

GROWING THE DUTCH MOUNTAINS

From an economic concentration,
towards a strong & diverse economic region



Abstract	5
Introduction	6
Analysis	9
Randstad	10
Analysis	12
Problem Statement	18
Theoretical Framework	23
Research Questions	24
Midsized Cities	26
Circular Economy	30
Sustainability	32
Functional Polycentric Model	34
Spatial Vision	37
Methodology	43
Qualities	44
Potentials	46
Hypotheses	50
Subregion	53
Vision	54
Hypothesis	58
Cases	61
Case 1: Almere	62
Case 2: Lelystad	76
Case 3: Hilversum	88
Societal Impact	101
Actors	102
Ethical Considerations	105
Scientific Contribution	107
Recommendations	108
Bibliography	111
Appendices	113
Appendix 1: Personal Reflections	114
Appendix 2: Data	118

Growing the Dutch Mountains

Performing extremely well on the Randstad scale, the polycentric model is lacking functional links and complementarity on the AMA scale.

relevant theories for our project are: the midsized city, the polycentric model, sustainability and circular economy.

In the following pages, we will explain the conclusions that we have drawn from our detailed analysis, reveal the aspects of the AMA that we identified as key issues and explain our method to tackle these particular challenges.

After studying existing theories, we defined our proper understanding of each of the topics and how the urbanist is involved in it.

Vision: A well performing functionally polycentric model; revealing the qualities and potentials of the midsized city, giving identity and creating a complementary system

Furthermore, a large volume of relevant data has been collected and used in the different evaluation systems (calculation of qualities, calculation of potentials) in order to make sure that our project is based on real, precise and reliable data.

In this whole process, the theoretical framework played a decisive role. In our opinion, the most

All these aspects supported the process and ensured a clear and strong storyline that is transparent and is based on real data and important theories.

Key words: midsized, complementary, functionally polycentric, identity, potential

INTRODUCTION

Amsterdam Metropolitan Area

The Amsterdam Metropolitan Area (AMA), counting over 2 million inhabitants, is located in the western part of the Netherlands. It is part of the Randstad area, a ring of urbanization around a rural area called the Green Heart. The AMA includes the capital city of Amsterdam as well as 35 surrounding municipalities located in the provinces of Noord-Holland and Flevoland. The area counts nearly 2600 km² and has a very diverse metropolitan landscape. From empty polders to dense urban areas, and from forests to dunes, the AMA has it all.

Furthermore, AMA is the country's most robust economic region with a great diversity of business activities, that also play an important role on international economic level. The AMA is part of the five economically strongest regions of Europe, together with Paris, London and Milan.

This economic success is partially due to good accessibility by land, air and water. High speed railways connect Amsterdam with major European cities like Paris and Brussels. Amsterdam's airport Schiphol is the 3rd airport in Europe for cargo and 4th for passenger traffic. Its port is one of the major ports in Europe, especially in combination with the port of Rotterdam.

The economic success of the AMA brings a lot of positive developments: tourism numbers are growing in the whole region, the average income is 6% higher than the national average and the housing stock is still growing every year.

However, most of the economic activities of AMA take place in the city of Amsterdam. This economic concentration causes commuter problems, less synergetic cooperation, a high degree of pollution and waste, skyrocketing housing prices and less and less space for nature. These are only a few of the problems which are concentrated in and around the city of Amsterdam.

Therefore, the AMA needs a regional design to steer development in the right direction. The design process knows two products: a spatial vision which represents the desirable future, and which serves as a guiding normative principle for the development strategy, that sets out a path towards spatial change, by means of spatial interventions that are ordered over a time and associated with capacities of actors in development.

These qualities and challenges are summarized in a SWOT analysis, and form the basis of the spatial vision and development strategy.



