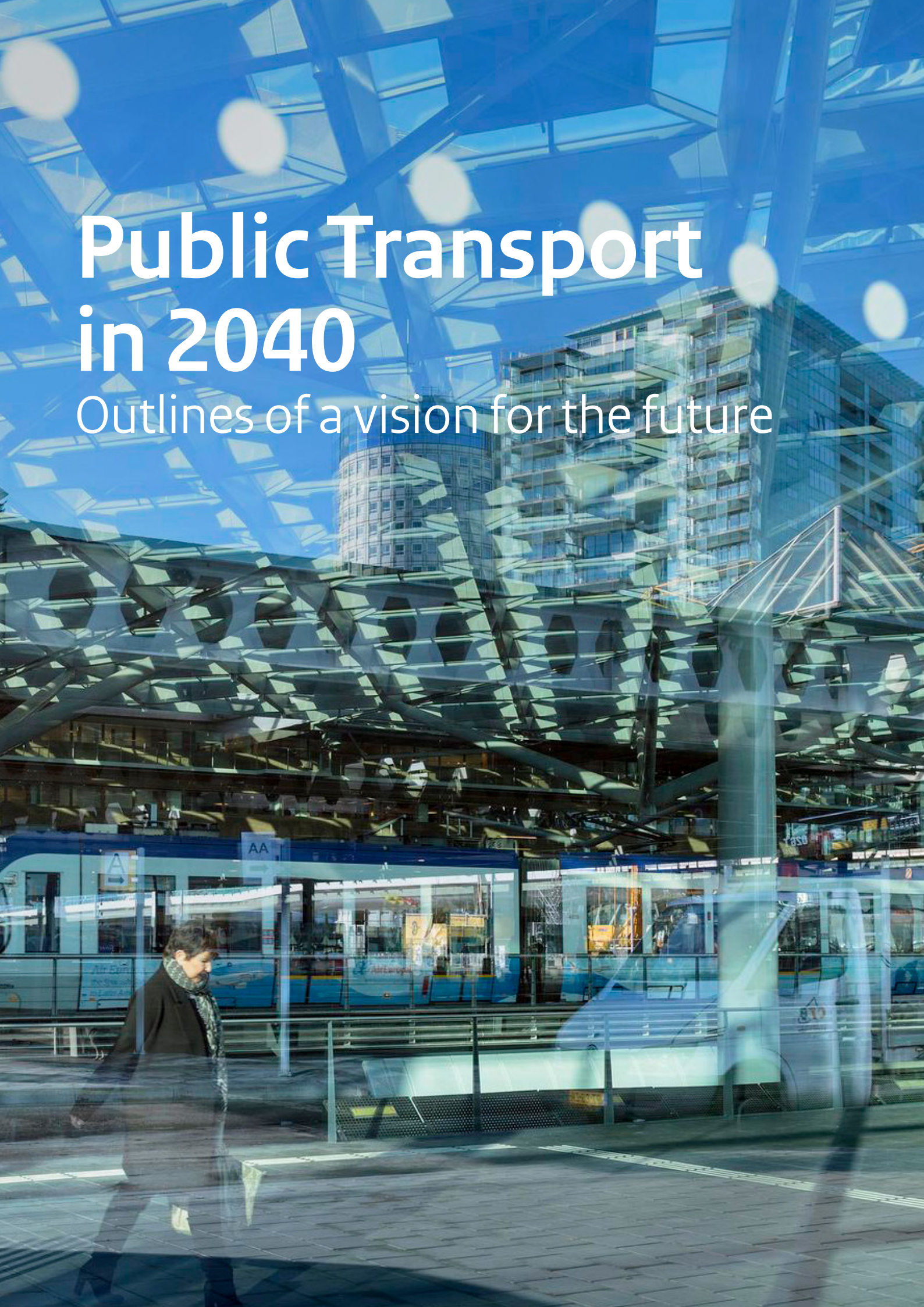


Public Transport in 2040

Outlines of a vision for the future



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Outlines of a vision for the future

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Foreword

In 2015, central government, the regions, transport operators and ProRail entered into a partnership with the aim of arriving at a joint strategy for public transport. In late 2016 they set out their ambitions in a plan endorsed by all parties for the future of public transport (see: 'Overstappen naar 2040' ['Moving forward to 2040']). The participants then launched a programme with a variety of projects to flesh out these ambitions. This document is the result.

Use of the term 'outlines' was a conscious choice to emphasise the many uncertainties in this vision for the future and the need for follow-up and further specification. We have no blueprint, there is no price tag attached and we offer no ready-made solutions. But the outlines set a course for the future, for example in relation to a number of major problems, and it includes objectives and joint follow-up steps.

We have chosen to take an adaptive approach, moving forward step-by-step, responding to new developments while keeping sight of our objectives. Implementation of the outlines will be actively monitored and regularly updated (e.g. every five years). Before the end of 2019 we will consult with the newly installed provincial councils to elaborate the actions set out in this document.

In carrying out the analyses needed for these outlines, we looked beyond our transport system. Decisions and developments elsewhere have repercussions on transport. And vice versa, the transport system should also influence choices in the field of, for example, urbanisation. The interaction between these choices and developments is clear. But in drafting these outlines, we have decided to focus on choices on which the public transport sector can exert direct influence.

This document first looks at the challenges, ambitions and objectives. It then examines principles and actions within three pillars. The document ends with an estimate of the costs and the follow-up process needed for more tangible decision-making. It also contains an overview of the actions parties will undertake in the near future.

A major, urgent challenge

The Dutch economy is booming, and this is reflected in the tight employment and housing markets, and in the congestion on our roads and bike paths and in every form of public transport. But growth in demand for transport varies: there is more demand in and around urban areas than elsewhere (see Figure 1.a and 1.b). And while economic activity increases, we are faced with the challenge of radically reducing CO₂ emissions.

Public transport, certainly in combination with cycling, plays a major role in the journeys of millions of people every day. In 2017, passengers travelled a total of 25 billion kilometres by public transport. Public transport plays a major role in travel in and between towns and cities in particular. We already foresee 30-40% autonomous growth of public transport in the years up to 2030 and 2040. We also envisage a considerable growth in rail freight transport (from 41 million tonnes now to 54-61 million tonnes in 2030). Due to this growth in passenger and rail freight transport, the public transport network for railways, bus, tram and metro

is now approaching overload in some areas, and the quality of service is under threat. Users experience this congestion at peak rush hour times in particular (see Figure 1.c). The 2017 National Market and Capacity Analysis has already identified major bottlenecks for transport after implementation of the current Multiyear Infrastructure, Spatial Planning and Transport (MIRT) programme.

