



# SMART ACCESSIBILITY FOR A HEALTHY, ECONOMICALLY STRONG AND ATTRACTIVE ROTTERDAM

*Rotterdam Urban Traffic Plan 2017 - 2030+*

**Drawn up by**

Municipality of Rotterdam

**Report title**

*Smart accessibility for a healthy, economically strong and attractive Rotterdam*  
Rotterdam Urban Traffic Plan 2017 - 2030+

**In collaboration with**

Goudappel Coffeng

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# Foreword...

Mobility that connects people; now and, most especially, in the future. Mobility that has Rotterdam even more strongly become a city built on two banks, that adapts to the expected increase in our city's population and makes the changing economy grow. All of this, while at the same time ensuring that the air quality improves and contributing to the quality of life in the city. Mobility that livens up our city centre but does not create extra traffic on the city avenues and traffic arteries, which are already becoming busier and busier. Mobility that gives cyclists and pedestrians more space to move around the city safely without disturbing the distribution process and the flow of customers for entrepreneurs...

These are just some of the needs that we discuss as a City Council. Many aspects of this challenge have been laid out in a plan: the Rotterdam Urban Traffic Plan. It is a plan which, in the short term, requires action, including the redevelopment of Coolsingel and the launch of a plan to study a possible new western river crossing. In the long term, the plan requires the necessary room for research and experimentation. And it is a plan that explicitly outlines how all of these initiatives will, in the long term, contribute to the common goal: mobility as part of a healthy, economically strong and attractive city. We want to create a great

city to live, work and enjoy leisure time in; an entrepreneurial city that dares to take the right steps towards an even more healthy and - let's not forget - sustainable city.

Contributions from the many residents, stakeholders, organisations, partners and experts for the benefit of this plan have been invaluable. It illustrates that finding a solution to such a complex issue is only possible by listening to one another, sharing ideas with each other, having an understanding for the needs and wishes of others and, above all, working closely together with one another to strengthen this city with all its qualities in order to prepare it for the future.

I would like to thank everyone who has been involved with this plan in any way and hope that you want to continue to do so in the future.

This plan provides a broad outline. However, it is important to keep thinking about how mobility can provide a valuable contribution to the Rotterdam of the future, and to do so together. I strongly suspect that this plan will provide a solid foundation for doing so, and I trust that, by working together, we will successfully and effectively achieve in practice all aspects addressed in this plan.

On behalf of the Municipal Executive of the City of Rotterdam,

**Pex Langenberg**

*Alderman for Mobility, Sustainability and Culture*





# Table of contents

|   |           |
|---|-----------|
| <b>Foreword...</b>  | <b>3</b>  |
| <b>Accountability</b>   | <b>7</b>  |
| <b>Summary</b>  | <b>9</b>  |
| <b>1. Trends and developments</b>   | <b>15</b> |
| Growth of the southern Randstad and Rotterdam   | 15        |
| Economic innovation   | 16        |
| Mobility transition   | 17        |
| <b>2. Rotterdam's challenges</b>  | <b>19</b> |
| A lively economy  | 19        |
| A healthy city  | 23        |
| An attractive city to live  | 27        |
| <b>3. The issue of accessibility</b>  | <b>33</b> |
| <b>4. The Mobility Strategy</b>   | <b>39</b> |
| 1. Fewer car kilometres within the Ring: priority for bicycles and public transport.    | 41        |
| 2. An interconnected regional and urban network: roads and public transport in balance. | 43        |
| 3. Newly created and transforming existing regional and urban river crossings.          | 45        |
| 4. An appealing and vibrant city and centre: City Lounge boosted.                       | 47        |
| 5. Boosting new modes of transport: water transport and Last Mile.                      | 50        |
| 6. Eliminating transport poverty: social and community participation boosted.           | 52        |
| 7. A healthy living environment: boosting spatial quality and zero emissions.           | 55        |
| 8. Smart mobility: technological innovation and IT.                                     | 58        |
| 9. Sustainable connections with areas outside of the Ring.                              | 61        |



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# Accountability

This document is the Urban Traffic Plan 2.0: Accessibility as part of an economically strong and healthy Rotterdam. Of course, as a municipality, we cannot and do not want to shape this vision on our own. This Rotterdam Urban Traffic Plan 2015 - 2030 has therefore been drawn up on the basis of ideas presented by and collaboration with all kinds of partners in the city. Our starting point? That mobility is not a goal in itself, but is instead an essential precondition for an attractive and economically strong city.

## Context

The Rotterdam Mobility Agenda forms the solid foundation for this Urban Traffic Plan. By way of this Agenda, the Rotterdam Executive and City Council guide the direction that they want Rotterdam's mobility to take: specifically, by way of the themes of 'Healthy and Accessible city', 'Inner city as a City Lounge; cars are guests', 'Cycling city of the future', 'Market place for mobility innovation and collaboration' and 'Quality in accessibility; motor for spatial economic development'.

The City Vision 2030, Inner City as City Lounge and Rotterdam Mobility Agenda policies are the frameworks within which the Urban Traffic Plan has been developed. The Urban Traffic Plan responds to these frameworks and is an important building block for the - yet to be developed - process within the 'kaart van de stad', in which the entire spatial economic challenge of the city and region is laid out. It also indirectly responds to, among other things, the Cycle Plan, Parking Plan and Road Safety Plan, which indicate the policy direction up to the year 2018 for various sub-areas.

## Consultation

After presenting the first version of the Rotterdam Urban Traffic Plan, an extensive consultation was launched. A broad group of stakeholders (residents, regional committees, organisations, businesses, experts and other municipalities, etc.) was involved in various ways throughout the consultation period. In total, there were thirteen specially organised meetings. There was also a lot of direct contact with many parties, both as one-on-one discussions and by way of regular meetings.

In total, some 450 persons (residents and parties) participated in the discussions. Some of these persons were involved in the process through regional committees. The Rotterdam Citizen Jury was also actively involved, as were a number of experts who shared their visions with the responsible alderman during a gateway review. To close the official consultation process, a well-attended symposium was organised for a broad group of representatives from the city and experts from the field of mobility. In addition, 2,000 e-mail and postal addresses were contacted about the Urban Traffic Plan and the consultation. Altogether, this led to around one hundred official responses and many more endorsements of the vision.

All suggestions, endorsements and visions proved indispensable in drawing up this vision document. This Urban Traffic Plan therefore provides a vision for the future, a strategy and an action perspective, which we can use to make best use of the opportunities to position the city and region as a future-proof, prime location on an international level.



# Summary

## Introduction

Accessibility as part of an economically strong and healthy Rotterdam. Mobility that connects people; now and, most especially, in the future. The constant flow of spatial-economic and social developments adds a new dynamic to mobility in Rotterdam and in the surrounding area. The various changes and developments in the city require a clear mobility perspective; a progressive vision for the short and, in particular, the long term. We have laid out this vision in this Urban Traffic Plan. Mobility is not a goal in itself, but an important precondition for an economically strong, healthy and attractive Rotterdam. As a municipality, we have not developed this long-term vision on our own. Throughout 2015 and 2016, interested parties, partners, stakeholders and other government agencies have actively shared ideas about this Urban Traffic Plan. This plan gives direction to the way in which Rotterdam's mobility should develop in the long term (2030+) and to the choices we have to make. Three items from the Rotterdam Mobility Agenda became the starting points for this Urban Traffic Plan:

- Rotterdam's growth and urban densification to 690,000 residents in 2035;
- Economic innovation (Next Economy) and the accompanying energy transition;
- The urban mobility transition, from less car traffic to an increase in cycling and public transport use.

## The Rotterdam Mobility Strategy: an attractive city on two banks

We are translating the trends, developments, challenges and accessibility issues identified in previous chapters into a number of opportunities and measures that contribute to a lively Rotterdam with a strong economy. In doing so, we are looking for a balance in modalities, i.e., a new balance of cyclists, pedestrians, cars and public transport. This means that the densification of houses within the urban area must be granted priority. The transition to the Next Economy shapes our transport network. The health of Rotterdam's residents is key, and we are investing in smart mobility, with the city functioning as a testing ground. We are increasing the future-proofness of the transport network by increasing its flexibility and making it more dense.

The structural interventions that we outline within this Urban Traffic Plan offer the most opportunities for shaping an urban and regional infrastructure network that is flexible and adaptable enough to mould the city of the future (Next City). Furthermore, this will allow us to flexibly respond to the energy and developments of residents, multiple partners and stakeholders in the city and region. The Mobility Strategy incorporates the desired spatial and economic development of the city and the region and allows us to continue to adapt to the spirit of the times when the accessibility issue changes in the future, since there is no strict order to the measures to be taken. This leads to the following policy decisions:

1. Fewer car kilometres within the Ring: cycling dominates.
2. An interconnected regional and urban network: roads and public transport in balance.
3. Regional and urban river crossings: create new ones and transform existing ones.
4. An appealing and vibrant city and centre: City Lounge boosted.
5. Boosting new modes of transport: water transport and Last Mile.

6. Eliminating transport poverty: social and community participation boosted.
7. A healthy living environment: boosting quality and zero emissions.
8. Smart mobility: technological innovation and IT.
9. Areas outside of the Ring: sustainable connections with the areas within.

### City Lounge boosted: fewer car kilometres within the Ring

For years now, slowly but surely, the use of cars in the city centre has been decreasing. On the other hand, bicycle and public transport use have rapidly increased. The transition to sustainable forms of mobility (bicycles, public transport and clean transport) is going to continue over the coming years. The role of the car in the city is changing. Cars are becoming cleaner, quieter and safer, which means that, over the years to come, the public nuisance caused by cars for people will keep on decreasing. The car increasingly has to share the public space with other means of mobility. At the same time, modern cars can more easily be allowed to reach the places that are currently not yet accessible by car. The number of short car journeys (3-5 km) to and from the city centre is decreasing. The amount of bicycle traffic is rapidly increasing, particularly over the Schiekade – Coolsingel – Erasmus Bridge –

Laan op Zuid city axis. The City Lounge is the heart of the city. The redevelopment plan for the new Coolsingel is an important starting point for creating a welcoming city centre. Structurally reducing car traffic on Coolsingel is a definite possibility.

### Interconnected public transport and road network system: new regional river crossings

Building a new western river crossing is creating structural space to decrease traffic pressure, such as from the A13 and Kleinpolderplein via Stadshoudersweg, 's Gravendijkwal and Droogleever Fortuynplein, up to Pleinweg, Zuidplein and Strevelsweg/Vaanweg. The new eastern river crossing creates a shift in the car traffic on the national highway system and the urban main road network. More research into this shift of various car flows needs to be done and to be continuously updated over time. The new river crossings are causing a decrease in car traffic for the current river crossings. The building of new bicycle and public transport connections over the current river crossings and new river crossings is not causing higher traffic intensity on the Ring. Many urban boulevards, such as Pleinweg and 's Gravendijkwal, are becoming 20 -30% quieter in terms of car traffic. A significant condition for encouraging urbanisation on the Leiden – The Hague –

Delft – Rotterdam – Dordrecht ("de Oude Lijn") railway line is for the line to be a quadruple track one and to feature fast national and international intercity trains and frequent regional light rail. Furthermore, this will create more space for new regional developments within existing economic hubs such as Rotterdam The Hague Airport and Stadionpark. In order to break down the barrier effect caused by the river, new river crossings with highly efficient public transport connections are required, as well as the transformation of existing river crossings such as the Maastunnel and the Willemsbrug. This will create a new strong and closely interconnected public transport network connecting all parts of the city centre, South Rotterdam and West Rotterdam together.

### Water transport

Water transport has considerably increased over the past few years, both in the city and in the region. Expanding the low-rate water taxi service and retaining the Feijenoord – Kralingen ferry directly support this further increase, but this transport market can create many more opportunities for the city of Rotterdam. The number of users may see another drastic increase over the coming ten years. It has also been agreed that a joint vision for the

future of water transport is to be drawn up. Collaboration between various parties with in-depth knowledge of this subject, such as taxi companies, the RET, (water) transport companies, the Verkeersonderneming public-private partnership initiative addressing access issues, and private individuals is crucial for realising a Water Transport Plan.

### **Eliminating transport poverty**

While the city is developing in terms of mobility, a certain section of Rotterdam residents has little or no opportunity to participate in the economic, social and cultural traffic. A lack of sufficient transport options is a significant factor in this, as are cultural thresholds and economic restrictions. This problem can be tackled by analysing the specific needs and problems that each target group faces and through collaboration between the government and strategic partners in the city.

### **A healthy living environment**

In 2017, the limit values for air quality were exceeded at various spots along busy thoroughfares, in particular along the right bank of the river Maas. It is expected that, from 2020 onwards, the annual average limit values will be met across Rotterdam, thanks to a reduction in the background concentrations

and the progressive change towards cleaner car traffic. By further reducing the car kilometres as outlined in this traffic plan, emissions are decreasing by over 10% on average. The most significant improvements will happen along the central Maastunnel corridor (from Statenweg in the direction of the Maastunnel and from the Maastunnel via Pleinweg in the direction of Breeweg and Marathonweg). Promoting the electrification of freight transport, passenger cars and public transport is essential for a healthy living environment. The reduction in the amount of car kilometres and the electrification of car traffic and public transport mentioned above go hand in hand with a drastic reduction in CO2 emissions. The number of bicycle and public transport journeys is drastically increasing and the number of car journeys is decreasing, making a considerable amount of the traffic within the Ring emission-free.

### **Smart Mobility**

Rotterdam wants to be the frontrunner and a can-do city when it comes to new developments in the area of smart mobility. This involves gathering and sharing information more efficiently and learning together. Smart mobility also affects how we design and use the city. While this includes allowing for electric vehicles, we are also intrigued about what self-driving

cars or drones mean for the city. Improving the collection and exchange of information about mobility ensures that we can take a smarter and more efficient approach when it comes to dealing with the short supply of space and the available infrastructure while passengers become better informed and able to make more effective decisions. Combining a large number of data sets belonging to road authorities, from in-car systems (navigation equipment) and mobile telephones and public transport companies, is essential to this.

### **Areas outside of the Ring**

Attractive residential areas outside of the Rotterdam Ring are important. The various connections between these residential areas and the connections from the residential areas to the city centre are crucial for these areas to function. On the north-eastern side of the city, Alexander, Hillegersberg-Schiebroek and Overschie do not have enough sustainable connections to and from the city centre and to and from each other. The same applies to the residential areas of Barendrecht, Ridderkerk, Capelle and Krimpen on the south-eastern side of the region, and to the residential areas of Pernis, Hoogvliet and Rozenburg on the western side of the region.