Location of Amsterdam Metropolitan Area (AMA)



Strengths

- accessibility by land, air and water
- economically strong region
- diverse metropolitan landscape
- institutional strength
- vibrant cultural economy



Weaknesses

- economic dependence on Amsterdam
- congestion problems
- no synergetic cooperation between companies
- noise & (air) pollution
- little space for nature



Opportunities

- energy transition & sustainability
- changing relationships between actors
- changing demand for space
- local potentials
- circular economy



Threats

- further gentrification
- urbanization of rural areas
- further fragmentation of the landscape
- rising inequality
- climate change

Analysis

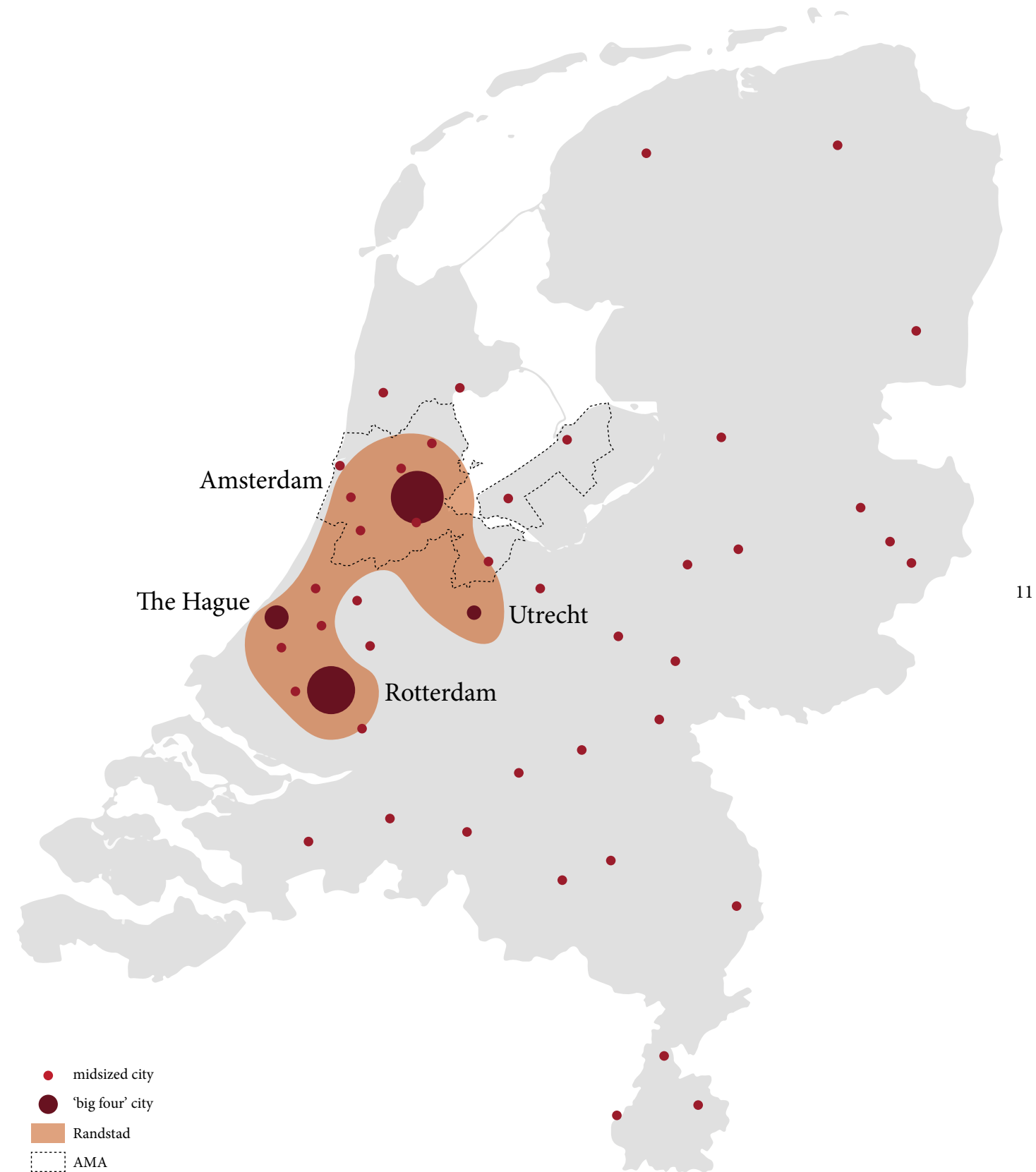
The analysis is an essential part of the project. It provides information which will be used throughout the whole project. It is important to collect as much information as possible in order to be able to create a feasible and appropriate spatial vision and development strategy.