Figure 1.a
Anticipated growth in number of train journeys



Figure 1.b
Growth in passenger kilometres in Rotterdam-The Hague metropolitan area (tram, bus, metro)

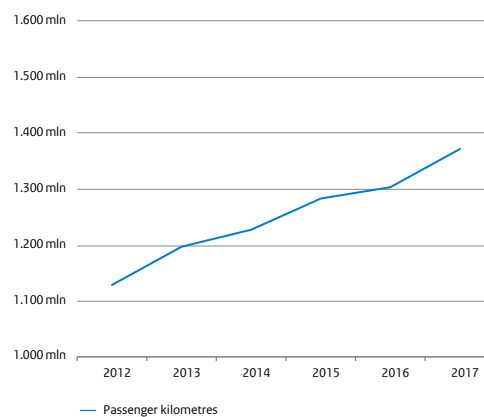
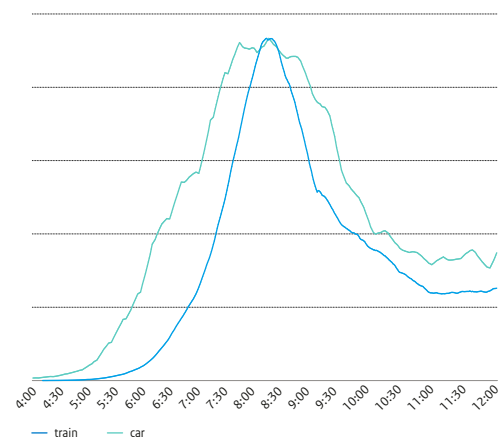


Figure 1.c
Average capacity utilisation of roads and rail in the morning rush hour (journeys longer than 20km in the Randstad conurbation)



In 2015, central government, the regions, transport operators and ProRail entered into a partnership with the aim of arriving at a joint vision for public transport. In late 2016 all parties endorsed the following ambitions for the future of public transport.

By 2040 travel for people in the Netherlands will be fast, sustainable, safe, comfortable, reliable and affordable. To travel to work, school and leisure and social destinations they will use their own transport, public transport or a combination. Connections will be good both within the Netherlands and with our neighbouring countries; big cities will have well-developed collective transport systems, with short travel times. Good transport links for individual users have made the Netherlands into one of the most competitive, liveable and sustainable countries in the world. Public transport is an essential component of the whole transport system which focuses on passengers and their door-to-door journeys.

Objectives

In order for public transport to help meet social and spatial challenges relating to the economy, housing and the human environment, we aim to achieve the following five objectives by 2040:

- Public transport will assume its share of the growth in demand for transport; in urban areas, public transport and bicycles will be the main modes of transport.
- Passengers will rate public transport with an average score of eight out of ten.
- The entire public transport sector will be emission-free and circular.
- The Netherlands will pioneer public transport innovation.
- While intensifying public transport we will also seek ongoing improvements to safety and quality of life in surrounding areas.

For the objectives for goods transport, see the package of measures for rail freight transport (in Dutch).

In 2016, central government, the regions, ProRail and transport operators identified their ambitions for the future of public transport. Since then, the challenges we face have become even greater. Given the length of time often needed to prepare and carry out infrastructure projects combined with the limited period for which public transport contracts are awarded, it is essential that we agree NOW on a number of principles for the future of public transport as a major part of our transport system. In this document, these principles have been divided into three pillars:

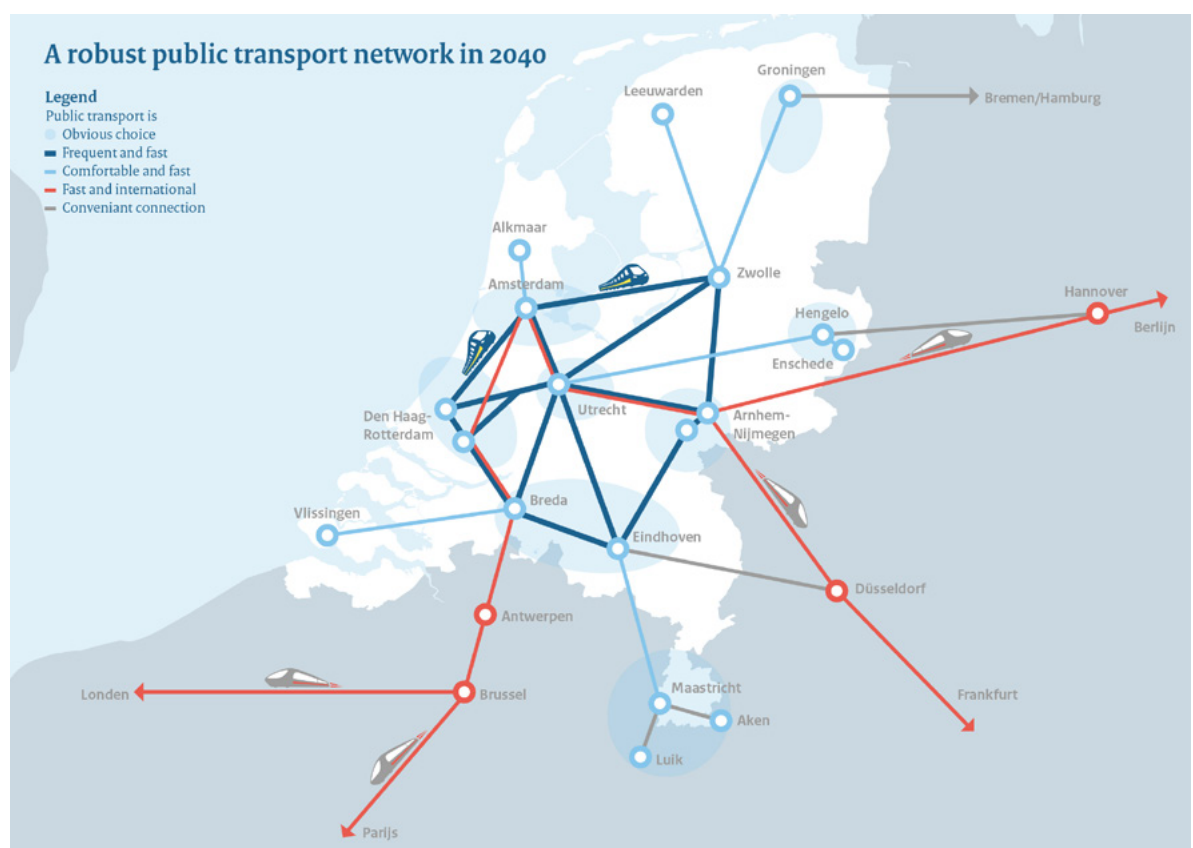
1. Focus on the strength of public transport
2. Barrier-free door-to-door transport
3. Safe, sustainable and efficient public transport

The above objectives and further specification of the three pillars into principles and actions entail a best efforts obligation for all parties in the public transport sector.

Pillar 1: Focus on the strengths of public transport

Public transport makes jobs and other activities accessible. This entails fast, frequent travel in a wider urban region, with a number of major arteries providing access to other parts of the country and our neighbouring countries. By 2040, the quality of the public transport network will have been vastly improved to create an interlinked network within the urban regions, between the Netherlands' major economic hubs and reaching out across the border, including for goods transport. Demand-driven services and concepts such as car-sharing, bicycle-sharing and taxis will have evolved, leading to a shift from public and private passenger transport to shared transport, and forming a high-quality addition to the public transport network.

The growth plans for national, international and regional goods transport will lead to conflict on congested parts of the network in the years to come. This will call for decisions on better utilisation and/or investment in the network to increase capacity. Choices in the network are strongly interdependent. The development strategy is outlined below, by level.



The national network: connections between cities

Public transport enables large numbers of passengers to travel between cities in a way that is safe, sustainable, cost-effective and spatially-effective. Good connections between major economic hubs help strengthen their spatial and economic structure. Public transport also plays a major role in resolving social challenges, especially where space is at a premium.

Our aim is to strengthen the national network where the impact will be the greatest and where passenger numbers are highest. We will continue developing high-frequency public transport services connecting Amsterdam, Zwolle, Arnhem-Nijmegen, Eindhoven, Breda and The Hague-Rotterdam.