## Staying in control and what we're going to do

Rotterdam can and wants to stay in control of its urban and regional infrastructure network. The Urban Traffic Plan is, first and foremost, binding for the municipality itself, without having direct legal consequences for society. The Urban Traffic Plan guides the Municipal Executive of the year 2016 in responding to the key questions in the short term and the long term. In addition, this Executive is currently consciously deciding to set a long-term development strategy in motion by taking a number of accessibility measures. It is looking ahead to formulate a plan for how to deal with the development of mobility in the city and region - without looking so far ahead that the plan is rendered obsolete through technological and societal developments. The Urban Traffic Plan targets a number of interconnected projects that provide the greatest contribution to the future of the city. This involves:

### In the short term

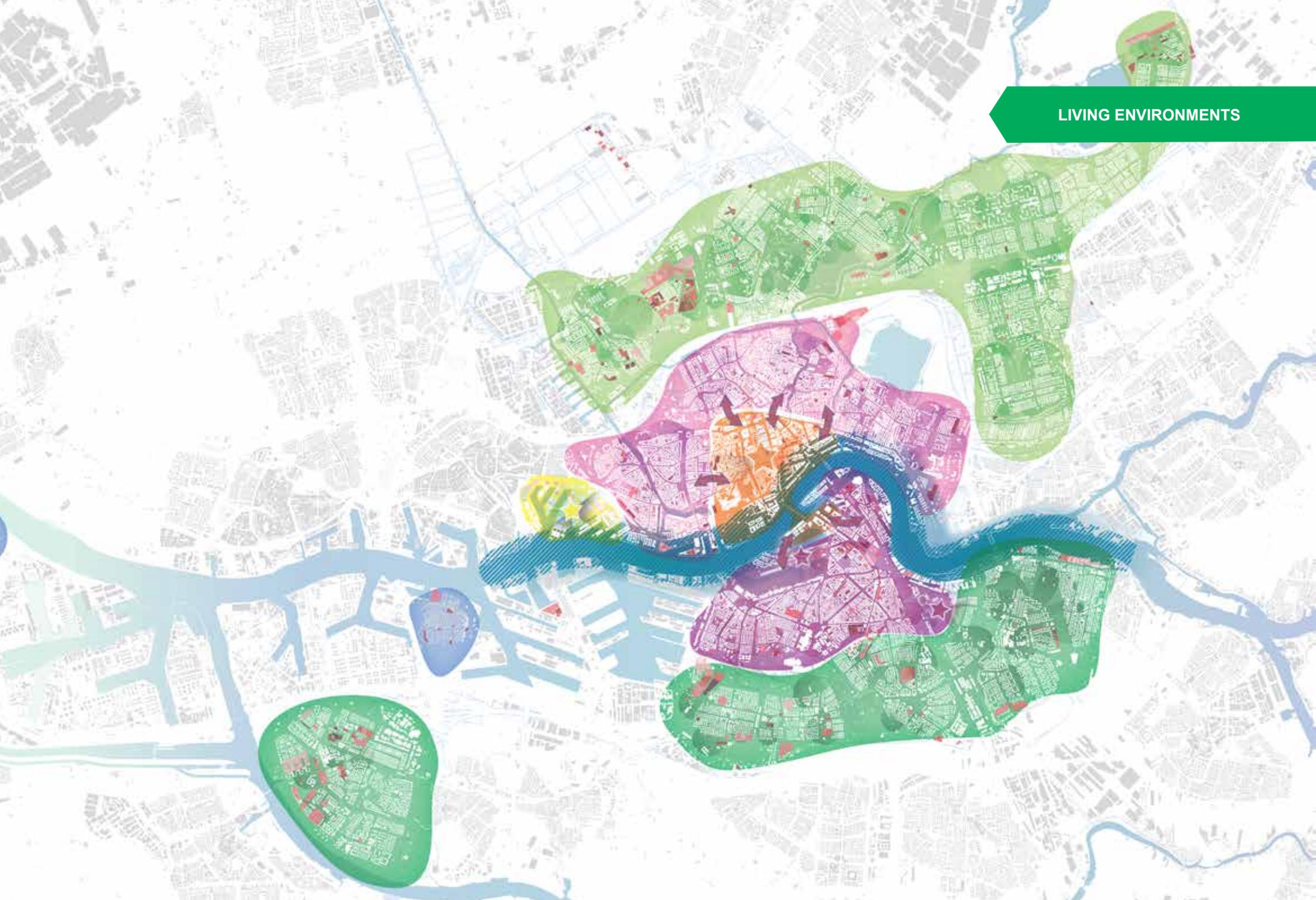
- Within the Ring, the infrastructure offering more space for bicycles, pedestrians and public transport in order to replace, in particular, short car journeys (3-5 km).
  - The proposed redevelopment of Coolingsingel with 2 x 1 traffic lanes, therefore boosting the City Lounge and creating more space for bicycles and pedestrians.
  - More space for experimentation with restricted car access in the use of the infrastructure with initiatives such as Happy Streets, car-free days and Parking Day.
  - The implementation of the Cycle Plan and the Traffic Safety Plan, meaning an increase in the quality of life in the streets and open spaces.
  - The implementation of the Parking Plan, in which 2000 selected street parking spaces are replaced in order to boost the City Lounge.
  - Together with the MRDH, RET as the first elaboration of the Urban Traffic Plan, drawing up a long-term public transport vision linked to the Multi-Year Programme for Infrastructure (MIRT) study.
  - Implementing the measures of the Perspective Memorandum on Air and the Beter Benutten collaboration programme.
- A follow-up programme anchoring Beter Benutten is being drawn up with the Ministry of Infrastructure and Environment, the regional partners and the Verkeersonderneming.
  - Continuation of Kralingen-Feijenoord bicycle/foot ferry up to 2021, extension of contract from March 2017.
  - The Municipality of Rotterdam, the Province of provincie Zuid-Holland, the MRDH, Drechtsteden and the Port Authority are presenting a joint vision for the future of passenger transport over the water. This vision is being laid out in a new public water transport plan and is the first step towards a framework for new tenders and concessions.
  - The BUZZ010 initiative is being relaunched, together with Stichting de Verre Bergen.
  - Encouraging Cycling in South, in collaboration with community partners.
  - Experimenting with initiators and partners from the city, engaging with new technological developments that contribute to emission-free traffic, such as wireless charging stations, developing smart journeys in collaboration with TomTom and smart digital cycling tools.

### In the long term:

- The longer term challenges are set out in the 2017 Rotterdam – The Hague MIRT study. Rotterdam wants to establish both river crossings as important directions in solutions in the MIRT research, with work currently being done on the western river crossing. Enhancing and updating the public transport connections on a regional and urban scale, to include additional water transport connections.
- Adapting the national fuel vision to the situation in Rotterdam, aimed at further changing the modes of transport to cleaner variants. The long-term challenge here is to make as many vehicles in Rotterdam as possible completely emission-free. By providing an extra incentive for emission-free transport, such in addition to the current efforts, these vehicles may come to form a greater percentage of the total vehicle fleet.
- An emission-free city and city centre: the Municipality supports the transition to clean transport by expanding the charging network for electric cars and implementing the Urban Distribution Zero Emission Green Deal .
- A functional exploration of the Ring (A13 and A20) in relation to the regional development of Overschie after building the Rotterdam section of the A16 (2023) in a joint endeavour with the Directorate-General for Public Works and Water Management.



LIVING ENVIRONMENTS



# 1 Trends and developments

## Growth of the southern Randstad conurbation and Rotterdam

The southern Randstad conurbation is going to see rapid growth in the period up to 2030. Up to 2030, there is a need for around 240,000 new homes in the southern Randstad conurbation, over half of which are going to be built in the central urban area of the metropolitan region. The metropolitan region has the space to accommodate these homes at easily accessible locations along the Rotterdam-Delft-The Hague axis and, therefore, to strengthen the agglomeration force of the southern Randstad conurbation. The economy, too, is developing mainly around this axis.

The considerable challenge posed by urbanisation has a clear, collective inner-city focus. The city of Rotterdam itself will grow by around 50,000 residents until the year 2030. We estimate that the city will have around 690,000 residents in 2035. This means that there is a city-wide challenge of accommodating for the population growth by creating new properties in the central urban area, along the river, the North and South city districts, the urban green zones, village centres and old port areas. This is necessary in order to accommodate the influx of residents within the existing city limits. The housing supply in the city will therefore increase by approximately 16,000 new homes. In addition, huge improvements are made in the quality of the existing housing supply in the city districts,

involving a reinforcement of the various living environments, with investments being made in the available amenities, the outdoor space and connections. The objective is to continue to accommodate for the city's population growth in a healthy, liveable and increasingly compact city after 2030 as well.

The central urban living environment in Rotterdam is in extremely high demand. The creatively mixed city districts in the North district are on the up, as well. Interest in these districts among people with a higher level of education is high. The demand for properties in the urban green living environment in the North district will soon outstrip the (planned) housing supply. Demand is also increasing in the Overschie, Hillegersberg-Schiebroek and Prins Alexander districts, due to the quality of the living environment.

The housing demand along the river is picking up. Strengthening the connection between the city and the river offers new opportunities for the realisation of high-quality living environments. For some years now, a process of transforming old port areas into desirable living environments has been under way. A considerable number of homes are needed here in order to accommodate for the growth in the number of city residents.

In the urban green living environment in the South district, the planned housing supply is sufficient to meet the expected demand. It is very important that the quality of the housing supply in the South city districts continues to improve. The National Programme for South Rotterdam further outlines this strategy. In Hoek van Holland, Rozenburg and Pernis, long-term supply and demand of homes are also in balance. The population is ageing in these areas. The challenge in these relatively small areas is to maintain the essential village communities with amenities and a housing supply that also aligns with other demographic developments.



## Economic innovation

The economy is in transition. In Rotterdam, too, we are moving towards an economy of businesses and knowledge institutions that cluster together in the fields of clean technology, life science, (waste) material recycling, data security, nutrition and like areas, while the port and Greenport serve as an international industrial and logistics hub. This transition requires not only investments in the business and innovation climate; new parties also require agreements, opportunities to make connections and new investments. The high-quality new and existing development sites offer opportunities for new business models in the Rotterdam area.

This also creates an urgency for economic innovation. At the same time, the southern Randstad conurbation features clear competitive advantages thanks to its strong networks, the international business community, industry and the demographic advantages. The top clusters present in Rotterdam, such as the Rotterdam city centre, DUT, City Ports of Rotterdam (Innovation District) and the Erasmus Medical Centre, play an important driving role in this connection. The Next Economy Roadmap is also an important factor. Technological innovation and the energy transition are, in turn, the big drivers of innovation in mobility.

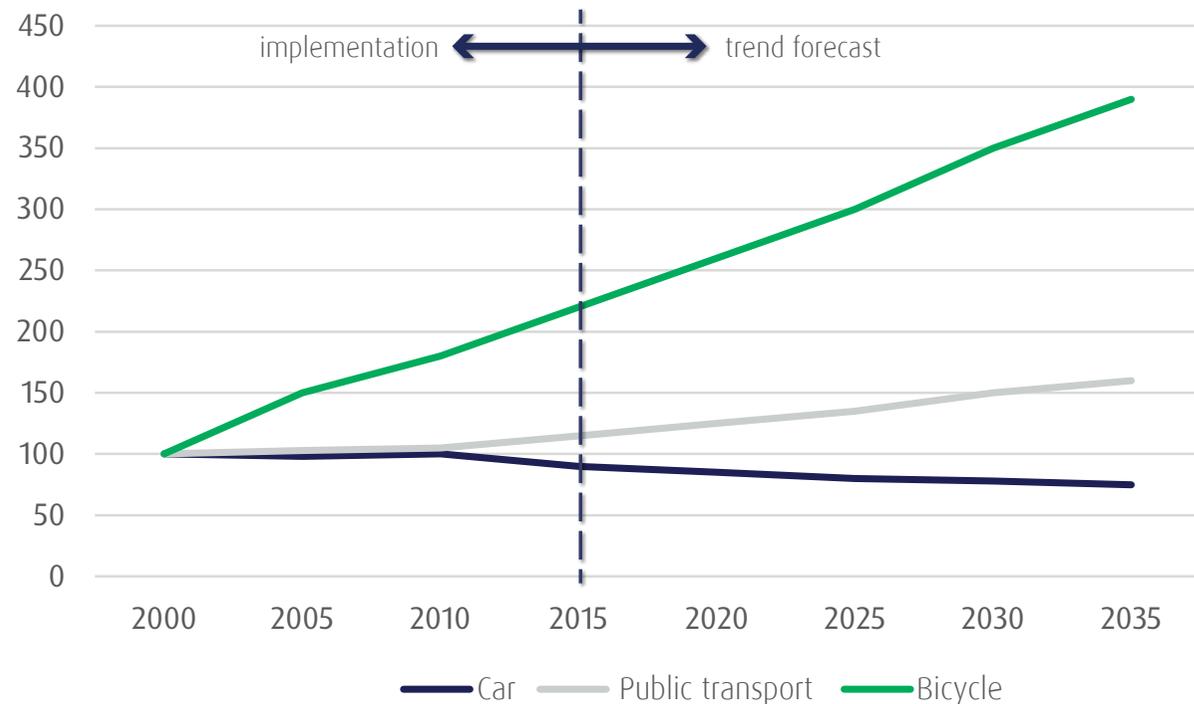
## Mobility transition

The city dweller moves within a relatively wide scope, towards amenities that are based further away from home. This is ever more commonly happening using public transport, by bicycle and on foot. The demand for healthy travel is on the increase, and also encourages sustainable

mobility and innovative modes of transport.

The car is no longer seen as a status symbol. The average Rotterdam resident is travelling by car less and less. Research carried out by the Netherlands Institute for Transport Policy Analysis (KiM), among others, has shown that this is in line with the development in other urban

Mobility development Rotterdam city centre



areas, both on a national and international level. Within the urban area of Rotterdam, bicycle traffic has grown by around sixty percent over the past ten years. The popularity of the electric bicycle is rapidly growing, particularly when it comes to longer (regional) journeys. The use of public transport is also increasing at a fast rate, and particularly the use of the metro. The modern city resident has a growing need for the flexibility to make individual decisions from the wide range of possible modes of transport. Exercise - not just cycling, but also walking, running and playing, is becoming increasingly important and demands more space. Once primarily a 'car city', Rotterdam is now turning into an accessible city and will keep on changing into a connective city. The change in the mobility issue makes a city such as Rotterdam the ideal testing ground

in the area of concept design and product development, from smarter city logistics to self-driving cars. Rotterdam is the place where knowledge comes together and synergises. Smart route planning, keeping up to date, more personal information about alternative modes of transport and smart change-over points... ITS (Intelligent Transport Systems) is an example of a very promising development that can offer maximum flexibility and a reliable infrastructure network. Rotterdam is proving to be an entrepreneurial city that offers space for initiatives that do not only help bring about the desired transition, but also create new economic value.





# 2 Rotterdam's challenges

The challenges have been identified on the basis of four perspectives: economy, health, spatial quality and accessibility. The Rotterdam Mobility Agenda lists a number of objectives on the basis of these four perspectives, which are therefore central to our plans. It is, therefore, on the basis of these perspectives that we set out the possible decisions for infrastructural networks. The economic activities and the activities that contribute to a healthy, liveable city are determining factors in decisions about accessibility.

## A lively economy

From an economic perspective, the core question is: which accessibility issues and mobility profiles match the various economic activities at the various locations in Rotterdam. The need for mobility differs drastically according to the activity, area and moment in time. Furthermore, only giving attention to car accessibility has not been enough for some time now. It is only logical that the differences in types of activities and the specific requirements of employees and others influence the way in which we view mobility.

Increasing urbanisation leads to higher density and growing diversity in the city. An increasing number of employers are encouraging the use of alternative transport options, and an increasing number of employees are opting for these alternatives. Freedom of choice and multimodal door-to-door accessibility (accessibility featuring the integration of various modes of transport) are therefore important preconditions. In the context of economic accessibility, this requires a balance between accessibility and liveability, between spatial

economic development and quality of life, while bearing in mind the various mobility needs within the various locations.

When formulating the economic accessibility issue, we group the various economic activities as follows:

- Inner-city interaction areas (core shopping centres and business services);
- City districts (knowledge and trade locations, local economy);
- Multimodal urban hubs (amenities such as hospitals, campuses, shopping centres and transformation areas);
- Business parks (transport, logistics and production).