RANDSTAD

Polycentric Region

The polycentric model of the Randstad is mainly composed by the four largest cities of the country: Amsterdam, Rotterdam, The Hague and Utrecht. In between them, several other cities are located. In the middle of this 'ring' of cities, the Green Heart is located, a rural area with many recreational areas.

The two most important infrastructure hubs of the Netherlands are also located within the Randstad: Schiphol airport and the port of Rotterdam. They are amongst the most important logistic hubs of Europe. Besides this, all the economic strongholds are concentrated within the Randstad. They are very well connected to each other and the logistic hubs by several types of infrastructure, making it a very interconnected region. We could conclude the functional polycentric model is functioning well within the Randstad.



Location of the Randstad in the Netherlands

ANALYSIS

Systems

Through an intensive analysis, we were able to gain a good overview of the functioning of the AMA. Not only the urban structure of the region has been analysed, but we especially devoted close attention to the existing flows and their functioning. Thereby we noticed that most of them are characterised by a linearity and barely offer any sustainable characteristic.

But not only the resource flows attracted our attention, we also researched on the economic activities within the AMA. Actually, the region offers a wide and diverse range of economic activities, and especially start up companies are promoted in this area. However, it needs to be said that most of these activities are located within the city of Amsterdam.

Strongly related to the robust economic role of the

AMA, the infrastructure and logistics have been analysed. Accommodating the port of Amsterdam and the airport Schiphol, the AMA has at its disposal important logistic and infrastructure hubs. This also facilitates the economic relations with other European countries and the overseas partners.

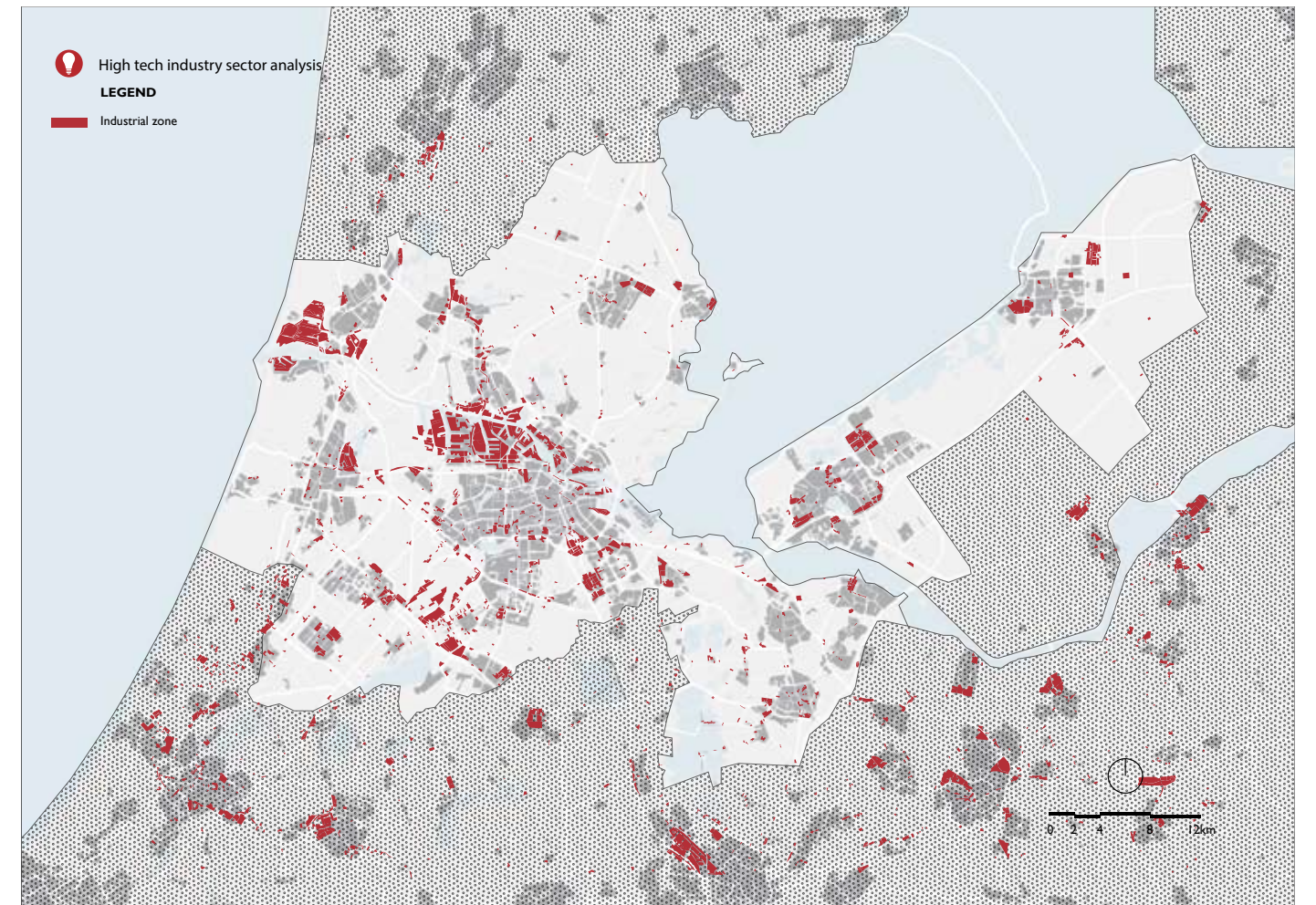
During our analysis, we discovered a lot of potentials, especially outside the borders of Amsterdam. In the selection of intervention areas, it is important to consider the restriction areas. Some areas can not be developed due to the heritage protection law or environmental circumstances.