In places where the public transport system is approaching overload and where quality is under threat, mainly at peak rush hour times, we will seek to increase capacity. We plan to improve the quality of the major arteries between the Randstad conurbation and the north, east and south of the Netherlands by responding more readily to passengers' needs. We will need to draft a customised strategy for each artery in terms of frequency, number of stops and speed, as well as related strategies for cars, bicycles and bus rapid transport (BRT). Further studies are necessary into the effectiveness, including in terms of cost, of reducing travel times along each corridor, and how and within what timeframe this should be achieved.

Rotterdam Central station: Cross for national, international and daily urban system transport

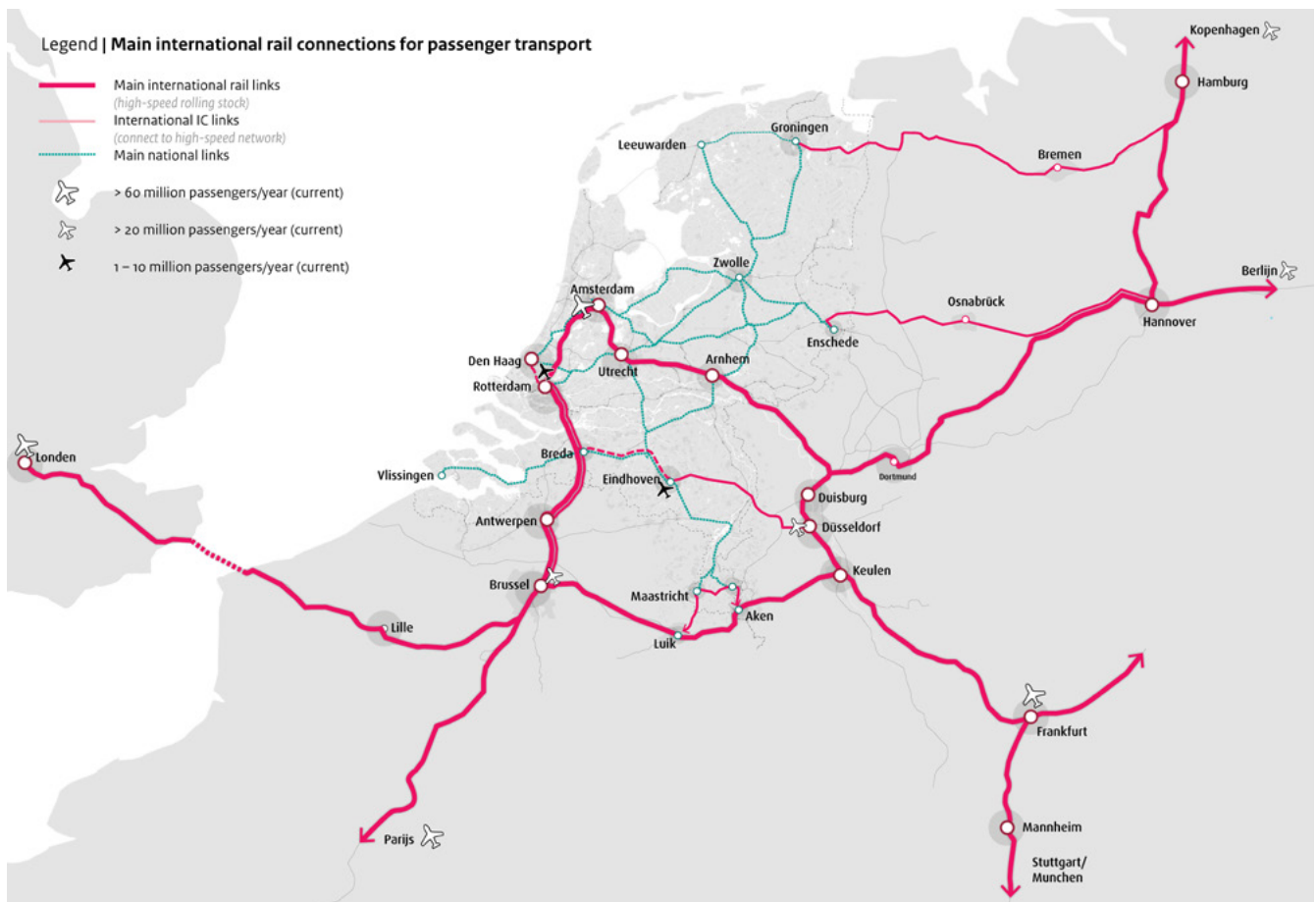


The international and transboundary network

The international public transport strategy operates on two levels – connections with the border regions and fast, sustainable connections between the Netherlands and the main economic hubs in our neighbouring countries. The latter will be achieved by connecting into the European high-speed rail network in the short term.

In order to ensure better connections between the border regions and to support their economic development, intercity networks in the Netherlands will be linked up to intercity stations across the border which have connections to high-speed rail networks. To this end, we are also exploring scope for extending certain domestic intercity lines to our neighbouring countries – for example, an international connection from The Hague, via Eindhoven to Germany and from the Randstad conurbation via Groningen to Germany. We will work with our neighbouring countries to determine how and within what timeframe these transboundary connections will be developed.

A fast and sustainable connection between the Netherlands and the main economic hubs in Germany, Belgium, France and the UK depends on rail travel being an attractive alternative for road or air travel for journey times of up to around six hours. To achieve this, we aim to have one high-speed transboundary link with Belgium and Germany respectively, providing onward connections to major European metropolitan areas. To this end, we will need to strengthen the high-speed railway line between Amsterdam and the Belgian border (HSL) and develop an eastern corridor from Utrecht to Arnhem and Dusseldorf.



Urban public transport

Urbanisation will present a huge challenge up to 2040, particularly in the areas designated by the Spatial and Economic Development Strategy where around 720,000 of the total number of 945,000 new homes are planned. An increase in public transport services will be needed to ensure cities' growth does not compromise liveability. In some places, growth is already leading to problems. Studies show that in some cases minor interventions may solve bottlenecks in the bus, tram and metro networks in the medium term (2030).

Given the great challenge urbanisation presents, it is necessary to dovetail spatial development and accessibility. More concentrated development in existing built-up areas close to public transport protects the open spaces around cities and results in people making fewer journeys by car. To safeguard liveability in the cities, supplementary spatial policy is needed on, for example, bike and car parking, low-emission zones and planning of public spaces.

In some cities, the national and local public transport networks are closely interconnected and act as 'communicating vessels'. The two systems need to support each other in the wider interests of mobility.