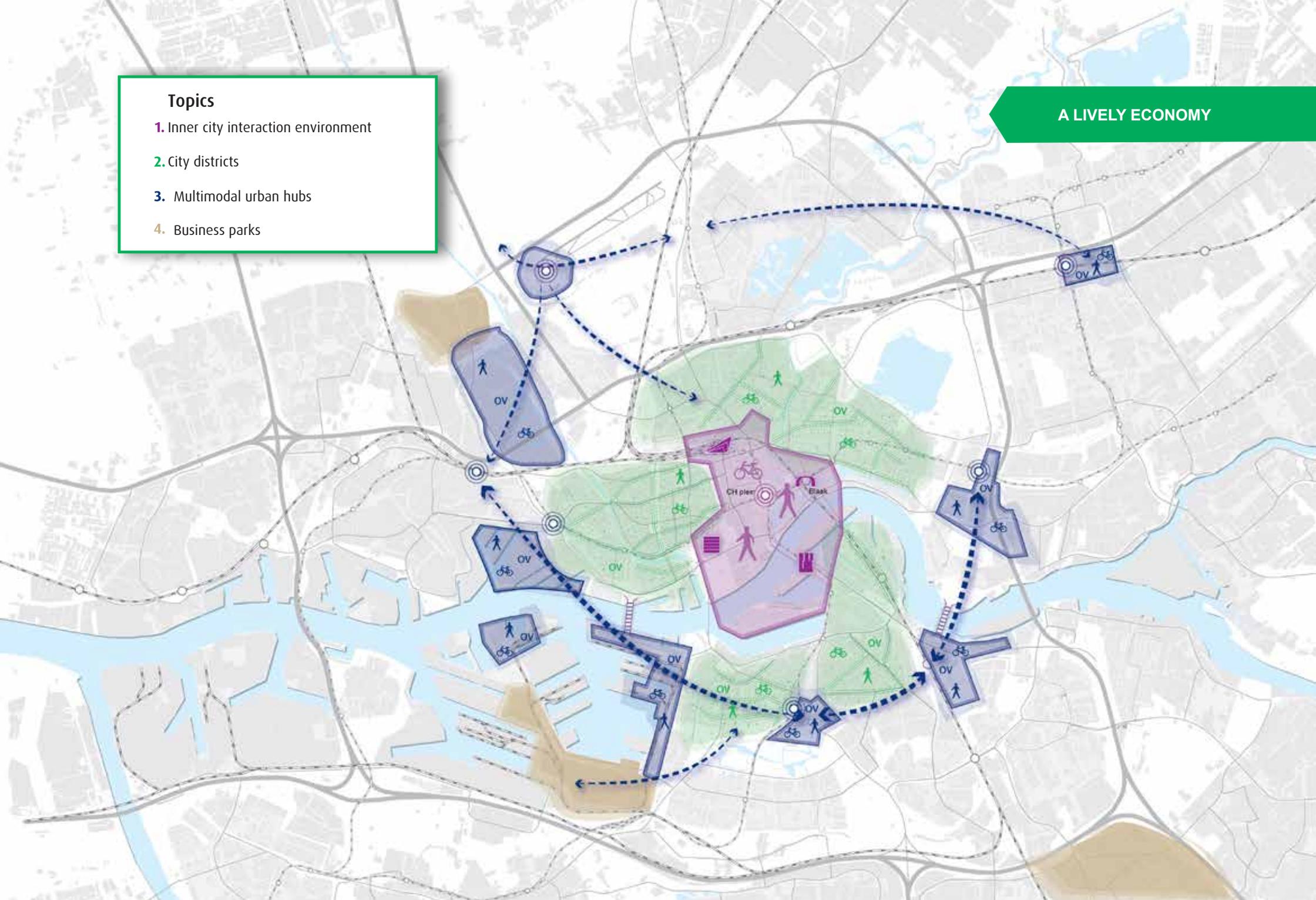
Each type of economic activity mentioned in the above creates a specific accessibility issue; a challenge this Urban Traffic Plan contains the answers for.

**Objective from the Mobility Agenda: Economy is a combination of businesses, employees and visitors, and accessibility of locations must be in balance with sojourn quality. For decades now, economic development and car accessibility have gone hand in hand in Rotterdam. This has only brought benefits for the city, and we will definitely not be letting go of this connection. However, the economy changing rapidly and so are the mobility needs of employees, entrepreneurs and visitors.**

## Topics

1. Inner city interaction environment
2. City districts
3. Multimodal urban hubs
4. Business parks

A LIVELY ECONOMY



### City centre: excellent sojourn quality and optimum accessibility

Boosting the inner-city interaction area is the most significant mobility issue from an economic point of view. We are consistently using the 'Inner City as City Lounge' programme to further improve the sojourn quality, extend the duration of stay and create more meeting spaces. The urban economy is one area in which these interventions are having a positive effect. More and more businesses and employees are taking these factors into account when it comes to choosing their location.



This renders the effects of changing mobility behaviour most visible in the city centre. The use of cars in the centre has been decreasing for years now. The most significant challenge is that of connecting the various quarters of the city centre, so as to increase the interaction between the areas of the centre and break down barriers. Good connections, with more priority given to pedestrians and cyclists, are essential for further expanding and strengthening the 'Inner City as City Lounge' in the city districts.

### City districts: lively local economies with increasing space for knowledge institutions and manufacturing businesses

A number of Rotterdam city districts are situated on the outskirts of the city centre. Small-scale business, creativity, closeness, diversity and livelihood hold the keys to a lively local economy within these districts. At the same time, SMEs and so-called manufacturing businesses are becoming increasingly dependent on the city streets for efficient distribution, car and lorry accessibility and short and long-stay parking. The most important challenge within the city districts is therefore improving connectivity and, at the same time, further expanding the City Lounge to the city districts. In other words: finding a good balance between organising the city distribution and the connectivity of users (from home to work

and work to home) at short distances (<5 km). This primarily concerns the direct connections to and from the city centre (including public transport stops) and between the districts themselves, with enough space being provided for bicycles.

### Multimodal urban hubs: a suitable multi-purpose transport offering

The urban area contains large concentrations of amenities and locations where employment opportunities are focused, and where amenities for the various forms of mobility overlap. These so-called multimodal urban hubs are important locations in the city with potential for development: the extent to which various modes of transport are accessible partly determines their ability to grow economically. Kralingse Zoom, Waalhaven, Zuidplein, Rotterdam The Hague Airport, Rotterdam Alexander and Stadionpark, for example, are traditionally areas that are primarily inward-looking. Due to the openness to expand the environment and to boost the spatial quality and identity of the urban hubs, these areas, too, are becoming more significant parts of the city as a whole. Furthermore, since these areas often function on a regional level, it is important to improve the regional and supraregional accessibility of public transport. Exceptions and differentiation between these areas can increase the economic potential, as



can boosting the individual purpose of each hub with a suitable 'transport offering'. On the one hand, there is the challenge of improving the interconnected external public transport and bicycle connections (potential high-quality public transport connection in South Rotterdam), and on the other hand, there is the challenge of increasing the spatial quality for pedestrians within the internal location environment. Multimodal accessibility is an important asset in this connection.

### **Business parks: moving towards accessibility with various modes of transport**

Classic business parks are characterised by their excellent functionality and accessibility for cars and lorries: they are situated on the edge of the city and are readily accessible from the motorway. The reliability of the road network is a key concept for these parks and demands permanent attention when it comes to connecting these areas to the national highway system. Upscaling and knowledge intensification are important trends that affect these parks. The independence of knowledge workers is increasing. The position of the business park is changing with the expansion of the urban living area. Although good accessibility by car and lorry still remains key,

bicycle and public transport accessibility by employees is becoming more important to keeping the park attractive and able to function efficiently. This is essential for both new (Nieuw Reijerwaard) and existing business parks (Spaanse Polder).

## A healthy city

From a health perspective, our approach of the accessibility issues consists of working towards a healthy city by way of the following themes:

- Air quality and noise;
- Social and community participation;
- Exercise and recreation;
- Safety.

## Air quality and noise: clean car kilometres

Better health for Rotterdam residents through, among other factors, decreasing the risk of sleep disturbance, airway complaints and heart and vascular diseases, as well as combating exposure to air pollution for vulnerable groups. This is the most significant challenge when it comes to improving air quality and combating noise pollution. It involves working towards

increasing the number of emission-free (car) kilometres through more targeted investment in walking, cycling, public transport and clean and electric transport.

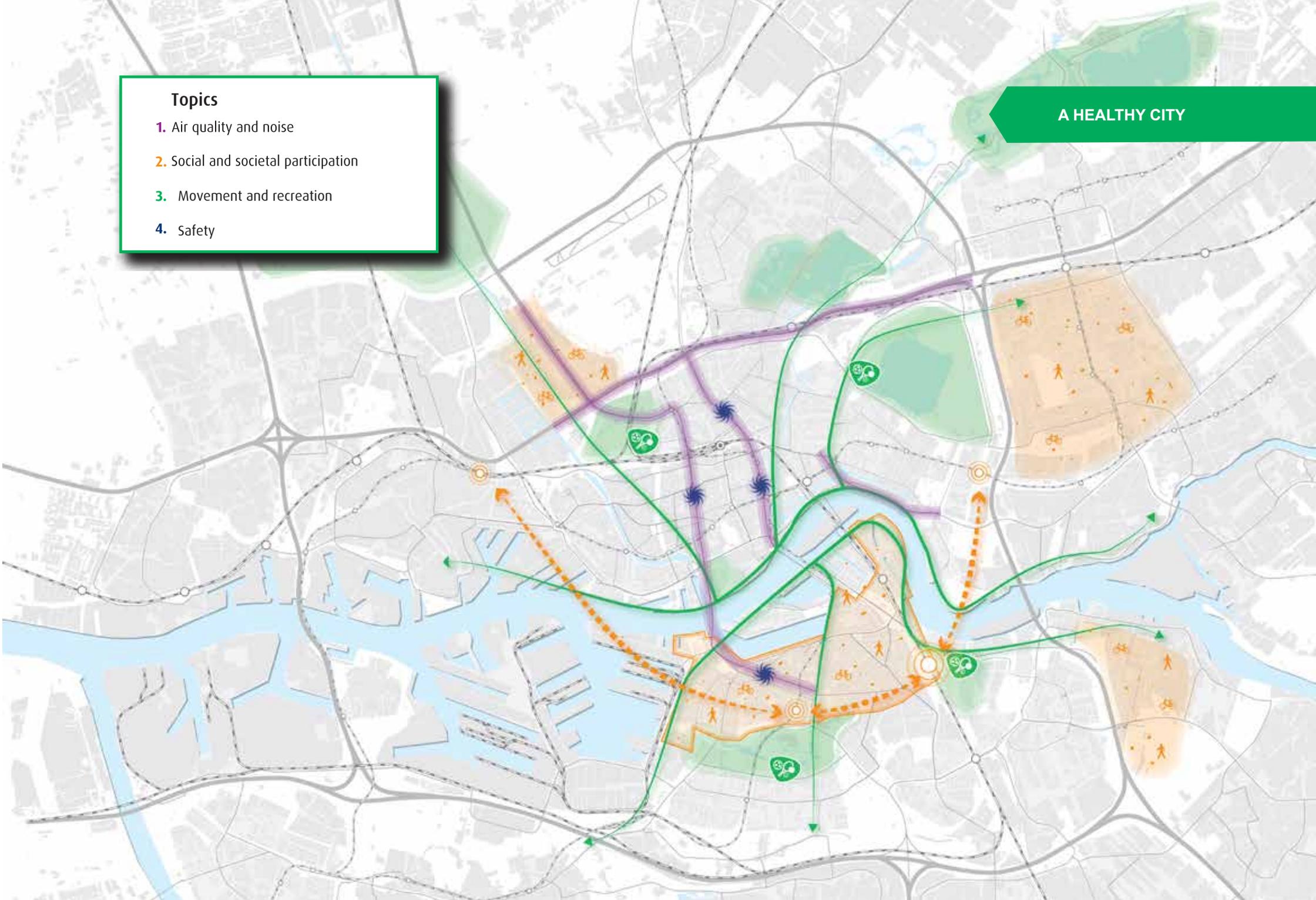
*Objective from the Mobility Agenda: From a health perspective, people are key, not the traffic system. The core issue is how mobility can contribute to the health and well-being of all residents, employees and visitors in Rotterdam. We also provide attention to people who, for various reasons, have difficulty moving around. Health is about more than just the physical aspect.*



## Topics

1. Air quality and noise
2. Social and societal participation
3. Movement and recreation
4. Safety

A HEALTHY CITY



**Social and community participation: increasing accessibility and creating district lounges**

Due to more restricted transport options, it can be difficult for the residents of some residential areas of Rotterdam to access jobs situated further away from home and amenities, and these residents have relatively fewer opportunities to easily visit family and friends. Insufficient access to multiple public transport systems can therefore lead to social exclusion. The task is to invest in improving the transport network and thus widen the opportunities for residents in terms of participation, including in the labour force. Social and community participation may be further encouraged by creating enough district lounges: attractive locations with no or little motor traffic, where residents can meet each other and children can play healthily and safely.

**Exercise and recreation: attracting residents with green and watery routes**

It is an indisputable truth that exercise is healthy for us. Nice, green routes, paths and roads along the water invite residents to walk and cycle more. The challenge is to use the existing recreational routes along canals and parks better and to further boost the relationship between the city and the river. Improving access to regional leisure areas, such as Midden-Delfland and the Rottemeren, is rapidly encouraging Rotterdam residents to exercise more often.



### Safety: young and old are safe on the streets

Pedestrians and cyclists are the most vulnerable groups in terms of traffic, and especially the elderly and children. Encouraging walking and cycling is therefore also inextricably linked to the continuous improvement of safety and traffic safety. The challenge here is to provide safe play areas for children, safe crossings and a safe environment for the elderly. There is a good reason as to why Rotterdam is tackling the so-called 'black spots': locations where there are relatively many traffic accidents. Traffic education for children and the elderly and combating antisocial traffic behaviour play a role in this, as does reducing heavy freight traffic in the urban residential area.



## An attractive city to live

Creating a constantly attractive city is part of forming a healthy balance between spatial quality, densification and our infrastructural network. In order to achieve this, we are working along three perspectives:

- Balance in the use of modalities;
- Attractive green spaces, including the river;
- City-wide high-quality infrastructure network.

*Objective from the Mobility Agenda: Over the past decade, Rotterdam has been working on creating housing for middle and high-income groups. An attractive public space is the most important precondition for a lively economy and a pleasant living environment. In addition to their traffic-related role, public spaces also play a role in the quality of sojourning in the city. Working on improving mobility in Rotterdam also involves looking for a balance in terms of use of space. This means that places that are now seen as spatial barriers or significant traffic bottlenecks are transforming into attractive places to live and meet.*

## The Ring and main roads: opportunities for spatial development without a barrier effect

The Ring (the motorways around Rotterdam) is packed with traffic on a daily basis, and this is not likely to change in the future. Changing the vehicle fleet therefore substantially contributes to the opportunities for spatial development and large infrastructures. New main road network connections such as the A16 provide the current A13 and A20 with a new perspective for development, in which the Rotterdam Ring remains in proper function while the reliability of the urban road network increases.