This extensive research, taking in account a lot of different subjects, was especially helpful in our further procedure.

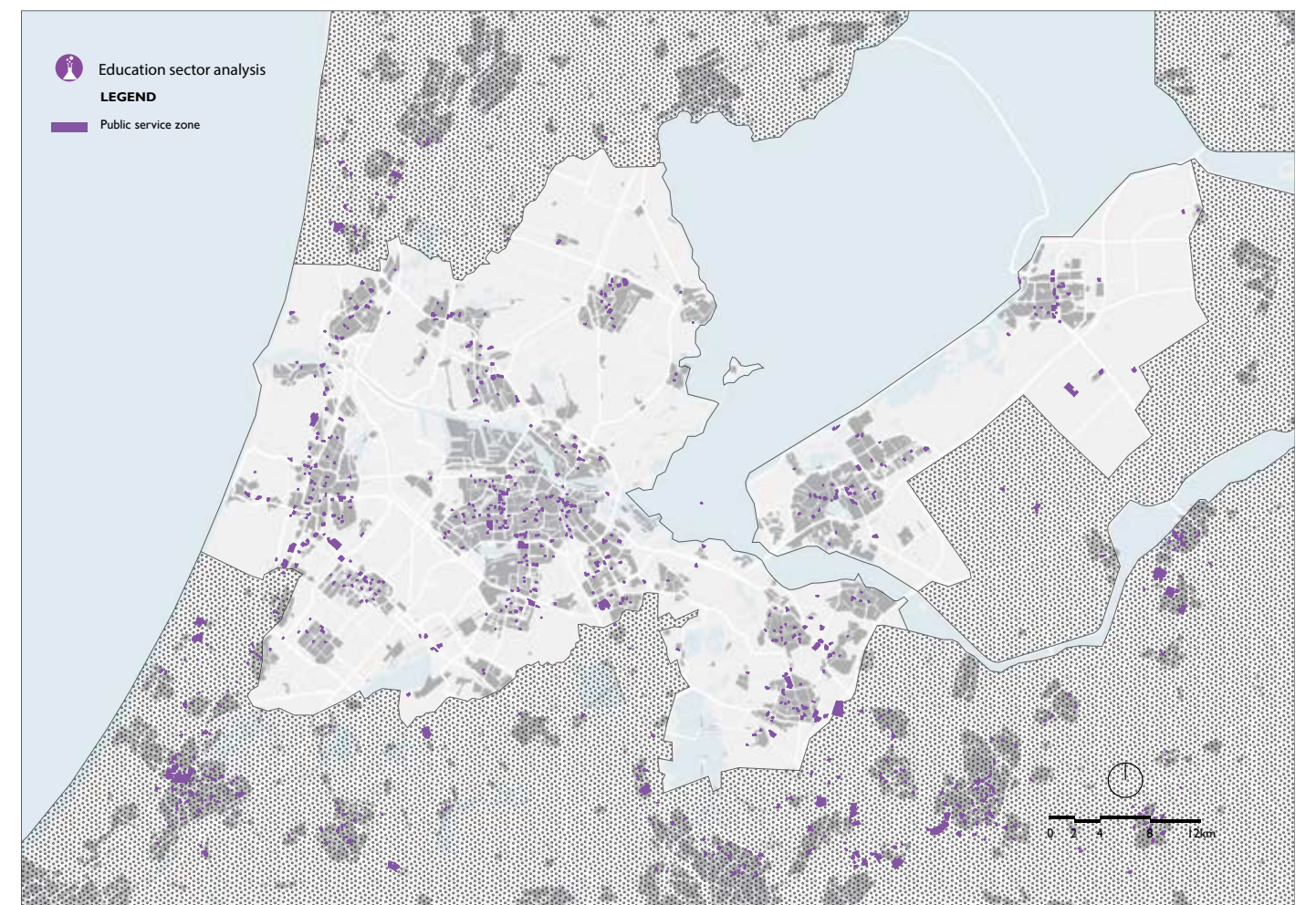
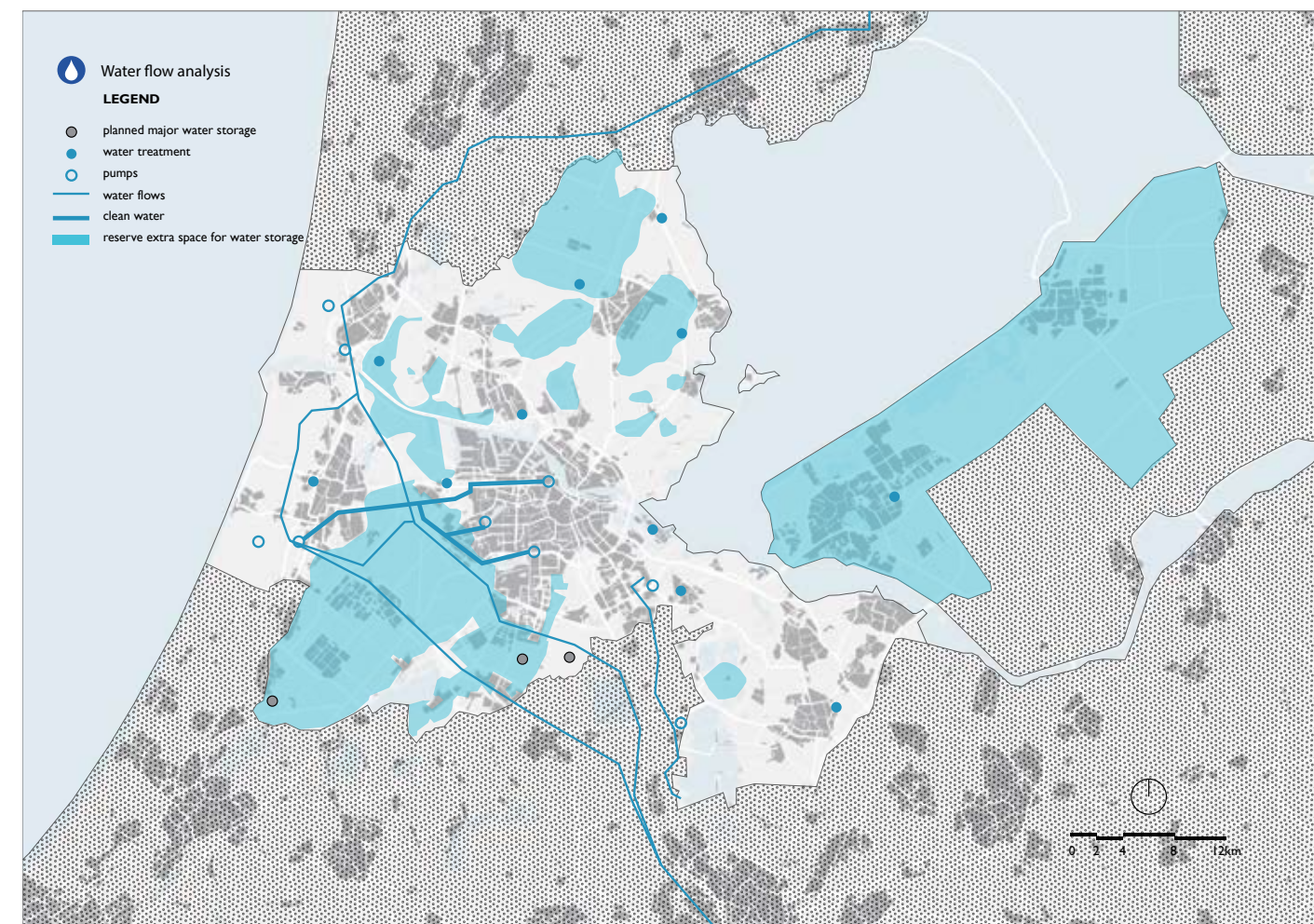