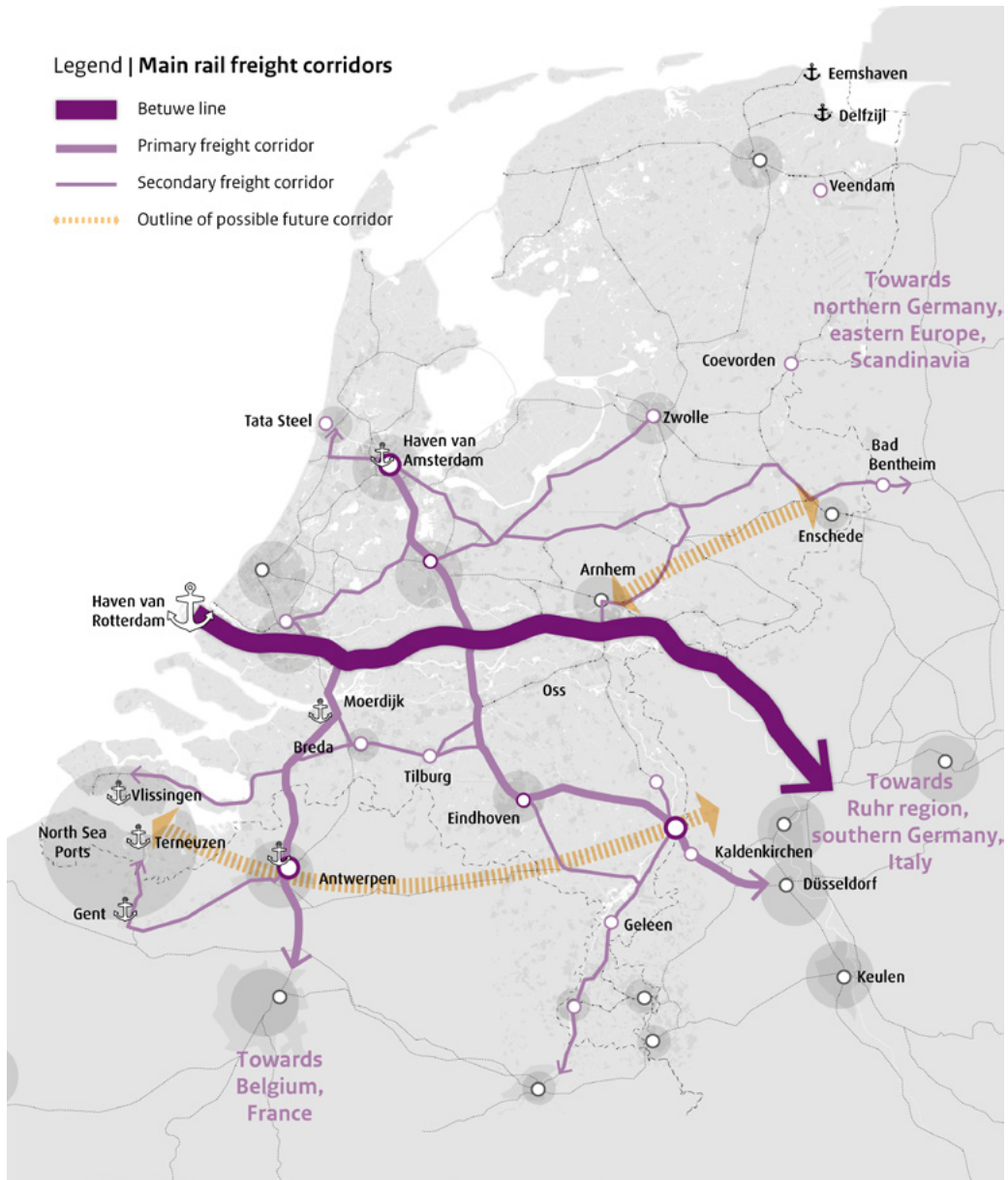
Regional rapid transit

In the regions outside the conurbations, public transport also helps keep amenities accessible. Services can be improved in these areas through targeted action. In various parts of the Netherlands, the transition from traditional urban and regional transport to attractive local/regional rapid transit networks has begun. This involves combining high-frequency services in and around cities, resulting in better service delivery. Moving on to 2040, demand-driven transport services will supplement the major rapid transit arteries (see pillar 2). In addition to strengthening local/regional rapid transit networks, regional hubs will be incorporated in the national public transport network. We have identified promising development paths for each region (see below).

Interlinked national network and goods transport

To expand capacity we will need to make sizeable investments, precisely in parts of the network that are used intensively. Such investments are more feasible if they serve several goals, for example for international, national, regional passenger and goods transport. Collective solutions are a sound strategy at every level of the public transport system, since it has a twofold impact: it results in better service delivery and thus results in higher service uptake. This leads to more growth and higher quality at a lower cost. For the rail network this will entail targeted investment in a number of focus corridors, without reducing the quality of existing connections.

The growth plans of the passenger transport and freight sectors will lead to conflict on busier sections of the rail network in the 2030-2040 period. In order to enable growth, we are therefore exploring scope for more flexibility in the current distribution of capacity in order to harmonise passenger transport services, which operate according to a fixed timetable, with freight transport that operates within dynamic logistics chains. We also plan to link up rail freight flows wherever possible, with optimum utilisation of the Betuwe line, in combination with sufficient capacity on the Oldenzaal – Bad Bentheim, Venlo – Kaldenkirchen and Roosendaal – Essen lines for rail freight. This could create space on and along busy sections of the network for, for example, urban development, with opportunities for passenger transport. We will explore scope, with the urban regions, for financial linkages. After we have evaluated the impact of this package of measures, we will examine whether further action needs to be taken in a coherent, adaptive manner. The possibility of developing an alternative rail freight link (e.g. in the east of the country) will need to be studied in terms of cost-effectiveness, spatial feasibility and time required, also taking account of the ambitions for passenger transport. Our aim is to create as many win-win situations as possible on the basis of a comprehensive analysis.



To flesh out and underpin these development paths and thus identify the specific problems we will need to address, we have decided on the following actions:

- 1 We will work together to define the frameworks for elaborating both the national and regional development paths. This will entail marking out the network and identifying assessment criteria, with cost-effectiveness and the objectives of this strategy for the future of public transport forming important elements.
- 2 Government will ask ProRail and transport operators to flesh out national themes like transboundary services, utilisation and innovation. ProRail and rail operators for both passengers and freight will safeguard coherence between national and international strategies. The above frameworks will be used to support these actions.
- 3 Working with transport operators and central government, the regions will flesh out the regional development paths. ProRail and rail operators will indicate where the main rail network offers scope for development. Development of a regional rapid transit strategy will also need to be coordinated with road authorities. The above frameworks will be used to support this and to ensure comparable results in the regions.

Utilisation and innovation

Utilisation measures introduced in the past few years have shown that a small shift in the number of passengers can relieve the worst congestion at peak rush hour times and improve the cost-effectiveness of public transport. Some potentially promising measures aim for changes on the demand side, e.g. staggered school and working hours, price incentives or strategies targeting employers. Other measures target the supply side, e.g. use and design of rolling stock and strategies on stations and stops. In combination with innovations, utilisation measures can contribute to a major leap towards a state-of-the-art public transport network and rail system that is fit for the future.

In order to fulfil ambitions for safe, sustainable, reliable and smart public transport and mobility in the future, we are aiming for innovations that can be introduced in smaller steps, bigger steps, or in a single leap. Innovations are needed for better, smarter, safer and more sustainable utilisation of existing public transport networks and to improve the quality of services for both passengers and people living near public transport infrastructures.

Artist's impression of a train carriage in the future



In order to improve utilisation of available capacity, invest more intelligently and make public transport more attractive, we have decided on the following actions:

- 4 At bottlenecks, we will examine a wider range of options for better utilisation before deciding to invest. Central government and the regions will examine which measures at national and regional level are likely to be the most effective and, if necessary, initiate pilot projects before scaling up to regional or national level.
- 5 Given demand on the main rail network, pilot projects will be launched with price incentives and with alternative deployment and design of rolling stock.
- 6 Central government and the regions will continue rush hour avoidance projects in urban regions, including trials with smart products, pricing experiments, joint agreements and marketing strategies. The regions also want to experiment with regional customisation and basic fares in urban/regional public transport for holders of student public transport passes.
- 7 Before the end of 2019, central government, ProRail, transport operators and other possible stakeholders will explore whether and how standards can be adjusted so that the capacity of the existing rail infrastructure and/or rolling stock can be used more cost-effectively, without compromising safety and the accessibility of economic hubs or other parts of the country. This may lead where necessary and possible to legislative amendments to.
- 8 In 2019 central government, jointly with the regions, transport operators, ProRail and knowledge institutions, will launch an adaptive innovation agenda to drive and link up innovations. Together we will prioritise these innovations and actions and where possible fund and manage them.
- 9 The rollout of ERTMS, innovation in automatic vehicle technology and further computerisation of operating and control systems, will result in a digitalised railway system that can be utilised to the full where necessary.

