, it is important that at locations where there are adequate parking facilities available in the immediate vicinity (truck parks), nuisance is eliminated by enforcing

the rules regarding parking outside the spaces. At the moment, the Rotterdam and The Hague Metropolitan Region is carrying out a pilot scheme in the Port of Rotterdam in cooperation with the government, the eleven municipalities involved, the police, and the Port of Rotterdam Authority. The results may provide valuable insights for an effective approach.

- ▼ Research into the feasibility/applicability of paid parking at service areas. Regulation by means of the selective implementation of paid parking at service areas has political, legal and planning consequences; political because the government does not have such a tax and can introduce it only if a legal basis is provided for this as a result of a change in the law; legally speaking, it is also important that, in the case of lockable parking facilities (with a barrier) on an existing car park, the relevant sections of road must be withdrawn from public use. TLN is supporting a study of the feasibility of paid parking, so it is important to investigate this instrument further. Rijkswaterstaat has already made a start on this.
- ▼ ICT and information provision (ITS) for truck parking. Attention should be paid to the opportunities and possibilities for data applications and information systems. In this respect, one should consider possibilities for integrated transport planning and information provision systems for shippers, logistics service providers, transport companies and drivers. By integrating logistics data with those of parking facilities, rest periods become part of the logistics process. As part of the logistics process, it will be possible to use this as a basis for management, and optimise it further. Moreover, there is a European specification for secure truck parks included in the ITS action plan and the ITS directive 2010/40/EU. Deriving from this legislation, public and private operators of the parking facilities are obliged to share data about safe, secure parking via a national access point.

ACTIONS FOR OPTIMISING THE INLAND SHIPPING MODALITY (CHAPTER 8)

General

- ▼ Stimulate cooperation between the hubs to make the inland shipping chains more efficient, and to contribute to a more efficient handling of container shipping in the Mainport Rotterdam. As a hub for combining container flows, inland terminals in the vicinity of Rotterdam and at the nodes along the corridors can play a role in more efficient and reliable multimodal transport to and from the port of Rotterdam.
- ▼ Ensure robust diversions at low water, or in the case of emergencies, and involve this in future infrastructure decisions.
- ▼ Roll out corridor-oriented traffic management (better coordination of bridge and lock operation) with priority for the corridors. Rijkswaterstaat is working on this at the moment as part of the project Traffic Management Centre of Tomorrow (VCM). See also the section Digitisation and Data (chapter 4).
- ▼ Determine what the future target height for bridges on the corridors should be, and apply that in a considered manner to the construction of new bridges and the replacement of existing bridges. For the waterways in these freight corridors, the principle applies that bridges should be increased in height only if they need to be replaced at the end of their life, or sooner provided that (whether or not on the basis of linking opportunities) a positive SCBA is to be expected.
- ▼ Ensure that the depth of inland ports is in accordance with the new sizing for connected waterways. The biggest challenge is the river Meuse between Born and Ternaaien, which, as a result of the Meuse Route project (part of the broader 'Maaswerken' project), will be made suitable for larger class VB barges. Although some ports in Limburg have been deepened in accordance with the re-sizing of the Meuse through the Quick Wins Inland Ports subsidy scheme, there are still some inland ports where the depth is insufficient to accommodate deeper-draught vessels. Examples of these include the bulk ports of Maastricht, Born, Venlo, Gennep and Cuijk.
- ▼ Inventariseer waar de aanleg van kademuren op de goederencorridors (meer) vervoer van goederen via de binnenvaart mogelijk zou kunnen maken (*Motie De Boer cs. Kamerstuk 34 550A, nr. 50*).

The Waal

- ▼ Combat soil erosion and sedimentation.
 - Perform good monitoring, adjustment and evaluation of the pilot projects 'Sedimentation on the Upper Rhine' (Sedimentsuppletie BovenRijn) and 'Longitudinal Dams on the Middle Waal' (Langsdammen op de MiddenWaal) and of the completed projects in the programmes 'Room for the River' (Ruimte voor de Rivier), NURG and the Water Framework Directive.
 - Develop, realise, monitor and evaluate a package of measures for the shipping bottleneck at Nijmegen.

- At the same time as the above actions, carry out a follow-up DVR2 study (MIRT study), in which the various management measures are developed further, and then combine these into possible packages of measures for the Rhine tributaries.
- Further development of the package of measures for solving the problem of the bottleneck in Nijmegen.