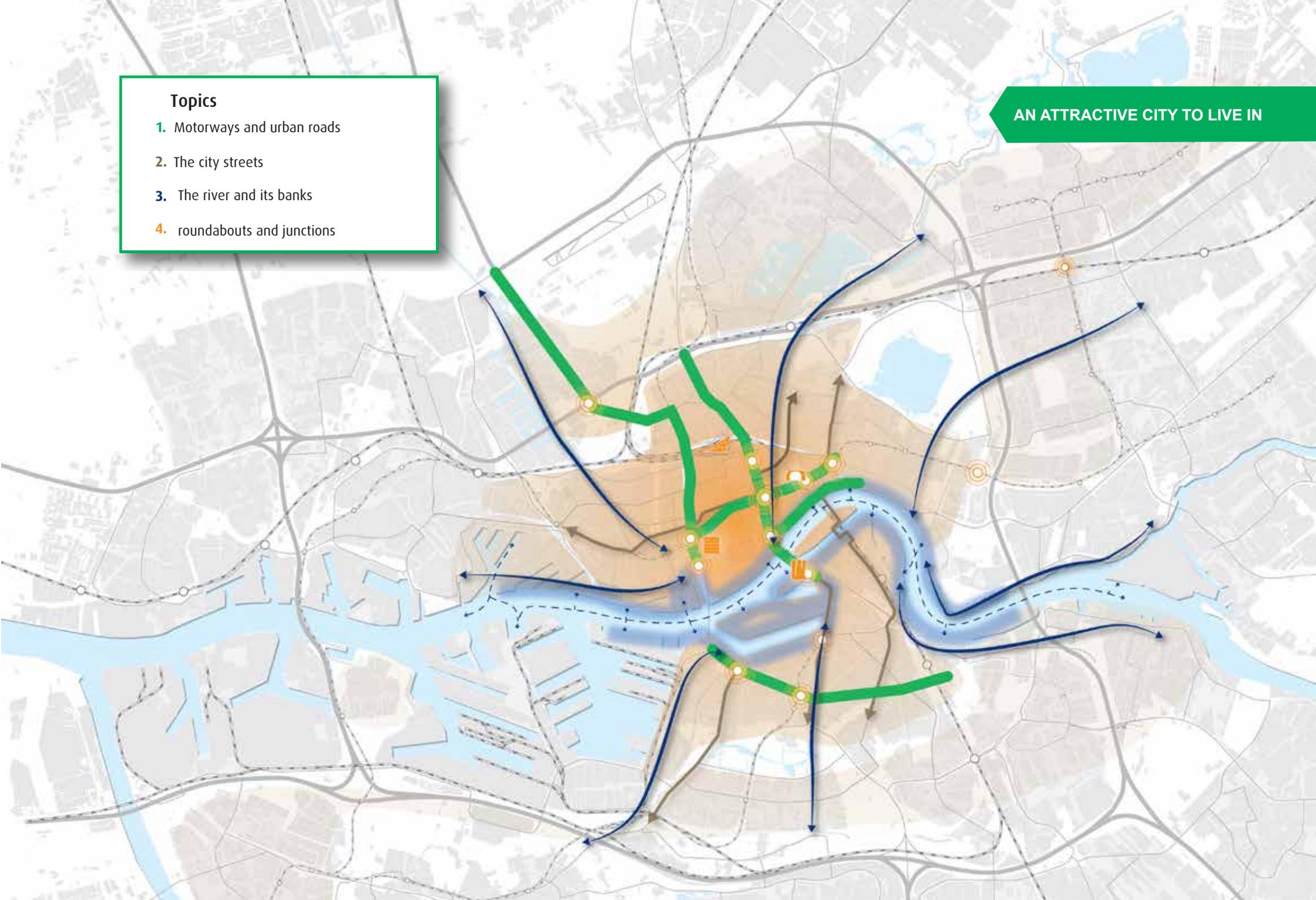
In the current situation, the A13, A20 and parts of the A16 and A15 form a large barrier between the city centre and the surrounding residential areas. The northern and south-eastern areas outside of the Rotterdam Ring include Park Zestienhoven and Nesselande. These are attractive residential areas that substantially contribute to a lively Rotterdam for living, working, doing business and relaxing. There are currently no more expansion locations lying in store. The task is therefore to keep the new and existing residential areas such as Park Zestienhoven attractive and accessible. Sustainable connections between the areas themselves and connections to and from the city centre are vital in this connection.

The main roads to and from the city centre form the most important link from the Rotterdam Ring (the motorways) to the centre. Currently, car traffic dominates here. These main roads offer a good, free flow of cars but do not meet the desired slow traffic and public transport quality. Furthermore, they form barriers between residential areas themselves and between residential areas and amenities. We are finding that there are relatively many vacant houses along these main roads. The challenge is therefore to reduce the level of vacancy along the main roads by investing in good spatial quality and, at the same time, by improving the cross-connections throughout the city, so as to remove the barriers between districts as much as possible.

## Topics

1. Motorways and urban roads
2. The city streets
3. The river and its banks
4. roundabouts and junctions

AN ATTRACTIVE CITY TO LIVE IN



### The city streets: creating connections and balance

The city districts around the city centre offer the ideal climate for attractive living environments and the new urban economy. This climate has been created by the district's own strengths and its closeness to the city centre. A number of districts, such as Katendrecht, are still being developed. Just like Lloydkwartier and Kop van Zuid, there is still a lot of room for improvement in terms of increasing the attractiveness of the districts along the river by increasing connectivity to the city by way of the river. The quality of life along the river can be improved by connecting the city with the river. For other districts, this can be achieved by better connecting the centre with the surrounding districts. In both cases, the city streets play a key role, since they serve as essential multifunctional connections between the city districts and the city centre. They are the cement in the districts, being the spaces where

residents come together, they give character to the surrounding living environments and are important for the urban economy. The challenge is to increase the quality of the districts from the perspective of the residents, to combat air and noise pollution, to increase the accessibility to work and amenities, to increase safety and to improve opportunities for recreation in urban green areas. Any barriers standing in the way of connection with the city centre (such as the 's Gravendijkwal) and to the (supraregional) public transport hubs need to be broken down. A significant challenge here is to find a balance in the use: shaping the continuity of these streets for cyclists and pedestrians, while still keeping cars in mind.



**A welcoming city centre: a metropolitan centre with recognisable connectivity**

The main challenge in the area of mobility is to boost the inner-city interaction area by creating an excellent atmosphere. Investing in spatial quality is the most promising factor in enlivening and densifying the city centre. We view the Rotterdam Central District, Kop van Zuid, Erasmus MC and Blaak as so-called 'constituent parts'. These areas

need to strengthen each other more, for example through being clearly recognisable on connecting boulevards. We give priority to pedestrians and cyclists as the main users of these areas. Following on from the Central Station, we are also making improvements to Blaak/Churchillplein, making it a more attractive hub for public transport in the city centre - doing so, of course, while ensuring the hub's cohesion with the surrounding

urban area. We need to guarantee the quality and capacity of public transport connections through the city centre.



### **The river and its banks: using the opportunities that the water and banks have to offer**

The Maas, Rotte and Schie are one of Rotterdam's important selling points. We can use the opportunity to experience the rivers within the city limits much more effectively, for example by meeting the demand for good connections from, to, along and over the water. In the long run (towards 2025-2030), we therefore want to even more strongly make use of the potential of the Rijnhaven and Maashaven areas by investing in extraordinary homes and new living environments there. The connection with the river at locations such as Stadionpark and Kop van Feijenoord should also given better shape.

The Nieuwe Maas serves as a significant spatial barrier between the North and South areas of Rotterdam. Improving connections between the riverbanks by shortening the distance between the existing river crossings may drastically enhance the connections within Rotterdam as a whole. It offers new opportunities for an attractive way of living, meeting and spending time. We want to connect the rivers even better to existing systems so that they form a part of our urban traffic and transport network. A good balance in the use of the various modalities in and around the existing river crossings also offers new opportunities to improve the quality of the space on access roads and the areas and clusters directly connected to them. Enhanced

water transport options within the urban and regional cycling network would also be an excellent addition.

### **Traffic and other arteries: better quality of space for cyclists and pedestrians**

The central urban living environment is in extremely high demand. Adding additional homes to the city centre will contribute to effecting the desired level of liveliness, but at the same time cause an increase in inner-city traffic. In 2016, the car dominated traffic around squares such as Droogleeveer Fortuynplein, Churchillplein, Oostplein and Hofplein. There is too little comfort for cyclists and pedestrians at these locations, and there is little room to meet people and spend leisure time. The challenge is therefore to design these spaces and locations with more attention for cyclists and pedestrians, thereby improving the sojourn quality. The same applies to all river crossings, but especially to the city axis between Hofplein via Churchillplein up to the access and exit routes of the Erasmus Bridge. Finally, we need to make the connections at the main public transport hubs even more appealing from an urban environment perspective.





# 3 The issue of accessibility

A well-functioning mobility network is a precondition for a strong region and it is essential to enabling further growth. There is a drive to structurally increase the competitive force and attractiveness of the Rotterdam area compared with other European areas. To this end, it is essential to keep investing in the sustainable accessibility and attractiveness of the area, provided that doing so contributes to:

- Strengthening the agglomeration force;
- Connecting and linking key economic locations on a regional level;
- Creating conditions for further urban densification and accommodating urban living environments;
- Increasing opportunities for people by improving the accessibility of jobs and amenities;
- Increasing economic opportunities and the transition of the areas;
- Relieving the regional network and accommodating for mobility growth.

*In the Rotterdam Mobility Agenda (RMA), accessibility is key to a lively economy and an attractive and healthy city. This means that a regional and urban traffic and transport network that is reliable, robust and recognisable must exist. The traffic issues do not only concern capacity and flow, but awareness and changing travel behaviour as well.*

## Accessibility issues in Rotterdam

The bottlenecks mentioned above are not new. In the MIRT study 'Rotterdam Moving Forward (2011)' and the follow-up studies 'Brienoord and Algeracorridor Redesign' and 'Quality Jump in Public Transport in South', these bottlenecks have been identified and delineated in collaboration with the national government and the region, while the conclusions have seen collective endorsement. The results of these projects were laid down between 2010 and 2012 and have also been incorporated in the Government Structural Vision 'Accessibility in the Rotterdam area and New West River crossing'. The National Market and Capacity Analysis (NMCA) drawn up by the national government in 2013 and recent studies of the area reconfirm these bottlenecks. The said bottlenecks will certainly come to the fore again in the ongoing MIRT research into accessibility in Rotterdam and The Hague; all more since this

MIRT study follows the innovative "Achieving more" approach, which expressly looks at the accessibility issue in a broader context (in relation to quality of life, space and economy).

## Bottlenecks on the Ring

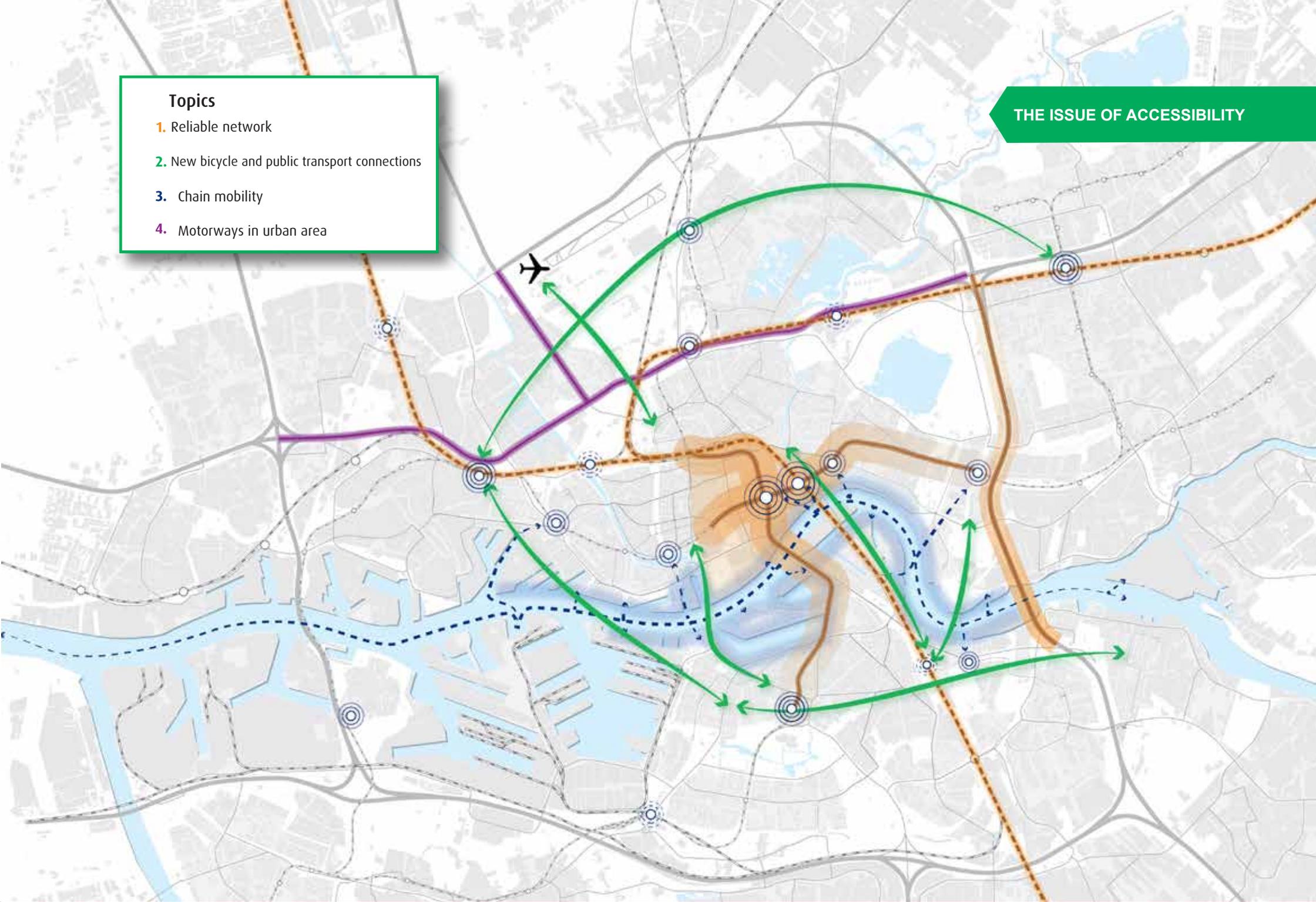
The Ring around Rotterdam and the main road network in the city form an interconnected whole. Rotterdam's urban and regional traffic and public transport system has been under pressure since 2016. Bottlenecks are identified or becoming visible on the roads in and around the city centre and on the so-called Brienoord Corridor.

Approximately one third of the traffic on the Ring (the motorways around Rotterdam) is comprised of urban traffic. Within Rotterdam, however, there is a relatively high amount (15% to 20%) of regional car traffic. This traffic should be able to make much better use of the Ring, provided that the Ring remains functioning well and forms a reliable alternative when coming from the city. The main roads to and from the city centre form the most important link from the Rotterdam Ring to the centre. The anticipated further densification of the city centre, as well as an increase in residents and therefore traffic in and from the districts around the city centre, requires a new plan for the urban and regional car traffic. Maintaining an attractive living environment requires prompt investments in infrastructure.

## Topics

1. Reliable network
2. New bicycle and public transport connections
3. Chain mobility
4. Motorways in urban area

## THE ISSUE OF ACCESSIBILITY



### Bottlenecks in the cycling network

Boosting alternatives to car use within the city limits is a significant challenge. The bicycle plays a particularly important role in this connection. The current cycling network faces capacity problems at a number of intersections on the Hofplein – Erasmus Bridge axis, which is the scene of the first bicycle queues in Rotterdam. This is not helped by the fact that the Erasmus Bridge is the only bicycle-friendly connection for cyclists from South to North and vice versa. There exist only a few attractive cycling routes that run parallel to the busy motorways. Due to the barriers on the way, such as the Maas, Wilhelminaplein, Boompjes, 's Gravendijkwal and Droogleever Fortuynplein, the cycling routes from the city districts to the



city centre are not yet sufficiently attractive. The flow of bicycles from the city centre is large, but we can have the bicycle play an even more important role and break down the barriers to cycling in the city as much as possible. These barriers include the river, the railway in South Rotterdam and the lack of options to cross the Ring. The Maastunnel and water transport (Feijenoord bicycle ferry) form an important contribution to refining the cycling network and must therefore be improved. The Erasmus Bridge and the Willemsbrug also serve as important links in the regional network of cycle superhighways. The regional cycling network should also become even more close-knit, while a quality improvement and the granting of greater priority for cyclists is needed.