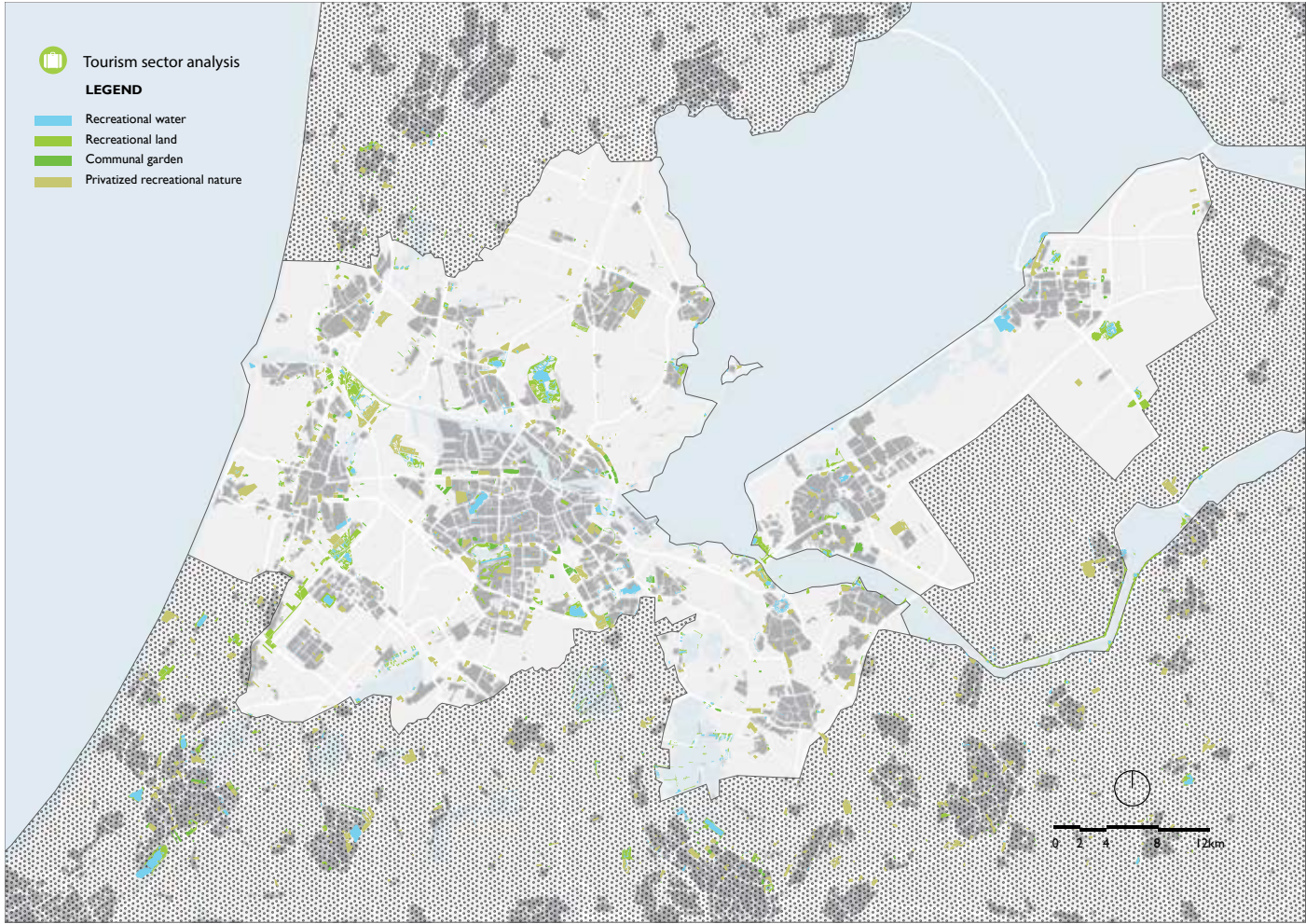


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