Public transport development paths by region:

Studies in the framework of the vision for the future of public transport produced the following regional development paths. These are additional to the national development paths outlined above and they differ from region to region. With these national development paths we do not intend to run ahead of decision-making in the context of the Multiyear Infrastructure, Spatial Planning and Transport (MIRT) programme.

Northern Randstad conurbation

In the northern Randstad capacity will need to be enlarged in the short and medium term at both urban and regional level, and in and around Amsterdam in particular. This is necessary to remove bottlenecks in regional, national and international networks and to facilitate spatial development and the achievement of policy objectives (e.g. restricted-traffic zones). This will require costly, large-scale interventions which will have a positive impact at every network level. In the interests of effectiveness and planning, all this must be fleshed out in an integrated development strategy based on the regional vision on the future of public transport. Regional strategies will need to take on board the impact on major public transport hubs like Amsterdam Zuid, Amsterdam Centraal, Amsterdam Bijlmer ArenA and Schiphol. Smart interventions will serve a broad range of objectives concerning rail capacity, urban and regional network capacity, growth and access to large new housing estates.

Southern Randstad conurbation

Capacity needs to be enlarged in the southern Randstad at both urban and regional level to remove bottlenecks in the bus, train and metro network, to cater for urban growth and facilitate spatial development. In Rotterdam this will entail new public transport services by river alongside intensification and maximum utilisation of the metro network. In The Hague, urban public transport will be strengthened, for example on The Hague - Binckhorst - Zoetermeer corridor and the corridor to the southwest of the city. To improve access to the new housing estates between Dordrecht and The Hague, and possibly also relieving congestion on the Rotterdam metro network, a promising idea is to increase the frequency of services on the railway line between the two cities and add new stations (a light rail system will be the first option to be explored). The working group on urbanisation and metropolitan public transport should explore how, within what timeframe and with what effect urban and regional transport should be strengthened, taking account of future spatial developments. HSL-Zuid, the region's high speed railway line, connects it to the European network. Scope for a direct international connection through Eindhoven to Germany – incorporated within the domestic intercity network – needs to be studied.

Central part of the Netherlands

In the central part of the Netherlands, the capacity of the public transport network needs to be enlarged to remove bottlenecks and facilitate urban development. Intercity services to stations on the outskirts of Utrecht would relieve congestion at Utrecht Centraal station and on the Uithof light rail line, and would also impact on the national rail network. In combination with non-radial rapid transit this could also improve access to the Utrecht Science Park. This strategy and its effects, together with a timeframe, should be fleshed out in the framework of the U-Ned regional programme. Product differentiation on the rail network presents opportunities to reduce journey times to Arnhem (in combination with international transport), The Hague/Rotterdam and possibly also Amersfoort. This calls for further exploration by corridor, taking on board regional rapid transit systems and future housing developments. »

Northern part of the Netherlands

The northern part of the Netherlands would benefit from good regional public transport combining bus and regional railway services and a good connection to the Randstad. Wherever possible, efforts should be made to reduce journey times on the connection with the Randstad, since this will help make the north more accessible and attractive as a business location. Both the northern and eastern parts of Netherlands will benefit from reduced journey times between Zwolle and Amsterdam, making this the most promising strategy. Studies need to be conducted into the cost-effectiveness of reducing journey times between the northern Netherlands and the Randstad, how this should be effected and within what timeframe. There are good opportunities for adding new destinations to the rail network (e.g. Stadskanaal) with relatively little effort. Further opportunities to strengthen public transport, in particular bus rapid transit, should be examined in relation to spatial challenges and broader developments like 'mobility as a service'.

Eastern part of the Netherlands

A promising strategy in the eastern part of the Netherlands is to link a number of regional railway lines to the main hubs: Winterswijk – Zutphen – Apeldoorn, Achterhoek – Nijmegen Heyendaal (Radboud University) and North Limburg (Venray) – Arnhem. Similarly promising is the introduction of fast trains on a number of regional lines: Nijmegen – Venray, in the Achterhoek region and Zwolle – Twente. The effects of this measure needs to be studied, partly in relation to opportunities to strengthen bus rapid transit. That applies in particular to the Arnhem interchange. Increasing the frequency of services on the Amsterdam – Utrecht – Arnhem corridor will create scope for product differentiation. Further studies should show how journey times can be reduced effectively between Utrecht and Arnhem, in relation to ambitions to link Utrecht and Arnhem up to the European high-speed network at Düsseldorf. Further study is also needed into a rail freight connection from the Betuwe line to Bad Bentheim in combination with a fast line between Arnhem and Hengelo, which could relieve congestion in some parts of the Randstad. Further studies will be needed to establish whether these major interventions will be effective and how and within what timeframe they should be carried out. Further development of Zwolle as a railway network hub will need to be explored within the context of the entire rail network in the north and east Netherlands.

Southern part of the Netherlands

In the southern part of the Netherlands, we intend to reduce journey times on the connections from Zeeland, North Brabant and Limburg with the Randstad and will not consider alternative lines as yet. Growth of the rail network has a negative impact on its robustness. We will focus on strengthening the weak links in the network, making it more robust, and increasing capacity, with a view to attracting more passengers. International accessibility will be strengthened through the Breda and Eindhoven network hubs and through Maastricht/Heerlen. Breda offers optimum connections to the European high-speed network via HSL-Zuid while cities in southern Limburg and Brainport Eindhoven can be better linked up to high-speed railway hubs in Germany and Belgium. We will need to explore scope for a direct international link from the southern Randstad to Germany via Eindhoven, but this can only be considered in tandem with domestic intercity services. Apart from a few large cities where plans for high-density development can put pressure on the rail network, North Brabant has many smaller urban and economic centres without railway stations. Studies are therefore needed to arrive at a coherent strategy for the regional transport system (including rail), in which bus rapid transit, bicycles and 'mobility interchanges' play prominent roles. The southern Netherlands is an ideal testing ground for innovation. Innovative bus rapid transit is now being explored for connections between Breda and Utrecht and various new transport services are being developed for the feeder network.

Pillar 2: Seamless travel door-to-door

By 2040 people will travel reliably, safely, rapidly, easily and comfortably from A to B. Public transport is part of the total system for mobility, as a major provider of safe, environmentally friendly passenger transport with a low spatial burden. Other modes have their own strengths. For distances of up to around 15 kilometres, the bicycle or e-bike is an inexpensive, healthy and sustainable transport mode. The combination of public transport and bicycle is therefore the most desirable travel solution in urban areas. Cars offer freedom, speed and flexibility for journeys of over 15 kilometres outside built-up areas, particularly where public transport services are thin on the ground due to smaller concentrations of passengers. Apart from public transport, private cars and bicycles, there are also taxi services and various forms of transport run by volunteers. And all kinds of new, sharing-based concepts with cars, bicycles and scooters are fast gaining ground. They play a major role in the last mile, and in combination with public transport relieve pressure on parking spaces in cities. In time, autonomous last mile vehicles – possibly in a sharing system – may also be added to the range of travel options.