### Bottlenecks in the public transport network

Using the current public transport network, all passengers travelling from North Rotterdam to South Rotterdam (and vice versa) always have to travel via the city centre. This is one of the factors contributing to a tram bottleneck on the Erasmus Bridge and traffic flow problems on both access roads. The biggest metro bottlenecks in the network are between Kralingse Zoom and Dijkzigt stops in the east-west line and between CS Beurs and Zuidplein stops on the north-south line. Except for the Erasmus line, crucial regional public transport connections are missing in South Rotterdam. Having South become better connected



to the strong regional transport networks is therefore essential. This can be done, for example, by introducing connecting high-quality public transport connections over the Willemsbrug and the Maastunnel. The Maastunnel can eventually form an important part of the connecting trunk of the public transport network, rendering major destinations such as the Erasmus MC, Hart van Zuid and the western part of the city centre more accessible. At the same time, South Rotterdam will be better connected

to the northern part of the city centre and surrounding districts via Hart van Zuid and Pleinweg. This also creates a second bustling public transport axis in South.

### Space for new modes and means of transport

Smart mobility solutions are required for queues and the public transport network as a whole. This requires ongoing room to experiment around the Rotterdam Ring, such in collaboration with the national government, the Verkeersonderneming and the Rotterdam

Port Authority. Ensuring that the urban network remains functioning requires optimum use of the opportunities available. Passenger transport over the Maas river can meet a demand for leisure activities, and it can also complement the existing transport offering (missing links). Many market participants and authorities see the potential of this form of transport and already provide a framework for it. In the elaboration of the national fuel vision in Rotterdam, the contours concerning what Rotterdam needs to do in both the short term and the long term are being mapped out. Such in order to, on



the one hand, tackle the local issue of the negative effects of motorised traffic and, on the other hand, to contribute to the national and international ambition to reduce CO2 emissions produced by traffic. Electrifying the available transport options provides many opportunities for the urban area within and outside of the Ring. Increasing cycling distances by using electric bicycle and more space for new individual forms of electric transport contribute to achieving the zero emissions target.

### The key questions

- Are additional urban river crossings needed in the long run in order to create a stronger economic climate, a high-quality living environment and improved air quality?
- Which new connections in the urban infrastructure network are necessary in order to achieve a densifying yet green living environment while developing the economic perspectives?
- In which way can the number of clean car kilometres urban areas be increased, including by shifting car kilometres to bicycle and public transport kilometres?
- Which Rotterdam city avenues allow for spatial quality improvement to create an attractive (living) environment and better quality of life by reducing car traffic?
- Which modes of transport can form part of Rotterdam's urban and regional public transport system?
- Which interventions in the urban and regional traffic network contribute to better health conditions for Rotterdam residents?
- How can accessibility boost economic innovation?
- Which urban traffic interchanges can be brought into a better balance by reducing the physical space for cars and increasing the available space for cyclists, pedestrians and public transport?
- How much and which types of car traffic is shifting from the urban area (in particular, the city centre and the surrounding city districts) to the Ring or alternative modes of transport?



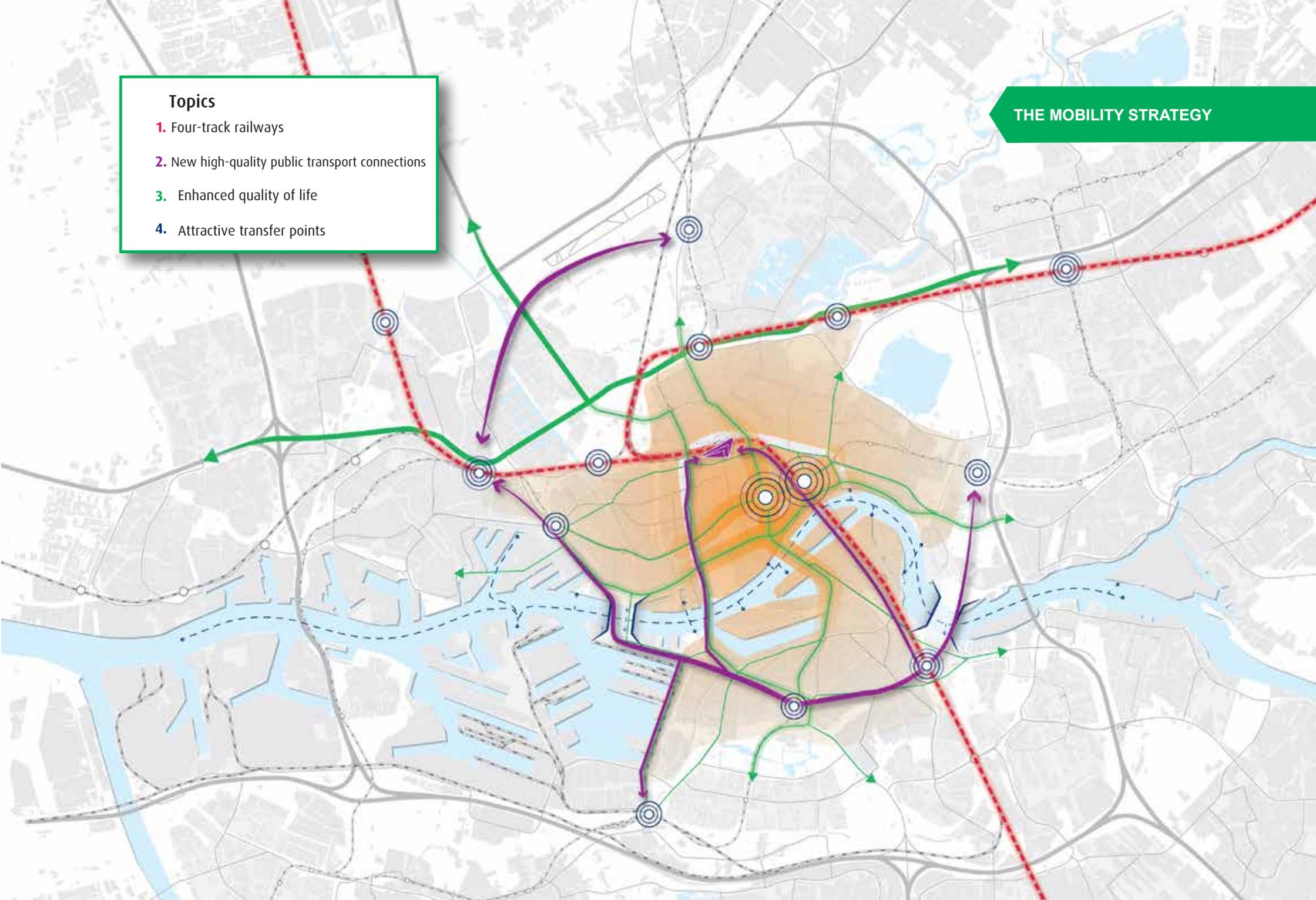
# 4 The Rotterdam Mobility Strategy

*We are translating the trends, developments, challenges and accessibility issues identified in the previous chapters into a number of opportunities and measures that contribute to a lively Rotterdam with a strong economy. In doing so, we are looking for a balance in modalities, i.e., a new balance of cyclists, pedestrians, cars and public transport.*

Our starting points are the following:

- Densification of houses within the urban area has priority. In the long term, the infrastructure network is part of an attractive living environment, which is traffic-safe and nuisance-free when it comes to air and noise pollution.
- We are transitioning to the Next Economy, also by way of our transport network. The infrastructure network is the framework that offers space for this transition and makes connections. Alongside the data/communication pillar and the energy transition, this infrastructure network is an essential pillar in the Next Economy Roadmap (yet to be developed). This means that the infrastructure network must be - and remain - flexible on both a regional and urban scale and provide enough space for (changes in) the various modalities.
- The health of Rotterdam residents comes first. This means that the infrastructure network in the urban area does not facilitate any unnecessary unclean car traffic; instead, it is actively promoting the use of clean forms of transport such as the bicycle, clean vehicles, walking and public transport. It is important to ensure that all Rotterdam residents can join in, are able to participate and can easily move through the city and region, using various forms of transport.
- We are going to invest in smart mobility, in other words: when it comes to more efficiently sharing and using information, we are going to use the space and traffic systems more efficiently and develop new products that contribute to a healthy and clean city. The city therefore functions as a testing ground for new developments and forms of collaboration.
- We can only guarantee the future-proofness of the transport network in terms of accessibility and quality of life by emphasising the importance of increasing the flexibility and density of the city's and the region's interconnected transport network. This involves making the most efficient use of the existing network through traffic management, influencing behaviour, improving the quality of public spaces and using market forces. In short, it means guaranteeing a sustainable and robust urban and regional transport network in the long run.

- Topics**
- 1. Four-track railways
  - 2. New high-quality public transport connections
  - 3. Enhanced quality of life
  - 4. Attractive transfer points



## The Rotterdam Mobility Strategy: an attractive city on two banks

Taken together, all this leads to a long-term Mobility Strategy for the accessibility of the city and the region. The structural interventions within this perspective offer the most opportunities for forming an urban and regional infrastructure that is sufficiently flexible and adaptable enough to mould the city of the future (Next City). Furthermore, this will allow us to flexibly respond to the energy and developments of residents, multiple partners and stakeholders in the city and region. The Mobility Strategy incorporates the desired spatial and economic development of the city and the region and allows us to continue to adapt to the spirit of the times when the accessibility issue changes in the future, since there is no strict order to the measures to be taken. It is essential that we develop a healthy, safe living environment in the urban area, and a healthy and attractive city where urban densification and economic innovation can take place.

This leads us to take to the following policy decisions:

1. Fewer car kilometres within the Ring: priority for bicycles and public transport.
2. An interconnected regional and urban network: roads and public transport in balance.
3. Regional and urban river crossings: create new ones and transform existing ones.
4. An appealing and vibrant city and centre: City Lounge boosted.
5. Boosting new modes of transport: water transport and Last Mile.
6. Eliminating transport poverty: social and community participation boosted.
7. A healthy living environment: boosting spatial quality and zero emissions.
8. Smart mobility: technological innovation and IT.
9. Areas outside of the Ring: sustainable connections with the areas within.

*A city centre with restricted car access means: car traffic with destinations in the city centre will still have easy access to the city centre in the future. Through traffic will use other routes, no longer driving through the city centre.*

## 1. Fewer car kilometres within the Ring: the bicycle dominates

Over the past few years, the mobility transition in the city has been taking shape. For years now, slowly but surely, the use of cars in the city centre has been decreasing. On the other hand, bicycle and public transport use have rapidly increased. The transition to sustainable forms of mobility (walking, bicycles, public transport and clean transport) is going to continue over the coming years. In view of the ongoing urban densification, this process is strongest in the city centre and the city districts.



*In order to use the space efficiently and create a healthy living environment, work is being done to pedestrians and cyclists be granted higher priority and more space in the city centre and surrounding city districts. Next, steps will be taken to improve public transport and to provide enough space for clean car traffic.*

This means that:

- The mobility transition is resulting in fewer car kilometres within the Ring and more clean car kilometres on the regional and urban network;
- The expansion of the national motorway network results in more capacity on the main road network and is shifting regional traffic to the Ring;
- New regional river crossings are not resulting in more car kilometres within the Ring, but in a better distribution of the urban car traffic along the river crossings;
- New bicycle and public transport connections in the infrastructure network are leading to major shifts from car use to use of the bicycle and public transport, with the bicycle being the dominant mode of transport within the Ring.

### The changing role of the car

The role of the car in the city is changing. Cars are becoming cleaner, quieter and safer, which means that, over the years to come, the public nuisance caused by cars for people will keep on decreasing. At the same time, the use of the car is changing from ownership to sharing and going by car is becoming less of a matter of course, as, especially for short journeys, there are lots of alternatives. A new paradox has been created. The car is, in some senses, becoming more suitable (cleaner, safer) for use in the city, but is being used less because there are better alternatives. The perspective for car use in Rotterdam is therefore twofold. The car increasingly has to share the public space with other means of mobility, since the growth of the other forms of mobility is demanding it. At the same time, modern cars can more easily be allowed to reach the places that are currently not yet accessible by car. In this way, we are creating a modern accessibility vision for car use as well.

### The bicycle dominates

The new and existing river crossings are important new links in the cycling and public transport network, leading to a strong increase in cycling and the use of public transport. The number of short car journeys (3-5 km) to and from the city centre is decreasing. The amount of bicycle traffic is rapidly increasing, particularly over the Schiekade – Coolsingel – Erasmus

Bridge – Laan op Zuid city axis. The transfer options available when using high-quality public transport ensure that, once improvement work has finished, it becomes a more appealing option for a larger number of residents that is used more often. The amount of car kilometres drive in the city centre and surrounding city districts is decreasing by roughly 10-25%. This decrease in car traffic within the Ring (outside of the Ring, the decrease is less pronounced) can, for a large part, be explained by a shift to the use of public transport and bicycles. The desired transition from car to more healthy forms of mobility (cycling, walking and public transport) is thus given solid shape.

### What are we going to do?

- The change in mobility needs requires that:
- Within the Ring, the infrastructure offering more space for bicycles, pedestrians and public transport in order to replace, in particular, short car journeys (3-5 km);
- In the short term, the Cycle Plan, the Traffic Safety Plan and the Parking Plan are fully implemented;
- In the long term, the infrastructure is redeveloped in conjunction with the outdoor space, where possible during maintenance interventions and where necessary through new Development Plans.

## 2. An interconnected regional and urban network: roads and public transport in balance

The amount of traffic from the area to the city and vice versa will continue to grow over the coming years. The traffic intensity on the Ring will therefore also grow until 2030. The investments in the new regional motorways (A16 Rotterdam, Blankenburgtunnel, A4 Delft Schiedam) ensure that the capacity on the Ring increases. These extra connections make for a better distribution of traffic, and therefore lower traffic intensities on the A13, A20 and the Beneluxtunnel. On the other hand, the traffic on the Van Brienoordbrug is rapidly increasing, partly due to the attracting impact of the A16 Rotterdam. Regional through traffic in the city to destinations is shifting to the Ring and is becoming less of a burden on the urban road network. As such, regional traffic is using the regional main structure, while traffic with destinations in the city is using the urban main roads. The connections of the urban road network with the regional main road network are an important point of attention in this context. The connections are often at development sites and serve important P+R purposes, such as Kralingse Zoom.

### New river crossings

Building a new western river crossing is creating structural space to decrease traffic pressure, such as from the A13 and Kleinpolderplein via Stadshoudersweg, 's Gravendijkwal and Droogleever Fortuynplein, up to Pleinweg, Zuidplein and Strevelsweg/Vaanweg. The new eastern river crossing creates a shift in the car traffic on the national highway system and the urban main road network. More research into this shift of car flows needs to be done and to be continuously updated over time. The challenges to the quality of life around the river crossing and the related access roads also need to be investigated. Both of the new river crossings result in significantly less car traffic over the existing river crossings. The amount of car traffic may decrease by 50% in the Maastunnel and by 25% on the Erasmus Bridge. The current urban river crossings are decreasing in car traffic intensity and the construction of new bicycle and public transport connections means that the new river crossings will not result in higher intensities on the Ring. Many urban boulevards are becoming 20-30% quieter in terms of car traffic. We expect strong reductions in traffic levels on Pleinweg and 's Gravendijkwal.