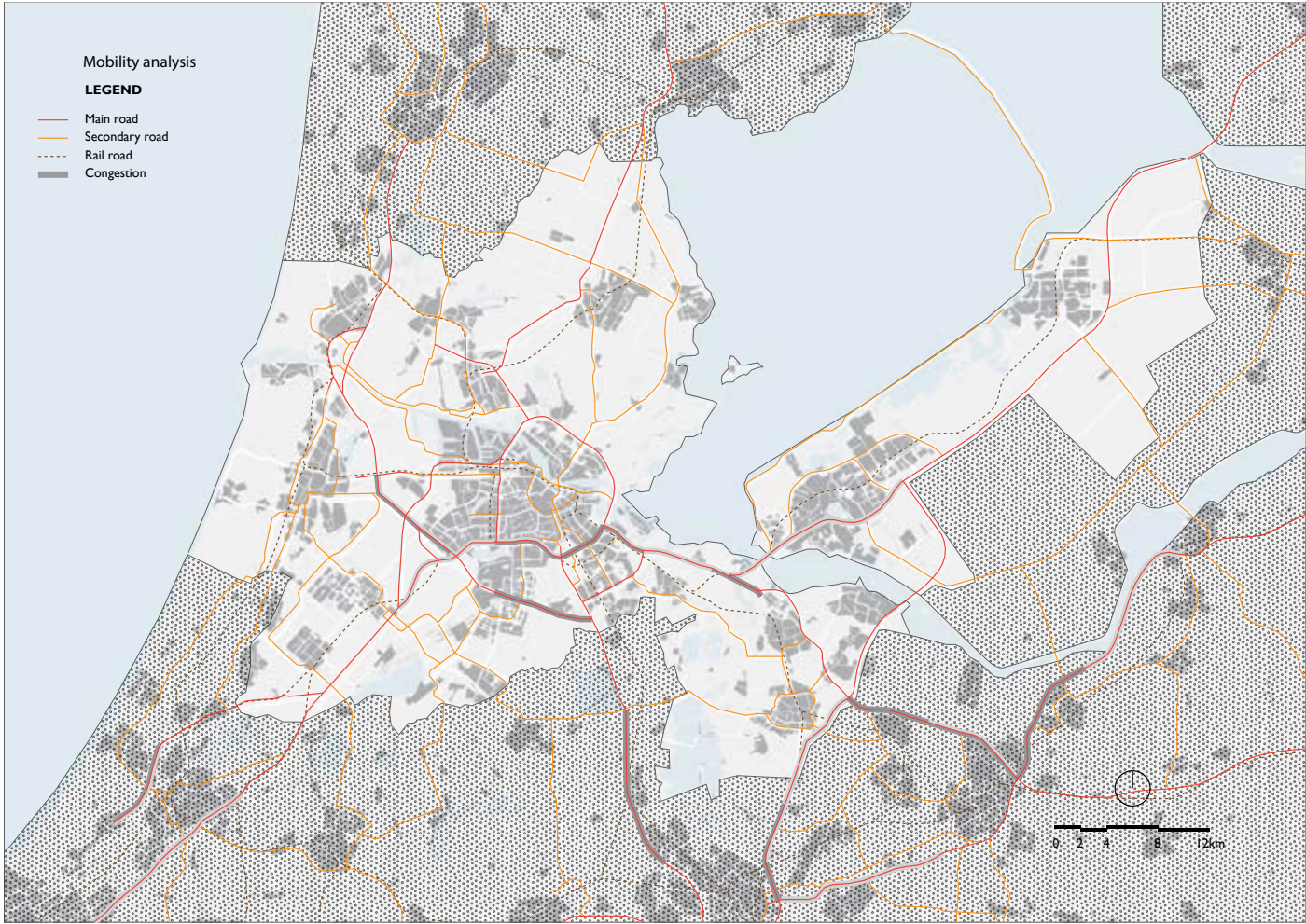