To ensure optimum use of all transport modes and services, integrated mobility and ‘mobility as a service’ are important developments. In this concept, users come first, and face little or no inconvenience changing from mode to mode. Travelling from A to B is experienced as a single journey, even though it comprises various parts and involves using various transport modes. By 2040 this will be optimised for every user of transport services, including people with a disability.

Hubs as indispensable links in integrated mobility

To ensure an optimum journey, with easy access to and between transport modes, we are committed to creating efficient and attractive multimodal interchange hubs both within and outside urban areas. Apart from various services (e.g. restaurants, shops and parcel pick-up and drop-off points) within the hubs, the immediate vicinity offers good scope for spatial development (homes, offices and other amenities). The hubs need therefore to be seen in relation to their surroundings and their role in the public space. As links between transport modes, they are also of crucial importance to regional rapid transit. We are not only talking about infrastructure, but also about seamless travel solutions – for example good connections between transport modes.

To support this integrated approach, an action plan has been developed, in which cooperation and information sharing are important elements. The space in and around public transport hubs is often scarce. They are attractive locations, but at the same time designs need to provide sufficient space and flexibility for future needs, such as extra transport capacity, new transport operators or concepts and facilities supporting the energy transition, like electric vehicle charging stations. In each region, we need to decide which strategy is most opportune: do we need to concentrate development around a limited number of existing hubs? Do we need to develop large new hubs? Or, in busier regions, should we aim for a greater spread of passengers over smaller stations? Should transport infrastructure follow housing plans or vice versa? Apart from developing railway stations and main bus stations, we should also look at smaller nodes in the surrounding areas, for example bus stops or neighbourhood-level transport interchanges, where various sharing schemes are available.

In order to create efficient and attractive hubs we have decided on the following actions:

10. Central government, the regions and other stakeholders need to follow the action plan from an early stage. This plan serves as an aid in the planning and development of existing and/or new hubs, by clarifying what capacity and quality requirements need to be met in order for the hub to function as intended. In principle, because of spatial scarcity we will seek to combine development of the transport function with area development, including opportunities for integrated tendering and financing.
11. We will see which hubs are likely to require the most work and on this basis set an agenda for action in 2021. An assessment of the role of each hub as an interchange will provide useful information in this regard and will be performed in conjunction with plans for further enlargement of the network.

Harderwijk station



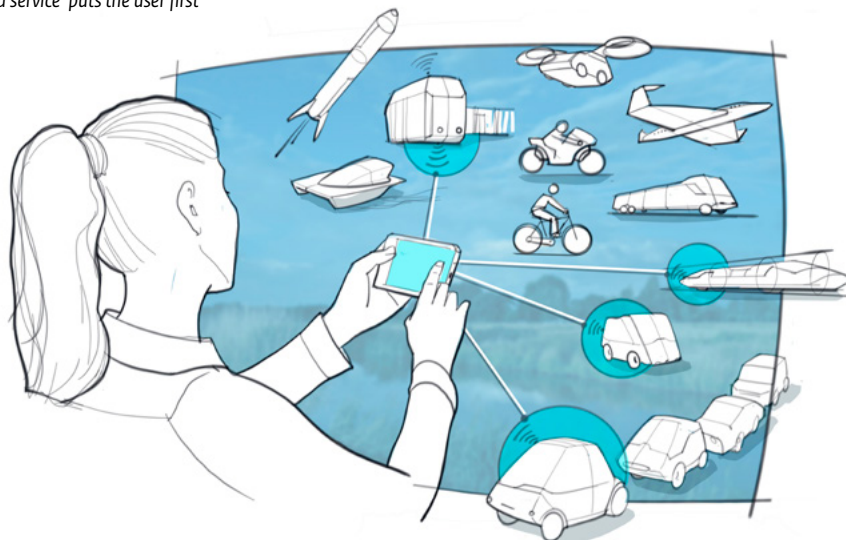
Open and accessible

If operators share data more readily, travelers will more easily be able to plan, organise and pay for journeys door-to-door. What is more, transport services and the investment they require could be brought more closely into line with demand. This would also lead to a level playing field for new transport operators and to innovative services, while enabling closer monitoring of the sector's performance.

In order to ensure seamless travel for all we have decided on the following actions:

12. Central government will coordinate a national action plan and work with the regions to give access to and link up all possible data on passenger journeys and payment (where possible, not only for public transport), with due regard for privacy, competition law and company confidentiality. If an evaluation to be performed in 2020 shows too little progress has been made, the government may decide to introduce legislation.
13. The contracting parties will agree to set requirements on access to data for each new contract, with due regard for privacy, competition law and company confidentiality.
14. Providers of other relevant transport services (including 'mobility as a service') may also be obliged to provide access to data, with due regard for privacy, competition law and company confidentiality.
15. We will continue to work on easier fare payment systems through the National Public Transport Council (NOVB).
16. Local, regional and provincial government will work together with stakeholders to develop a Model Information Profile on Public Transport Hubs (MIK) in line with the Model Public Transport Information Profile (MIPOV), where possible using existing publications (such as 'Dashboard deur tot deur' and 'Maak Plaats!').
17. We aim for public transport to be fully accessible for people with disabilities by 2040 in accordance with the UN Convention on the Rights of Persons with Disabilities. New services and new transport operators will specifically address accessibility and inclusiveness issues.
18. We will combine funds for transport of people with special needs and public transport and use digital and demand-driven transport innovations.

'Mobility as a service' puts the user first





New mobility solutions are key in public transport

Demand-driven transport

Transport users benefit from a seamless journey from A to B. This requires smooth connections between public transport and other transport modes. We expect new demand-driven concepts, such as shared bicycle and car services and bus rapid transit will soon be available to meet this need. Concepts like these tend to arise in cities, but do not always happen automatically in rural areas. To maintain or improve quality, well-designed public transport contracts will be needed as well, for instance, pooled funding for transport of people with special needs. We will also ensure independent access and harmonisation with other forms of public transport, while providing clear information on conditions, prices, ticketing and means of payment.

In order to ensure high-quality, demand-driven transport we have decided on the following actions:

19. Government authorities responsible for awarding contracts will ensure differentiation in public transport services, so that services are more in line with demand.
20. Based on pilot projects, including with 'mobility as a service, central government, the regions and other stakeholders will reach agreement at national level on interoperability and regulation with a view to safeguarding public interests such as accessibility and affordability.
21. Government authorities responsible for awarding contracts will provide scope for contract holders, new market parties and the community to exploit opportunities for demand-driven transport.

Pillar 3: Safe, sustainable and efficient public transport

By 2040 public transport will have grown exponentially in a way that respects the triple bottom line. Not only have stakeholders carried out their part of the climate agreement, they will also have taken environmental impact consistently and explicitly on board in their decision-making. The sector will use resources and public money wisely, taking account of the needs of future generations and of liveability and safety. Public support will have been generated. Safety will continually be improved. Sensible investment decisions will be based on expertise. Private vehicles will mainly use clean technology, but in cities public transport and bicycles will have priority. By embracing innovation the Dutch public transport sector will maintain its leading international position.

Sustainability and the impact on climate change

Public transport is already highly sustainable and is well on the way to becoming emission-free. It therefore makes a major contribution to achieving the aims of the climate agreement. The railways still need to complete the transition from fossil fuel to renewables as diesel engines are still in use on some routes. Bus operators are making the transition faster and will have zero-emission fleets by 2030. Moving forward to 2040, we aim to relieve pressure on city centres by diverting goods transport as far as possible to the Betuwe line. We are looking at a range of alternatives for the transport of hazardous substances using other transport modes and pipelines. This will free up space for urban housing development and optimise utilisation of the rail network.