### High-quality public transport connections

In the long run, public transport combined with smart collective transport will be the most common form of transport for urban journeys in the urban area of Rotterdam. The energy transition provides a huge incentive in this connection, forming an elaboration of the Next Economy Roadmap on both an urban and a regional scale. A significant condition for encouraging urbanisation and economic renovation on the Leiden – The Hague – Delft – Rotterdam – Dordrecht ("de Oude Lijn") railway line is for the line to be a quadruple track one and to feature fast national and international intercity trains and frequent regional light rail.



Furthermore, this will create more space for new regional developments within existing economic hubs such as Rotterdam The Hague Airport and Stadionpark. Work sites in the urban area, such as Spaanse Polder, too, can be connected to this regional network and receive new opportunities for development that align with the requirements of the Next Economy. In order to break down the barrier effect caused by the river, new river crossings with highly efficient public transport connections are required, as well as the transformation of existing river crossings such as the Maastunnel and the Willemsbrug. This will create a new strong and closely interconnected public transport network connecting all parts of the city centre, South Rotterdam and West Rotterdam together.

### Multi-accessible work sites

Strong public transport lines through the city centre, such as a direct connection between Erasmus Medical Centre and Central Station, can provide the large-scale new and existing economic development sites with enough prospects for the future. Public transport access to large-scale work sites is currently either lacking or inadequate. Since existing and future business parks are undergoing a new transformation, in which good public transport access is a key condition, we need to make an impact here. Many employees must have easy access to the work sites. This can also

be achieved by way of collective transport organised by the businesses themselves. This would mainly concern collective business transport to and from the larger regional public transport hubs. In 2016, the walking distances to public transport stops that provide access to important work locations such as Erasmus University and the Erasmus Medical Centre are relatively long. These locations require additional forms of small-scale transport: Mobility as a Service. The current public transport system in the urban area, and especially the current metro system, also needs to be considerably improved in terms of efficiency. As a result of developments in automation, increasing frequencies may provide a solution. The restructuring of the tram and bus network thus creates a new strong, close-knit and interconnected public transport network connecting all parts of the city centre, South Rotterdam and West Rotterdam.

### What are we going to do?

In the short term, this means that:

- Implementing the measures of the Perspective Memorandum on Air and the Beter Benutten collaboration programme.
- A follow-up programme anchoring Beter Benutten is being drawn up with the Ministry of Infrastructure and Environment, the regional partners and the Verkeersonderneming.
- The longer term challenges are set out in the 2017 Rotterdam – The Hague MIRT study. Rotterdam wants to establish better use of the Ring and the new river crossings, giving priority to the western river crossings. This in addition to new large-scale public transport connections within and outside of the Ring and an increase in the frequency on the tram and metro network, which can be made possible by building new river crossings.

### 3. Regional and urban river crossings: create new ones and transform existing ones.

A successful river crossing is more than just a bridge; it is a way of strengthening the structure and therefore the agglomeration and competitive force of the Metropolitan Region and encouraging new regional developments in the city and the region. The river crossing contributes to solving urban and regional traffic bottlenecks on the main road network and relieving the overstretched regional public transport network. The national government and the region acknowledge that Rotterdam's urban and regional traffic and public transport system is under pressure ('Rotterdam Moving Forward 2011' MIRT study). This results in limited capacity (particularly on the inner-city sections of the metro system) and a high risk for achieving densification. However, in order to strengthen the capacity and robustness of the network, to bring about the desired living environments and mobility needs of the growing number of residents and create conditions for economic and social development, investment in new infrastructure, specifically in the expansion of the number of multimodal river crossings in Rotterdam, is crucial.

Room for growth and quality improvement is also being created for cyclists and pedestrians in the city centre and surrounding city districts, thereby contributing to the quality of life. In the long run, we will combine the new river crossings with the so-called close-knit grid structure and the transformation of existing river crossings. This strategy provides the best preconditions for a lively and liveable development of the urban area around the river, optimally boosting the City Lounge in the city centre and surrounding city districts. It is also possible to create a better distribution of car traffic over the existing river crossings, leading to more space for the other modes of transport (bicycles, walking, public transport) in the urban infrastructure network.

#### Transformation of the existing Maastunnel and Willemsbrug river crossings

Less car traffic through the city centre also leads to less traffic over the urban river crossings. This means less traffic through the Maastunnel, over the Erasmusbrug and Willemsbrug and on the adjoining interchanges, including Droogleeper Fortuynplein, Maastunnelplein and Wilhelminaplein. This is making the banks of the river Maas more easily accessible for pedestrians, cyclists and public transport.

There is a shortage of comfortable public transport and cycling facilities in the Maastunnel and on the Willemsbrug. Finally, a better balance is being created for the core connections within the urban and regional network, creating space for new regional developments, different living environments and various economic purposes. The Willemsbrug serves as the most important connection between the eastern part of the city centre and the Feyenoord City development site. Kop van Feijenoord and Parkstad have the room to transform into an interesting living environment along the river. The extension of Colosseumweg provides more opportunities for dynamic development



in the South district (Hillesluis and Lombardijen) and the construction of new living environments, including the Parkstad and Stadionpark development sites.

### **New western river crossing**

As a result of the new river crossing on the west side of the city, car traffic in Rotterdam shifts from the city districts, including from the Benthickplein-Zuidplein axis, to the new western Parklane. By drastically reducing car traffic, we are creating space in the 's Gravendijkwal-Maastunnel-Doklaan area. Erasmus MC can be more effectively connected to the spatial network of the city centre and the river. New development sites are being created around Erasmus MC. It may also boost the transformation of the Rochussenstraat – Westblaak – Blaak area. The connection to Delfshaven and Merwehaven/Vierhavens is improving, and we can further densify the area by constructing high-quality living environments along the river. Space is being created to strengthen the connections between the various residential areas and the transformation of the Cool - Delfshaven/'s Gravendijkwal – Binnenstad living environments. 's Gravendijkwal is transforming into a green urban connection. The air quality, noise pollution and traffic safety will improve on this lane. In this fashion, more space for healthy exercise,

living and recreation is created on the west side of the city. Key to this new structure is a follow-up project in South Rotterdam. A new connection via Waalhaven up to Groene Kruisplein offers many opportunities for the spatial and economic development of parts of South (Charlois and Carnisse), featuring new living/working environments, including green connections. It is vital in this context that the 'local' connections from the surrounding districts (Oud Charlois and Carnisse) directly link to this new main structure, allowing for the creation of sufficient regional and local spin-off. The development of Port Valley on Sluisjesdijk can provide a new incentive for employment in South. Groene Kruisweg and Pleinweg are being transformed into attractive urban routes that provide connections between residential areas.

### **New eastern river crossing**

A new river crossing on the eastern side of the city centre creates space for more car traffic leading to the city centre. This provides the opportunity to increase the amount of space for cyclists and pedestrians on the Erasmus Bridge axis and the Willemsbrug axis. Thanks to a new eastern river crossing, in time the City Lounge in the city centre can be expanded in an easterly direction (the Blaak, Oude Haven, Willemsbrug and Kralingen areas). Kop van Feijenoord and Parkstad have the space to

transform into an interesting living environment along the river. The eastern river crossing may be realised in tandem with the development of Stadionpark. A solid connection with the structures of Stadionpark and further on to Strevelsweg provides even more opportunities for dynamic development in South Rotterdam (Hillesluis and Lombardijen) and the construction of new living environments, including the Parkstad and Stadionpark development. The eastern river crossing shifts car traffic and needs to be explored in more detail in conjunction with the desired regional developments.

### **What are we going to do?**

The challenge is to strengthen the current river crossings with multimodal connections, by adding new high-quality public transport connections and improving the atmosphere for both pedestrians and cyclists. The challenge for the new river crossings is twofold:

- Promoting urban development by boosting the urban infrastructure network in combination with tackling the challenge of improving robustness.
- In the MIRT 'Accessibility in Rotterdam and the Hague in 2017' study, the national government and the region jointly investigated directions in solutions for the following urban accessibility issues:

- 1: Rotterdam wants to establish both river crossings as important directions in solutions in the MIRT study, giving priority to western river crossings. For the eastern river crossing, measures need to be taken to prevent the regional through traffic from choosing to take the urban roads.
- 2: Enhancing and updating the public transport connections on a regional and urban scale, including additional water transport connections.

#### 4. An appealing and vibrant city and city centre: City Lounge boosted!

The City Lounge is the heart of the city. Coolsingel will be the starting point: the first road that will have its quality improved. For the redevelopment plan for the new Coolsingel is an important addition to realise a more welcoming city centre. Structurally reducing car traffic on Coolsingel is a definite possibility. There is lots of car traffic on Coolsingel without a direct destination or origin in the city centre. In 2015, this traffic accounted for roughly 40% of the total car

traffic on Coolsingel. It is expected that in 2020, when redeveloped, Coolsingel, with a car capacity reduced from four to three traffic lanes, will see around 10,000 fewer cars per day. The car traffic is shifting from Coolsingel to other routes that run parallel to Coolsingel. Although car traffic from Coolsingel is shifting to 's Gravendijkwal, for example, on balance, fewer cars will be on the road here as well because more space is being created for regional car traffic on the regional road network, including on the A4 Delft-Schiedam, and so this traffic is shifting. A number of cars currently driving on Coolsingel in order



to park in the city centre will be led towards the car parks on the edge of the city centre, including by way of improved road signage, or will use other access routes due to the redeveloped Coolingsingel being less practical.

### An even more central centre

Whether you've just come from a big public transport hub, have left your car in a car park or park your bicycle in the outdoor space, everyone completes the last part of their journey by foot. This makes everyone a pedestrian. Attractive walking routes are essential for a lively and appealing city centre. We can improve this even further by prioritising pedestrians even more in the city centre. More space is being created for pedestrians on the streets, both so that they can walk comfortably from one area of the city to the other and so that they can relax in the centre and enjoy spending time there. Although this is the desired situation at certain times of the day, when the ease of the pedestrian is the priority, this does not automatically involve making the streets 'car-free' or structurally increasing the size of the pedestrian zone. The walking routes from the city centre and from public transport hubs such as Blaak, Oostplein and Wilhelminaplein towards the Maas are becoming more attractive and easier to recognise.

### Investing in safety

Pedestrians and cyclists play an important role when it comes to living and spending leisure time on the water. Locations along the water are also becoming ever more attractive for housing and (new) urban amenities. The Maas – Oude Haven – Binnenrotte connection is an important link in this context. The Maas is also an important link for pedestrians towards South Rotterdam. It is therefore important to improve the options of crossing the city boulevard, there or elsewhere. Being able to safely cross the road is a precondition for this is. Like the boulevards, squares such as Churchillplein, Oostplein and Wilhelminaplein are increasingly being designed and redesigned with pedestrians in mind. Walking routes to and from public transport hubs play a significant role in this connection. In the old city districts, the city streets are important access links to the city centre and also serve an important mix of living, working, shopping and leisure time purposes. The layout of these roads needs to contribute to a pleasant and safe environment, with pedestrians and cyclists playing a key role.

### Improved cycling connections

More and more Rotterdam residents are cycling, and this is clearly visible on the streets. Including by way of its Cycle Plan, Rotterdam is working on further promoting bicycle travel. By teaching young children about the benefits and fun of cycling in an educational way, it can safely be assumed that they will also view cycling in the city as a serious alternative to the car in later life. Partly thanks to the rise of the electric bicycle, the elderly, too, remain mobile for a longer time. The bicycle therefore also remains an important mode of transport for the elderly, and support in the form of cycling



lessons also boosts skills and confidence, for example. More space is being created for bicycles in the city centre. The permeability of the surrounding city districts is boosted by better cycling connections from the current city streets towards the centre. By positioning a number of recognisable components we can make optimum use of the parallel routes to, from and through the city centre. These routes may include the street with six names (Westewagenstraat and on) and the Westersingel axis. The first route to be reinforced is the central cycling axis between Schieplein and Zuidplein. This is to become the main cycling-first axis. The route will be characterised by comfortable cycle paths, giving cyclists as much priority as possible at traffic lights and an attractive living environment (Coolsingel, Maas, Rijnhaven). Other routes to the city centre are also being improved, by facilitating and giving more priority to bicycles in connecting the city streets to the surrounding city districts.

We are also investing in more bicycle parking that enable various types of bicycles to be stored. From bicycle rails on the street to guarded bicycle parks at central locations across the city, including on Coolsingel at the central cycling axis. We are also investing in

good cycling facilities in the districts. At the same time, the current river crossings are not yet bicycle-friendly enough. The Maastunnel and Willemsbrug are not directly linked to the urban cycling network and have complex connections. The Erasmus Bridge is seeing a good amount of use, but it also has very busy access roads, with lots of conflicts between cars and public transport. This is resulting in long waiting times for cyclists. Water transport, both by water taxi and water bus, is bringing both riverbanks closer together. In 2015, there was already a need for additional water connections for cyclists. However, the chances of increased use are increasing due to the proposed closure of the Maastunnel in 2017.

### **Parking: fair distribution of space**

The parking policy in Rotterdam is set out in the 2016-2018 Rotterdam Parking Plan. By deploying this parking policy, Rotterdam is working towards optimum and balanced use of the space and prevention of nuisance. Over the past few years, Rotterdam has made a significant investment in parking facilities: in the city centre, by constructing the Kruisplein and Markthal car parks, and on the edge of the city by opening P&R facilities such as at Kralingse Zoom and

Meijersplein. The municipality thus offers motorists a good alternative to parking in the city centre. In the various city districts, parking facilities are available near busy shopping areas and shopping streets in the form of district car parks and public car parks. For the time being, we have finished building new parking facilities and over the coming years, we are working towards making better use of these existing car parks and using the tools available to us to fairly distribute space for parking and all of the other spatial needs on the street. The general views on car ownership among city residents are changing, which means that there is room



for changing this distribution. In order to encourage densification in the city, the ways of dealing with parking issues when it comes to new construction and renovation plans, such as the parking standards, are being well scrutinised.

### What are we going to do?

- In the short term, the municipality of Rotterdam is opting to:
- Redevelop Coolsingel with 2 x 1 traffic lanes, to drive the City Lounge and create more space for cyclists and pedestrians;
- Create more space for experimentation with restricted car access in the use of the infrastructure, including initiatives such as Happy Streets, car-free days and Parking Day;
- Implement the Cycle Plan and the Traffic Safety Plan, leading to an increase in the quality of life in the streets and open spaces;
- Implement the Parking Plan, in which 2000 selected street parking spaces are replaced in order to boost the City Lounge.

## 5. Boosting new modes of transport: water transport and Last Mile.

Water transport has considerably increased over the past few years, both in the city and in the region. Expanding the low-rate water taxi service and retaining the Feijenoord – Kralingen ferry directly support this further increase, but this transport market can create many more opportunities for the city of Rotterdam. The number of users may see another drastic increase over the coming ten years. At the moment, multiple parties are active, but even when taken together, their actions do not yet form a network that is sufficiently closely aligned. The various initiatives also each have their own concession and contracts. The last concession will expire in 2021. Altogether, this leads to opportunities to develop a Water Transport Plan in collaboration with the existing partners and new parties in the city and region over the coming years.