▼ Investigate whether the procedures for the MGD (Minst Gepeilde Diepte, Least Gauged Depth) can be divided up. Include the costs and benefits and relate this to CoVadem. The CoVadem project (Cooperative Depth Measurements) is a pilot project in the framework of 'Use Better' (Beter Benutten) in which equipment is fitted to a number of inland ships to display the current water level, enabling them to sail more efficiently. In the future, this may lead to ways of displaying the channel and water depths digitally and automatically basing fairway navigation on this in drier areas.

▼ Ensure robust diversion routes in the event of low water levels or emergencies. In future decisions on infrastructure, take into consideration the northern route via the river Lek and the Lower Rhine, and the southern route via the Meuse as diversion routes. Bottlenecks on the Lek and Lower Rhine fairways are the shallows at Klaphek and Arnhem. The main bottlenecks on the Meuse are the current lock at Grave (limited capacity and dimensions) and the narrows at Niftrik. In addition, the limited height of the railway bridge at Ravenstein constitutes a minor bottleneck.

The Meuse and the Brabant Canals

▼ Ensure 24/7 operation of locks on the corridor waterways for the long term. At the moment, these are funded by the region for a period of ten years.

▼ Investigate the possibility of a second larger lock chamber in Grave. Enlarging the lock chamber (to make it suitable for class VB vessels) may contribute to the robustness of the East and Southeast corridors. Linking opportunities might be sought in the possible replacement of the weir at Grave (owing to end-of-life) and re-using the disused lock chamber. Include in this deepening the narrows at Niftrik to completely resolve the bottleneck at Grave.

▼ Include the Julianakanaal and the Weurt lock in the 'Replacement and Renovation' programme. In replacing the Weurt lock, see whether deepening is cost-effective.

▼ Explore opportunities for optimising the width of the fairway on the Born -Ternaaien section. Also explore the possibilities of CEF support as this is an international inland shipping connection for which there is no obvious alternative. Other parts of this connection (Maaswerken and the Albertkanaal) have already received extensive European support.

▼ Link improving the navigability of the Meuse to other projects, such as water safety (Rivers Delta Programme). Also allot a place to the theme of navigability when work on the Meuse is carried out. In the case of river-widening projects as part of the Rivers Delta Programme, one of the aims is to achieve more than just water safety. For example, in the MIRT study of Ravenstein-Lith, improving entry into the port of Oss will be explored in more detail. Also, there may be opportunities in the MIRT study of Meuse Venlo (expanding logistics and possible construction of moorings). Furthermore, there are possible linking opportunities in the MIRT study of Maastricht. It is also important, where possible, to integrate projects that can improve the navigability of the Meuse into the long-term ambition for which agreements will be made in 2018 for river widening after 2028.

▼ Research into locations for pusher-boat concepts. There will be opportunities envisaged for pusher-boat concepts for the capillary system on the smaller canals, such as the 'Watertruck', in order to use these waterways better now and in the future. To develop this concept, further research could be conducted into where locations should be situated in order to enable the use of pusher-boats on these routes.

Facilities for inland shipping: moorings and overnight moorings

▼ Roll-out of BLIS on the corridors. Moorings can be used more efficiently if IT solutions are used to identify available moorings, for example, with the Inland Shipping Mooring Information System (Binnenvaart Ligplaats Informatie Systeem, BLIS) that is already being used in the port of Rotterdam. BLIS now also provides information on moorings in the rest of South Holland and the port of Amsterdam. Currently, Rijkswaterstaat is busy preparing BLIS for national use. This is expected to be available in mid-2017. The management services of Rijkswaterstaat will be asked to incorporate mooring information for the two corridors in the system. This will enable skippers to see at a glance where there are available moorings. This can reduce unnecessary shipping movements and emissions, allowing savings in terms of time and fuel.

▼ Investigate promising mooring locations and include in this the motion of Smaling et al (*Parliamentary Document 34 550 A, no. 49*). Optimise mooring facilities: (cone) moorings, berths for pusher boat/barge combination at locks and multi-day berths for pusher-boats.