Electric buses contribute to a cleaner environment

In order to enable public transport to continue making a contribution to sustainability objectives, we have decided on the following actions:

22. The sector will be practically emission-free by 2030.
23. By 2030, all public transport operators will operate fully on green electricity and will have adopted the principles of circularity in construction and maintenance and in managing services.
24. The sector will have halved its use of primary resources by 2030 and will be fully circular by 2050.
25. We will take account of climate change in our operational and crisis organisation and in the choices we make when constructing and modernising infrastructure (e.g. choice of materials/ location).

Safety and liveability

Public transport in the Netherlands is safe. But rising congestion on the railway network and other modes of public transport is putting safety and liveability at risk, and calls for supplementary measures and investment in response. We want the environmental impact of the projected growth in public transport and utilisation of the railways to remain constant or preferably be lower than at present. And we want to maintain the current level of safety and security in the broadest sense, from safety on railways and roads, safe interchanges and external safety to social safety and cybersecurity. In the interests of mobility, traffic circulation and safety we plan to reduce the number of railway crossings on the basis of a risk-driven approach. This will call for a joint effort.

To ensure that the impact on liveability and safety remains at least constant despite growth in public transport, we have decided on the following actions:

26. ERTMS will be introduced step-by-step, with priorities based on benefits to society, so that we achieve full coverage around 2050.
27. Central government, ProRail and road authorities will continue to work together on a risk-driven approach to railway crossings and will avoid building new crossings, from the viewpoint of both safety and traffic circulation.
28. We will work on a robust system (Basisnet) for the railways, striking a balance between safety of people in surrounding areas, transport of hazardous substances and spatial development.
29. Public transport stakeholders will form a knowledge platform enabling them to share the latest knowledge and developments, learn from each other and support each other in the field of cybersecurity.
30. External effects like noise, vibration and railway crossings will be taken on board in designs and cost estimates. We will give careful consideration to these environmental effects in decision-making on public transport.

Smart combinations with spatial development and funding

Given the need for urban development referred to above, it is important that spatial development goes hand in hand with the development of transport. To meet growing demand for transport and keep cities both liveable and attractive, supplementary spatial policy is needed, for example on bicycle and car parks, low-emission zones and planning of public spaces. In rural areas, strengthening public transport connections will help keep rural communities healthy.

Many of the current resources for public transport have already been earmarked and extra funds are limited, partly because the costs of management, maintenance and modernisation will increase. For this reason, various ideas have been mooted within the framework of this vision for supplementary and alternative forms of budgeting and funding. It is now important to learn practical lessons from actual cases and projects. This could help in attracting funding for infrastructure projects and in understanding the potential of various measures. We will also be able to see more clearly whether legislation presents an obstacle. Under the leadership of the Secretary-General of the Ministry of Infrastructure and Water Management, the Alternative Funding for Spatial Area Development study group will in the course of the year look at a wide range of funding models for spatial planning challenges, including accessibility.

In order to enable pooling and effective use of finance and to facilitate sustainable spatial and economic development, we have decided on the following actions:

31. By area, we will target the most suitable transport modes: in and between urban areas, public transport and cycling for short distances; demand-driven concepts where demand is too low for collective solutions.
32. Central government and the regions will develop a strategy for accessibility and urban development, focusing where possible in high-density development in existing built-up areas, linked up to existing public transport connections and hubs. This is already taking shape in various studies in the context of the MIRT and accessibility programmes.
33. Government authorities will link urban development programmes to transport challenges by reaching agreement on higher frequencies, expansion of rapid transit or incorporating rail services in the local urban transport system.
34. In future, an integrated approach will be taken to transport issues, including funding, in relation to area development in the context of spatial planning programmes. In busy parts of the network, or where space is scarce, this will often call for an extra focus on public transport, cycling and the development of hubs.
35. Central government will take these principles on board in the National Environment and Planning Strategy (NOVI). The regions will also set out their ambitions for the quality of the living environment in the provincial environment and planning strategies, regional transport strategies and urbanisation agendas.



High-density development goes hand in hand with urban transport

From outlines to results

From the perspective of mobility in a broader sense

As we are all aware, achieving the ambitions set out in this document will call for action on the part of all stakeholders. Keeping the Netherlands attractive and accessible will take all our collective efforts, knowledge and expertise, and administrative commitment. The vision for the future of public transport is itself a good example of joint action. But there is also a price tag attached. We cannot say with any certainty how hefty this will be. This document only sketches outlines, within which many choices still have to be made, for example on level of ambition, utilisation measures, solutions and timeframe. Many follow-up steps still need to be taken before investment decisions can be made, including decisions within the framework of the MIRT or on establishing a transport fund.

Very rough estimates of the costs of network alternatives show that much more money will be needed to meet these challenges and achieve these ambitions than is available, given stakeholder's current annual levels of investment. These estimates show that the more ambitious plans for the public transport networks, depending on level and degree of customisation, will cost from around ten billion to several tens of billion euros between now and 2040. That is additional to the amount already budgeted up to 2030. The estimates do not include improvements to network hubs, for example.

In drafting this document, alternative forms of finance for public transport have been explored. These also show that investment in physical infrastructure must be integrated into area-specific spatial and economic policy which is accompanied by an appropriate transport strategy. The accessibility programmes are good examples of such an integrated approach, producing a better return on investment in public transport. By optimising services, transport operators can free up money to improve the quality of their product. The recent adjustment of the MIRT rules of play and the establishment of the transport fund are representative of the kind of modernisation needed for consideration of a wider range of measures. The rules of play for the transport fund are currently being developed, while the transport agenda will set the course for the transport system as a whole.

In order to achieve the principles and lines of action set out in these outlines, we have decided on the following actions:

36. We will examine whether changes are needed to the current public transport contract system and the division of responsibilities between stakeholders, for instance in relation to funding, system integration and data.
37. Central government and the regions will ensure that benefiting parties also contribute, and tap alternative, additional sources of funding for public transport (e.g. development of public lands, parking charges and real estate).

38. Where support can be generated, regions will develop and jointly manage a regional transport fund that makes use of new, alternative forms of finance.
39. Within area programmes, business cases for integrated development will be fleshed out to serve as a basis for actions at local, regional and central level.
40. The transport fund criteria will promote integrated consideration of challenges and measures. Priority should be given to close alignment of transport and spatial planning policy.

Way forward

By drafting these outlines we have taken a more integrated approach to public transport. The partnership will be continued, but in a different form. The principles and actions set out above will be set in motion, monitored and, where necessary, adjusted. They are not carved in stone or binding, given the many, possibly unexpected, developments up to 2040. The actions will also need to be elaborated in further detail, for example in the area of finance. Stakeholders regard these outlines as the public transport sector's agenda. Actions will be translated into implementation strategies and the principles will be incorporated into the NOVI. Further elaboration of the network will lead to MIRT studies. Implementation strategies will be addressed in the strategic MIRT inter-authority discussions.

The degree of coherence between the various ambitions for public transport will in any event be discussed at regular intervals in the national public transport and railway roundtable and in regional platforms such as the Association of Provincial Authorities. Where interests conflict, e.g. where choices benefit some parties but not others, this may be put on the political agenda, with these outlines as guidelines.