### Water Transport Plan

The government authorities mentioned above, along with Drechtsteden, have established that structural collaboration is required. Economy of scale can be achieved by introducing synergy in contracts and clients of both water transport and 'demand-based' passenger water transport (water taxis). It has been agreed that any contracts due to expire in the period up to 2021 are not going to be automatically

extended beyond 2021. The parties are going to use the period up to 2021 to join up with market participants and transport providers and establish the robust network that is needed for water transport after 2021. It has also been agreed that a joint vision for the



future of water transport is to be drawn up. Collaboration between various parties with in-depth knowledge of this subject, such as taxi companies, the RET, (water) transport companies, the Verkeersonderneming public-private partnership initiative addressing access issues, and private individuals is crucial for realising a Water Transport Plan. Rotterdam Partners may also be engaged to promote fast, comfortable and/or affordable transport.

### Optimum use of riverbanks

We want to make optimum use of large maintenance and redevelopment projects to create and promote different travelling habits, and to explore whether, together, we can develop a marketplace for Rotterdam's infrastructure. The 'Riverbanks' programme offers many opportunities to increase the river's accessibility because new, attractive destinations have been created that are new destinations in themselves. We can integrate

these with the water transport and thus develop new hubs in which land transport better aligns with water transport. The Oude Haven/Blaak public transport station/Nieuwe Maas site is an example of this. As an additional transport option, water transport can also serve as a valuable addition to, for instance, P&R services.



### Last Mile transport

In reality, the average user only wants one thing: to move around the city in a way that suits his or her needs. And preferably without being hindered by systems and interests. This is confirmed by discussions with several people who are active in the world of mobility in Rotterdam. It is therefore essential to view multimodal transport from the perspective of the user. In the urban zone, meetings between various people are key, with travelling as an activity in which infrastructure has a connecting role. The task is to offer as many of these forms of transport as possible. There are opportunities to create an open transport offering by including communication about the current options and 'Last Mile transport' in public transport concessions, as well as to create a link by creating a platform and/or marketplace for parties to meet. The parties provide additional transport and together, create a new offering. The parties more strongly consider transport to be a new social-economic and cultural development and as a condition for participation in society.

### What are we going to do?

In the 2016 spring budget, €2.6 million was reserved for water transport purposes, in order to realise the following initiatives:

- Flat fee for the water taxi (implemented directly after the World Port Days in September 2016).
- South Ferry residents' initiative (Charlois – Katendrecht), with subsidy provision in December 2016 and shipping starting in January 2017.
- Continuation of Kralingen-Feijenoord bicycle/foot ferry up to 2021, extension of contract from March 2017.
- The Municipality of Rotterdam, the Province of provincie Zuid-Holland, the MRDH, Drechtsteden and the Port Authority are presenting a joint vision for the future of passenger transport over the water. This vision is being laid out in a new public water transport plan and is the first step towards a framework for new tenders and concessions.
- Together with market participants, new innovative forms of transport are being encouraged, targeting the facilitation of the Last Mile. One option is to connect the RTHA terminal to the Meijersplein stop by way of self-driving transport, such in collaboration with MRDH.

### 6. Eliminating transport poverty: social and community participation boosted.

While the city is developing in terms of mobility, a certain section of Rotterdam residents has little or no opportunity to participate in the economic, social and cultural traffic. A lack of sufficient transport options is a significant factor in this, as are cultural thresholds and economic restrictions. International studies indicate that up to half of those looking for work find it difficult to find a job due to a lack of transport options. It is therefore vital to ensure that everyone has equal access to mobility, allowing everyone to participate in social activities. Social exclusion has consequences on many levels. Examples include: no trips for children in primary education (too expensive), lack of public transport access to work sites by employees from different residential areas (no service in the morning), or not being able to collect food from the food bank (physically unable). However, this also concerns the accessibility (by bicycle, foot and mobility scooter) of urban amenities in the residential areas themselves.

### Contributions to social themes

This challenge touches on many social themes, such as loneliness among the elderly, the provision of informal care and participation in education, as well as urban programmes such as 'Staying in your own home' and 'Traffic safety'. A dangerous environment in terms of traffic safety makes it difficult for children to play outside and walk to nearby facilities. It is not just a lack of access to transport means that restricts the operating range in the city. 'Not being able to cycle' and 'not knowing how to use the digital OV chipkaart' are also factors that contribute to bicycles and public transport not being used. For the elderly, the degree of self-reliance is also a significant consideration. Not adequately being able to participate in social activities due to a lack of transport means can therefore not directly be translated into a specific challenge to overcome. The problem affects various target groups, for varying reasons.

### Solving transport poverty

The responsibility for providing a solution lies with both the Municipality and other active parties in the city that cater to fulfilling transport needs. Of course, it is an individual's own responsibility to find a job and go to work. However, the city as a whole benefits from as many working people as possible. Everyone agrees that it is not good

when children from different districts have different general education opportunities due to a lack of transport means. Every child in Rotterdam has a right to the same basic opportunities, and at its core it is the responsibility of the Municipality to provide these opportunities. Solving transport poverty for the benefit of various target groups is not a clear-cut and simple challenge, but bringing together various elements creates synergy between them, allowing for further upscaling. By outlining the specific needs and problems for each target group, the government and its strategic partners in the city are able to provide joint solutions. Stichting de Verre Bergen is one of these active partners. Some years ago, they initiated BUZZ010. This project facilitates



school trips and activities for primary school pupils. By now, a follow-up programme has been set up with multiple strategic partners in education.

### What are we going to do?

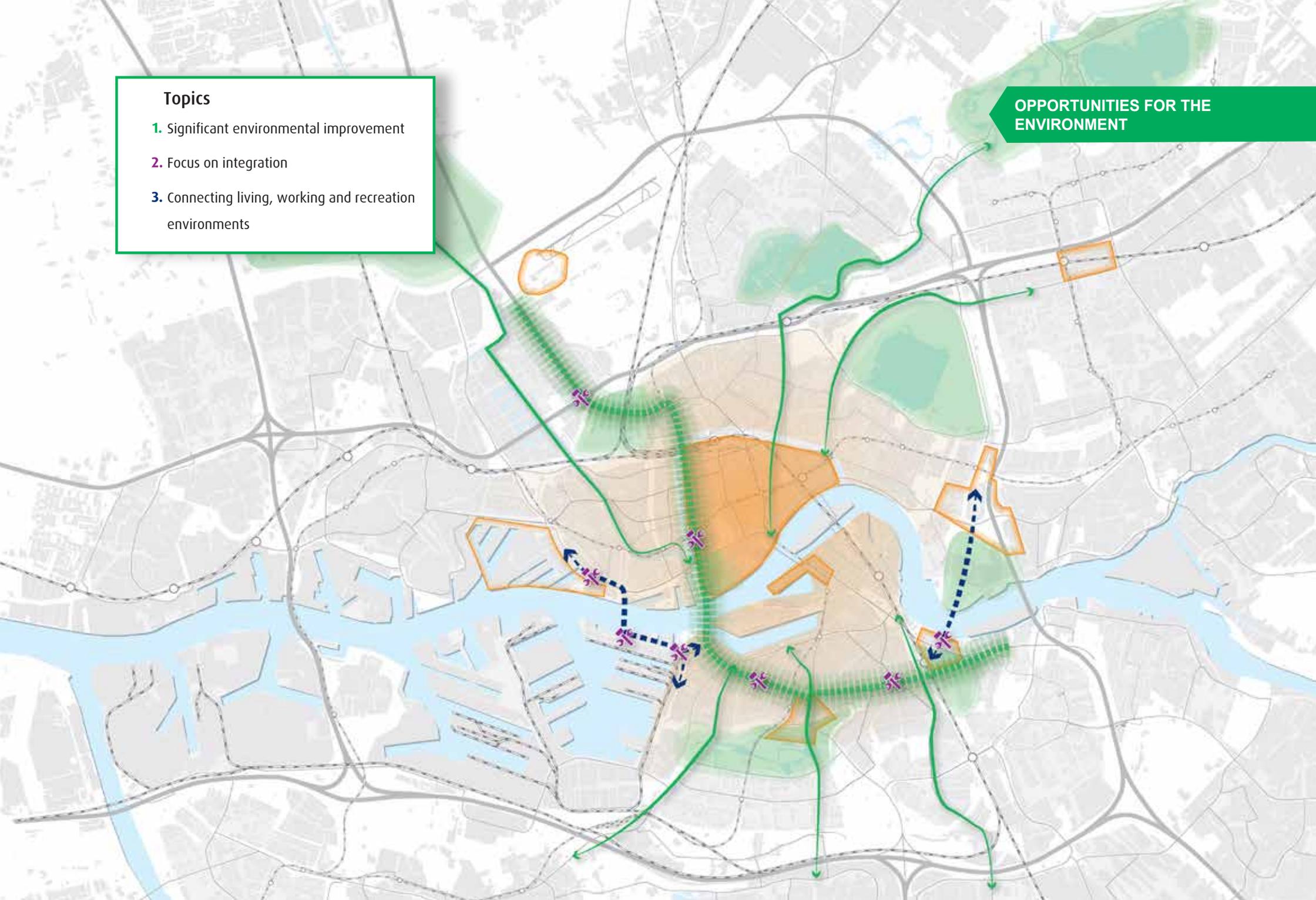
Together with our social partners, the Municipality of Rotterdam is working on:

- Providing mobility to various target groups, beginning with school children;
- Relaunching the BUZZ010 initiative, together with Stichting de Verre Bergen;
- Implementing the results of the 'Cycling in South' project;
- Providing mobility options that aligns with the 'Staying in your own home' programme;
- Continuing to strengthen the diversity of the options available on the mobility market (Verkeersonderneming/ Marketplace for Mobility and Mobility as a Service);
- Exploring the opportunities for contributing to increased participation and social activity through mobility, such in cooperation with the Area Committees.

## Topics

1. Significant environmental improvement
2. Focus on integration
3. Connecting living, working and recreation environments

## OPPORTUNITIES FOR THE ENVIRONMENT



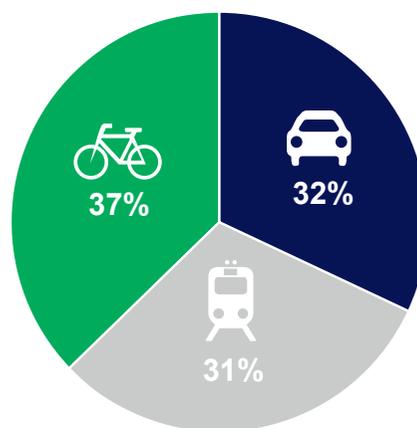
## 7. A healthy living environment: boosting spatial quality and zero emissions

In 2016, the limit values for air quality were exceeded at various spots along busy thoroughfares, in particular along the right bank of the river Maas. It is expected that, from 2020 onwards, the annual average limit values will be met across Rotterdam, thanks to a reduction in the background concentrations and the progressive change towards cleaner car traffic. By further reducing the car kilometres as outlined in this traffic plan, emissions are decreasing by over 10% on average. The most significant improvements will happen along the central Maastunnel corridor (from Statenweg in the direction of the Maastunnel and from the Maastunnel via Pleinweg in the direction of Breeweg and Marathonweg). Investing in a new eastern and western river crossing means reducing the noise and air pollution on existing routes like Tunneltraverse, 's-Gravendijkwal and the Maastunnel. It is important not to create air polluting emissions and to reduce the current noise pollution. Using additional traffic and noise measures and a solid design for the city avenues to be rebuilt, the Noise Action Plan will reduce or further reduce noise pollution in homes along these and similar roads. This is a positive result for the many residents who

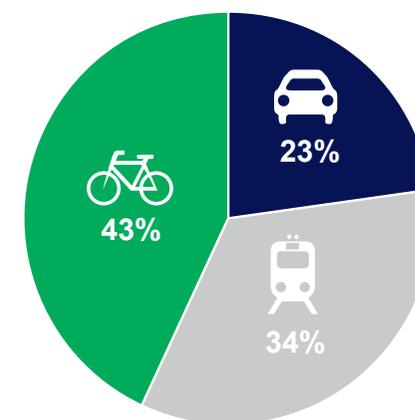
live along these streets. Next to measures such as greening, quiet asphalt and (new) public transport on quieter tracks and in green spaces, the electric car also forms an excellent opportunity to make the roads in the city even quieter, as do the increase in the number of cyclists and pedestrians and the reduction in the number of car journeys to and from the city centre and the city districts.



Rotterdam city centre in 2016



Rotterdam city centre in 2030



### Greening and expansion of city avenues

The above-mentioned development does involve a necessary long-term redevelopment of multiple city avenues, with more space for cyclists and pedestrians. This is essential because, despite the decrease in car traffic, traffic safety is being negatively impacted there. The space that is being made available through the reduction of a number of traffic

lanes may significantly contribute to a safer network for cycling and walking. The greening and expansion of pavements and cycle paths also offers more space to move around the city. This provides an incentive to walk, play outside, cycle, run and skate. The renovated city avenues and the new city bridges thus offer more options for jogging routes of various lengths, for example, both

in the direct living environment and along the river. The new, high-quality public transport lines ensure that lots more people have easier access to the existing urban sport and leisure facilities. Compare to the rest of the city, this is expected to be most noticeable in South Rotterdam.



### PLEINWEG REDEVELOPMENT



### Better crossings

The redevelopment of city avenues ensures that thousands of Rotterdam residents who live right next to these traffic arteries live on greener roads. This in particular concerns those districts in which the average amount of green space per resident is relatively low. The urban and regional leisure areas are also becoming more easily accessible for an increasingly large group of Rotterdam residents, while, thanks to the redevelopment of city avenues, new connections in the urban nature network are being created. Making the city avenues easier to cross results in city centres being better accessible to cyclists and pedestrians. Urban amenities also become better and more easily accessible by (high-quality) public transport. In addition, the new public transport connections (through the Maastunnel, over the (new) multimodal river crossings and over the Willemsbrug), will make for better connections between South Rotterdam to the city centre and the city districts in West and East. This development, too, will allow more Rotterdam residents to have more and easier access to (high-quality) public transport, and especially in South.

### Investing in clean transport

Promoting the electrification of freight transport, passenger cars and public transport is essential for a healthy living environment. The ambitions and forecasts for the sale of electric cars do vary drastically. The percentage of electric cars in the Rotterdam vehicle fleet by 2030 is uncertain. However, it is expected that the share of electric vehicles will be roughly 20-40% in the long term - significantly more than is currently the case. The ambition is that all RET vehicles, including the buses, will run on electricity by 2030. This will have a significant effect on climate targets - certainly when, in the future, using green energy or hydrogen will be the standard. The result is that by that time, only one in six journeys will be made using fossil fuels, as opposed to in four in 2016. The reduction in the amount of car kilometres and the electrification of car traffic and public transport mentioned above go hand in hand with a drastic reduction in CO2 emissions. The number of bicycle and public transport journeys is drastically increasing and the number of car journeys is decreasing, making a considerable amount of the traffic within the Ring emission-free.

### What are we going to do?

The Municipality of Rotterdam is working on:

- Maintaining the environmental zone as long as this is necessary for clean air.
- Realising a western river crossing in order to further improve the air quality in the city.
- Adapting the national fuel vision to the situation in Rotterdam, aimed at further changing the modes of transport to cleaner variants. The long-term challenge here is to make as many vehicles in Rotterdam as possible completely emission-free. By providing an extra incentive for emission-free transport, such in addition to the current efforts, these vehicles may come to form a greater percentage of the total vehicle fleet.
- An emission-free city and city centre: the Municipality supports the transition to clean transport by expanding the charging network for electric cars and implementing the Urban Distribution Zero Emission Green Deal .
- By 2025 at the latest, only zero-emissions buses will be procured for city transport purposes. In 2030, all buses will be emission-free. The Municipality collaborates with MRDH and RET to achieve this.