- Investigate new opportunities for moorings along the Waal, possibly combined with other river interventions. For example, the developments at Varik-Heeself might offer opportunities for creating new moorings.
- Investigate promising new mooring locations on the Lith-Amer and Belfeld-Sambeek routes. For the Lith-Amer route, opportunities are seen in Heusden, Keizersveer (at the former service district building), Waalwijk, and locations where space will be provided as a result of the pioneering projects of the Rivers Delta Programme. For the Belfeld and Sambeek route, the area around the port of Wanssum (Ooijen-Wanssum project) seems interesting in view of the geographical location between both locks. In addition, in the context of the Rivers Delta Programme, it could be interesting to investigate whether there are linking opportunities in the vicinity of Venlo (MIRT Maas Venlo exploratory study) and perhaps in the possible side channel at Well (HWBP exploratory study).
- Investigate widening the entrance to the port of Heijen in order to expand/use more efficiently the mooring capacity already constructed by RWS ZN for large class V vessels and pusher-boats in the port.

ACTIONS TO OPTIMISE THE RAIL MODALITY (CHAPTER 9)

▼ Optimising capacity utilisation in the railway infrastructure by the parties in the chain (carrier, operator, terminal, infra-managers) making the best use of available information/data provided by (new) ICT technology. Sharing information also requires trust between chain partners.

▼ Reduce local external nuisance (external safety, noise and vibration) in the urban area along the Brabant Route (especially the Drechteden region). Embed the experiences gained with the Robust Brabant Route approach to improve liveability and sustainability around the rail network and in urban areas.

▼ Improve information provision on the transport of hazardous substances and the operation of Basisnet.

▼ Work on improving the image of rail freight transport. Communication and providing citizens and municipalities with information on the importance of freight transport on the Brabant Route.

▼ Make sure there are sufficient passing tracks and freight yard tracks on the Brabant Route to take trains of 740 metres in length.

▼ For the Kijfhoek yard, IenM, ProRail and the Rotterdam Port Authority will determine the extent to which the current Maintenance, Management and Replacement (BOV) programme fits the vision for the future of Kijfhoek.

▼ Roll out ERTMS on the Southeast corridor. The Betuwe Route is already equipped with the ERTMS European management system. According to the ERTMS roll-out strategy, the entire Brabant Route will be equipped with ERTMS. This will not be completed before 2030, but the Meteren-Eindhoven (2026) and Eindhoven-Venlo (2027) routes will be tackled before then. The Eindhoven-Venlo was prioritised in the earlier Preference Decision as one of the first routes to be equipped with ERTMS.

▼ It will have to be investigated whether the 'last mile' of freight transportation by rail could be carried out more efficiently. The optimum logistics solution will be sought for each location where loading and unloading takes place, in combination with volumes, operating frequencies and type of transshipment, depending on the needs of the market.

ACTIONS FOR OPTIMISING THE PIPELINES MODALITY (CHAPTER 10)

▼ Monitor the spatial planning developments relating to pipelines so that timely intervention is possible in the event of impediments to pipeline routing. During the MIRT-study, this action has already led to supplementary agreements that will be implemented in 2017. Rijkswaterstaat and Gasunie are leading this. The approach will be included in the new pipelines handbook.

▼ Investigate the possibilities for accelerating the spatial planning procedures for laying pipelines and map the possibilities for this provided by the Environmental Planning Act.

▼ Re-assess the knowledge accumulated in the past about underground transport and develop this further where necessary.

▼ Stimulate regional initiatives based on the pipelines platform and set up testing grounds for experimentation. There are already some testing grounds on the corridors for developing further initiatives based on

practice, and also identifying knowledge gaps. These testing grounds are the chemical cluster in Geleen for the role of pipelines in accessing this (chemicals transition); the industrial complex in the port of Rotterdam for the role of pipelines in energy transition, and the province of North Brabant for the role of underground freight transport in logistics transition. Explore the possibilities for applying for European funding.

- ▼ Set up a Pipelines Transition Task Force to develop a vision and strategy on the transition from fossil to non-fossil fuels and the contribution that the pipelines modality can and must make to these transitions in the chemicals and energy sectors. An important aspect here is preventing more and more pipelines being laid for non-fossil fuels next to existing pipelines for fossil fuels that will have to be removed in time. Subsequently, it will have to be established to what extent existing legislation limits the re-use of existing pipelines for other purposes and by parties other than the original owners/users. The task force will be driven by the sector. It will also tackle in more detail the problems in the field of governance, and will work closely with the existing pipelines platform.
 - ▼ Include the opportunities for pipelines and underground transport in discussions about the competitive strength of the Netherlands, the future of freight transport, and logistics innovations such as synchromodal transport.
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