In order to enable proper implementation of the actions:

41. We – central government, regions, transport operators and ProRail – endorse the principles outlined above.
42. We – central government, regions, transport operators and ProRail – will work on the basis of these principles in an adaptive, programme approach. This will safeguard the principles and coherence between the actions.
43. Progress with this adaptive programme approach will be discussed every six months in the steering group for this vision for the future of public transport, and every year at the national public transport and railway roundtable.
44. We will continue developing monitoring instruments such as the 'Deur-tot-Deur' dashboard for seamless travel door-to-door and the public transport user satisfaction survey ('OV klantenbarometer') and ensure they dovetail with these outlines.
45. The findings obtained with these instruments will be used for policy evaluation purposes at the annual national public transport and railway roundtable, enabling policy to be adjusted where necessary adjustment.
46. An agreement will be made on regular monitoring and updating of this vision. We will work with the newly elected provincial councils to flesh out lines of action before the end of 2019.

First steps: overview of actions

The following is an overview of the actions described in the above outlines. For the sake of clarity, the actions are presented in summary form. A full description is to be found in the relevant sections. We wish to emphasise that these are first steps towards achievement of the plans set out in these outlines.

	Action No.	Description	Who (initiative)
Pillar 1 strengths of public transport	1	Develop and define frameworks for elaborating regional and national development paths.	All
	2	Flesh out national themes and safeguard coherence of national rail network.	All
	3	Elaborate regional development paths.	All
	4	At bottlenecks, examine options for better utilisation of existing network.	All
	5	Carry out pilot projects on main rail network.	Central government, ProRail and Dutch Railways (NS)
	6	Encourage rush hour avoidance in urban regions.	Central government and regions
	7	Explore possible adjustments to standards.	Central government, transport operators and ProRail
	8	Launch a joint adaptive innovation agenda.	All
	9	Work towards a state-of-the-art digitalised rail system.	All
Pillar 2 Seamless travel	10	Apply action plan in developing hubs.	All
	11	Set an agenda for action on regional hubs in 2021.	All
	12	Coordinate drafting of national action plan on open data.	Central government
	13	Set conditions on open data for new contracts.	Central government and regions
	14	Require 'mobility as a service' providers to provide access to data.	Central government and regions
	15	Continue development of easier fare payment systems.	All
	16	Develop a Model Information Profile on Public Transport Hubs.	Regions
	17	Aim for fully accessible public transport for people with disabilities.	All
	18	Combine funding for transport of people with disabilities and public transport.	Central government and regions
	19	Adapt public transport to demand in areas concerned.	Central government and regions
	20	Reach agreement on interoperability and regulations.	Central government and regions
	21	Provide scope for initiatives by market parties and society.	Central government and regions

	Action No.	Description	Who (initiative)
Pillar 3 Safe, sustainable and efficient	22	Entire sector will be practically emission-free by 2030.	All
	23	Use of green electricity and principles of circularity by 2030.	Public transport operators and ProRail
	24	Use of primary resources halved by 2030 and fully circular by 2050	All
	25	Take account of climate change.	All
	26	Introduce ERTMS step by step.	All
	27	Continue strategy on railway crossings.	Central government, ProRail and road authorities
	28	Work on a robust system for the railways (Basisnet).	All
	29	Form a cybersecurity knowledge platform.	All
	30	Take external effects on board in decision-making.	All
	31	Concentrate efforts on strongest modes in each region.	All
	32	Develop an integrated accessibility and urban development strategy.	Central government and regions
	33	Link urban development programmes with transport challenges.	Central government and regions
	34	Take integrated approach to spatial planning programmes and related transport issues.	Central government and regions
	35	Incorporate principles in the NOVI and in regional environment strategies and ordinances.	Central government and regions
	From outlines to results	36	Examine contract system and division of responsibilities.
37		Take action to tap alternative, supplementary sources.	Central government and regions
38		Develop alternative forms of finance for the regional transport fund.	Regions
39		Flesh out business cases within area programmes.	All
40		Develop criteria for the transport fund.	Central government
41		Endorse principles set out in outlines.	All
42		Adaptive programme approach.	All
43		Discuss progress in steering group and public transport and railway network roundtable.	All
44		Continue developing monitoring instruments.	All
45		Discuss findings of monitoring.	All
46		Monitor and update vision for the future of public transport.	All

References

(All sources are in Dutch unless otherwise indicated)

Background documents

Theme: Demand-driven mobility

- Vraaggestuurde mobiliteit? Dat doe je zo! (Programma Toekomstbeeld OV, 2018) [*Guide to demand-driven transport, Vision for the Future of Public Transport, 2018*]
- Innovatieve vraaggestuurde mobiliteitsconcepten; succes- en faalfactoren [*Innovative, demand-driven transport concepts: success and failure factors*] Arup et al, 2018
- Report on demand-driven mobility (P2, 2018)

Theme: Public transport hubs of the future

- OV-knooppunten van de toekomst: een integraal handelingsperspectief (Programma Toekomstbeeld OV, 2018) [*Public transport hubs of the future: an integrated action plan. Vision for the Future of Public Transport, 2018*]
- Recommendations on the action plan (Railway architect's office, 2018)
- Reflections of the Board of Government Advisers (CRA) on the case studies (Board of Government Advisers, 2019)
- Board of Government Advisers (CRA) case study: ontwerpend onderzoek Regionaal OV-knooppunt Terneuzen [*Design study for Terneuzen regional transport hub*] (BUUR Bureau for Urbanism, 2018)
- CRA-case study: knooppunt Schiedam, advies [*recommendations on Schiedam public transport hub*] (Civic architects et al, 2018)
- CRA-case study: knooppunt Schiedam, presentatie [*presentation on Schiedam public transport hub*] (Civic architects et al, 2018)
- CRA-case study: knooppunt Eijsden [*Eijsden public transport hub*] (Rademacher/De Vries, 2019)

Theme: Alternative finance

- Alternatieve bekostiging en financiering Toekomstbeeld OV [*Alternative finance for the vision on the future of public transport*] (Rebel et al, 2018)

Theme: Developing the network

- OV NL 2040: benutting en innovatie [*Public transport in the Netherlands 2040: utilisation and innovation*] (SMA, 2018)
- Onderzoeksresultaten en aanzet ontwikkelrichtingen lange termijn netwerkuitwerking [*Research findings and first steps towards long-term network development paths*] (APPM Management Consultants, 2019)
- Toetsing en resultaten lange termijn netwerkuitwerking [*Assessment and results of long-term network development*] (Goudappel Coffeng, 2018)
- Maatregelen en kosten lange termijn netwerkuitwerking [*Measures for and costs of long-term network development*] (Movares, 2018)
- Bus, Tram, Metro-netwerk Toekomstbeeld OV; uitwerking voor de middellange termijn [*Bus, tram and metro network in the vision on the future of public transport: development in the medium term*] (Goudappel Coffeng, 2019)

Source references

- Figure 1.b: Oei ik groei, MRDH/RET/HTM, 2018
- Figure 1.c: NS/Strategy Development Partners, Intern rapport NS, [*Dutch Railways internal report*], Den Haag 2016.
- Interior of a train: Mecanoo, 2018.
- Photo of Harderwijk station: ProRail.

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- the 12 provincial authorities and the metropolitan regions of Amsterdam and Rotterdam-The Hague
- public transport companies: NS, Federatie Mobiliteitsbedrijven Nederland (the federation of regional transport providers), and municipal transport companies GVB, RET and HTM
- ProRail

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