## 8. Smart mobility: technological innovation and IT

Rotterdam wants to be the frontrunner and a can-do city when it comes to new developments in the area of smart mobility. This involves gathering and sharing information more efficiently and learning together. Smart mobility also affects how we design and use the city. While this includes allowing for electric vehicles, we are also intrigued about what self-driving cars or drones mean for the city. Improving the collection and exchange of information about mobility ensures that we can take a smarter and more efficient approach when it comes to dealing with the short supply of space and the available infrastructure while passengers become better informed and able to make more effective decisions. Combining a large number of data sets belonging to road authorities, from in-car systems (navigation equipment) and mobile telephones and public transport companies, is essential to this.

### Good multimodal travel information

Big steps are already being taken to develop good multimodal travel information. The Netherlands has been selected by Google as the pilot country for sharing travel information for all modes of transport, including public transport. In 2016, all data from traditional online roadside systems, mobile telephones and in-car systems was combined. Using this combination of data, road authorities can better manage the network and set goals to improve accessibility and quality of life. In collaboration with market participants and mobility services, research is being carried out to develop new travel products. A good example is information about weather conditions, such as the rain sensor (if it rains, traffic lights will turn green for cyclists more often) and heat sensors (cycle paths are busy, traffic lights will turn green for cyclists more often). Information about bicycle and pedestrian flows in the city is already being collected by mobile telephone. This data is used to point out the bottlenecks and increase the accuracy of forecasts within traffic models. Data is also used to install charging points for electric cars.





### Room for experimentation

Experimentation encourages ongoing development and results in another perspective on the use of movement flows in the city. It also contributes to the development of new, clean mobility products and concepts, together with other market participants and parties. The Rotterdam area already features a marketplace for mobility and infrastructure that allows for conducting such experiments. The Verkeersonderneming and the Rotterdam Mobility Lab provide good

examples of breeding grounds for innovative ideas in the region. They particularly focus on products and concepts that target 'door-to-door mobility' and that align with the increasing demand for person-oriented traffic information products. Further densification of the city means that the available space must be used as efficiently as possible. The smart parking management systems at car parks introduced in 2016 allow us to use car parks as best as possible. An experiment on street parking called Parking Day is currently being

conducted in Rotterdam. Together with other authorities, Rotterdam is encouraging market participants to provide services that ensure optimum communication between traffic lights and road users. Over the coming years, we will focus on improving the flow of cyclists, public transport and emergency services.

### Space for new technological developments

At the moment, traffic in the city is managed mainly by the Municipality itself, in collaboration with other road authorities such as the Directorate-General for Public Works and Water Management and the provincial authorities. Technical developments make it possible for vehicles to communicate between themselves and for vehicles to communicate with roadside systems. This can also be made use of for improving the air quality and increasing passenger comfort, for example. Green waves are thus being developed for cyclists, and Rotterdam is offering space for experimentation with self-driving transport. Together with the MRDH and knowledge institutions such as Delft University of Technology and the Rotterdam University of Applied Sciences, we are conducting research into the effects of self-driving transport in urban areas. Among

other things, the research is investigating the connection between the Meijersplein stop and the airport terminal. The effects of self-driving cars in urban residential areas are also being researched through a pilot in North Rotterdam.

Over the past few years, various temporary projects were set up in the outdoor space of Rotterdam to experiment with different uses of the space. These projects include terrace platforms, bicycle platforms, the so-called 'dream streets', the flying grass carpet, Lounging on the Kleinpolderplein flyover, Parking Day and Open Streets. These still are individual, one-off and annual initiatives primarily targeted at raising awareness among Rotterdam residents about how a car park or flyover, for instance, could be used differently. However, in the long run, these initiatives help to make steps towards more definitive

other public space designs. Rotterdam wants to encourage the developments that target the switch to emission-free distribution systems, in any case in the city centre. There is plenty of room for electric cars in the urban area. A charging infrastructure that will cover the entire city will provide for the basic needs of electric drivers and opens the doors and establishes conditions for innovations in vehicle technology, in self-driving cars that charge electrically, and in charging technology itself. Rotterdam is the first city in the world to use inductive charging. There has been an increase in the number of bicycle courier services. Should this growth continue, the traffic infrastructure in the city centre must be adjusted thereto in good time. Urban distribution, or the supply of goods to shops and businesses in the city, continues to form part of the urban traffic flow. Adapting this traffic flow is therefore essential. We are therefore conducting talks with all



players who form part of the distribution process. In addition, we have joined with national networks in order to create as much uniformity in policy as possible. The Municipality has signed the national Urban Distribution Zero Emission Green Deal and has entered into a Rotterdam Green Deal with local parties.

### What are we going to do?

The Municipality is working on:

- A platform that makes as much open data available as possible in order to challenge the market to come up with smart solutions, such as apps for reliable journey times, and real time parking information for decisions between modalities and routes;
- Conducting experiments with initiators and partners from the city and creating space for experimenting with new technological developments that contribute to the goals of the Urban Traffic Plan, such as inductive charging for electric vehicles, developing smart journeys in collaboration with TomTom and smart digital cycling tools.

## 9. Areas outside of the Ring: sustainable connections with the areas within.

Attractive residential areas outside of the Rotterdam Ring are important. The various connections between these residential areas and the connections from the residential areas to the city centre are crucial for these areas to function. On the north-eastern side of the city, Alexander, Hillegersberg-Schiebroek and Overschie do not have enough sustainable connections to and from the city centre and to and from each other. The same applies to the residential areas of Barendrecht, Ridderkerk, Capelle and Krimpen on the south-eastern side of the region, and to the residential areas of Pernis, Hoogvliet and Rozenburg on the western side of the region.

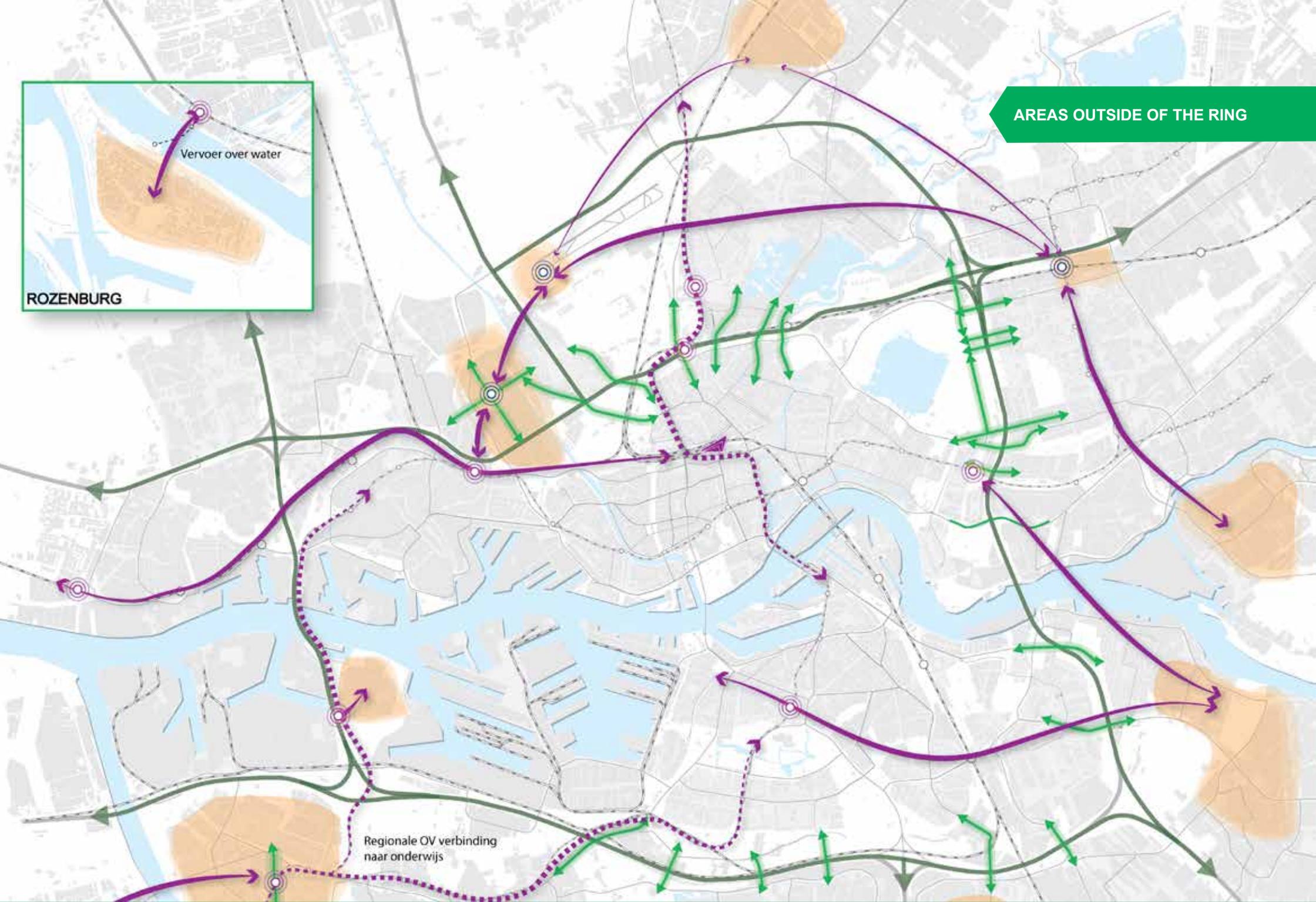
### North-eastern Rotterdam

Improving the bicycle and public transport connections between the areas themselves is a significant challenge. For cars, the introduction of the A16 motorway provides the solution to this challenge. However, improving public transport access to the Spaanse Polder business park and the public transport connection between Hillegersberg-Schiebroek, Overschie and Alexanderpolder is vital. Public transport access to the Sint Franciscus Gasthuis hospital and from the said areas to Schiedam also needs to be improved.

Quadrupling the tracks between Rotterdam and The Hague and additional public transport stations on the railway lines to The Hague and Utrecht offer a lot of opportunities. The area of Spaanse Polder and around Sint Franciscus Gasthuis can be boosted by even better public transport connections, which will positively impact the surrounding residential areas, and in particular Nieuw Terbregge. In 2016, Randstad Rail trains were overcrowded during rush hour. Increasing the frequency of the trains reduces the capacity problems on the section between Leidschenveen and Rotterdam Central. The connections between the Randstad Rail stops at Meijersplein and Melanchtonweg could be improved to shorten the walking distance between the two locations.

The bicycle connections between the districts are reasonably good. There are enough bicycle connections under the A20 and A16 to and from the city centre, but the quality could be improved. The main cycling routes get very busy at certain points along the main car traffic roads. When coming from Hillegersberg-Schiebroek and Alexander, there are many underpasses used by both car and bicycle traffic. In rush hour especially, this can lead to unsafe traffic situations. This means that new, separate, high-quality bicycle connections are needed to and from the city centre. Kleinpolderplein is an especially large barrier for cyclists. The bicycle connection

AREAS OUTSIDE OF THE RING



from the city centre to Nieuw Terbregge is both unclear and not direct.

In line with spatial-economic developments, the Alexander interchange is to be improved over the coming years. This will better align the station with the direct environment, in order to further encourage public transport use. The connections with Lansingerland and Krimpen are also important for the economic success of Alexandrium. The accessibility by car of Alexandrium continues to require attention, the Hoofdweg and Prins Alexanderlaan junction in particular requiring improvement work. Additional attention to mobility among the elderly is also required in these residential areas. The elderly are staying in their own homes for longer, which means that cycle and pedestrian routes require extra attention, while improvements need to be made to increase the accessibility of public transport stops.

### Rozenburg, Hoogvliet and Pernis

The Schiedam-Hoek van Holland metro line serves as an important incentive for an improved, sustainable connection from Hoek van Holland and Westland. The Schiedam-Hoek van Holland metro line directly connects the residential centre with the centre of Rotterdam. The residential areas of Rozenburg and Pernis are in slow decline because employment in the port area no longer aligns with the composition of the

population. Both districts want to remain attractive places to live for employees in the port area. Attractive, sustainable connections can draw in 'new port workers' and better serve the needs of the existing population. Direct connections to the Schiedam metro system, including to Hoek van Holland, are essential to achieving this. This can be achieved through new bus connections and existing ferry connections, as well as by developing a new Maassluis-Rozenburg metro station along the Schiedam-Hoek van Holland line. The Blankenburg connection is creating lots more spaces for car users. New public transport connections can also make travelling easier for school pupils who have to travel further due to the scale increases within the education system. The new connections also improve the accessibility of urban amenities for the elderly. In addition, there is interest in a direct water transport connection to the centre of Rotterdam.



### South-eastern Rotterdam

A number of municipalities oriented towards Rotterdam are clustered along the city's south-eastern rim. These include Ridderkerk and Barendrecht. Sustainable connections to Rotterdam and between these municipalities themselves are important in order to continue maintaining an attractive residential area within these municipalities. Public transport offerings from Ridderkerk and Barendrecht mainly run to the Zuidplein and Kralingse Zoom transport hubs in Rotterdam. However, these can be made faster and more direct. In the long term, having direct public transport connections from these areas to the new public transport hub at Stadionpark would be an appealing option. There are enough bicycle connections over and under the A15 and A16, but their quality could be improved. The (regional) bicycle connections between the residential areas are improving thanks to the new east-west route, but in the long run, they can certainly be improved - in particular those running to Rotterdam. On the eastern side, a new multimodal river crossing exists, which plays an important role in the expected accessibility problem posed by the Van

Brienoord Corridor. It is expected that this accessibility problem aligns with the challenge around the Algara Corridor when coming from the residential areas of Capelle and Krimpen. Solving these challenges is essential for the regional economic areas adjoining Rotterdam, such as Capelle and Krimpen, to function well.

### What are we going to do?

The Municipality is working on:

- The short-term implementation of the Cycle Plan, Road Safety Plan and Parking Plan, in order to create more space for bicycles and pedestrians and to increase the quality of life in streets and open spaces;
- Incorporating new, sustainable bicycle and public transport connections in a yet to be drawn up public transport vision;
- A functional exploration of the Ring (A13 and A20) in relation to the regional development of Overschie after building the Rotterdam section of the A16 (2023) in a joint endeavour with the Directorate-General for Public Works and Water Management.

### Staying in control

Rotterdam can and wants to stay in control of its urban and regional infrastructure network, together with the MRDH. The Urban Traffic Plan is, first and foremost, binding for the municipality itself, without having direct legal consequences for society. The Urban Traffic Plan guides the Municipal Executive of the year 2016 in responding to the key questions in the short term and the long term. In addition, this Executive is currently consciously deciding to set a long-term development strategy in motion by taking a number of accessibility measures. It is looking ahead to formulate a plan for how to deal with the development of mobility in the city and region - without looking so far ahead that the plan is rendered obsolete through technological and societal developments. The Urban Traffic Plan targets a number of interconnected projects that provide the greatest contribution to the future of the city.

The Urban Traffic Plan sets substantive frameworks for the further elaboration of topics relating to pedestrians, cyclists, traffic safety, public transport and freight transport and serves as a tool for programming projects, both internally and externally. The Executive will set out the control it will retain in concrete terms in an implementation programme as part of the Urban Traffic Plan. Any financial investments arising from that programme will be examined in the context of the upcoming budget debates. This Implementation Programme can only be implemented by the city council, municipal departments and all partners, institutions, citizens, entrepreneurs and stakeholders involved working in tandem. The Municipality will have various roles; sometimes, it will set the parameters or play an encouraging role, such as for parking standards and in the context of residents' and market participants' initiatives, and sometimes, it will have more of an initiating and hands-on role, for example in the building of cycle paths and in tackling junctions that are unsafe from a traffic point of view. The municipality will also actively look to continue collaborating with regional government partners for the purpose of tackling the larger accessibility issues in the region.