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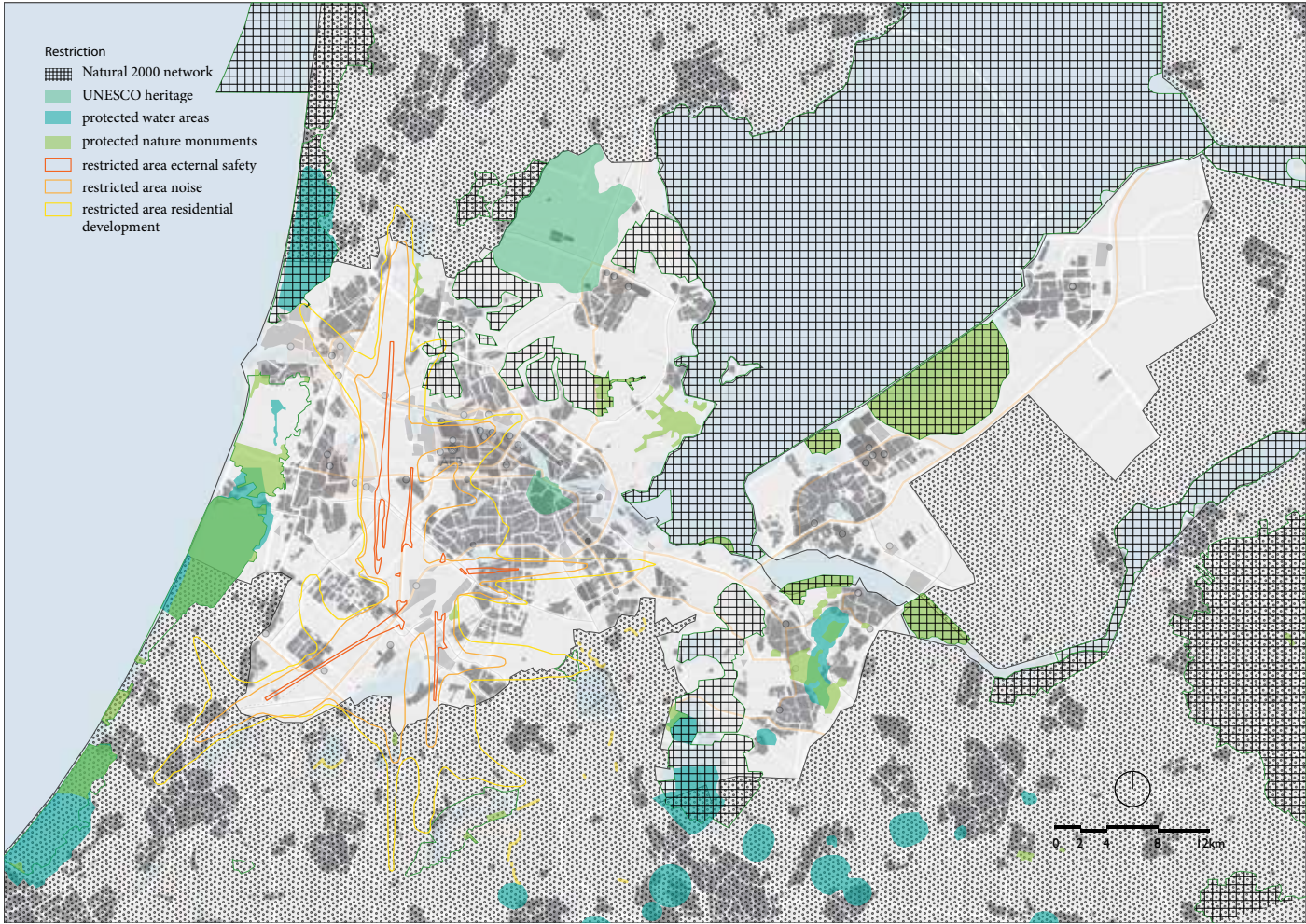
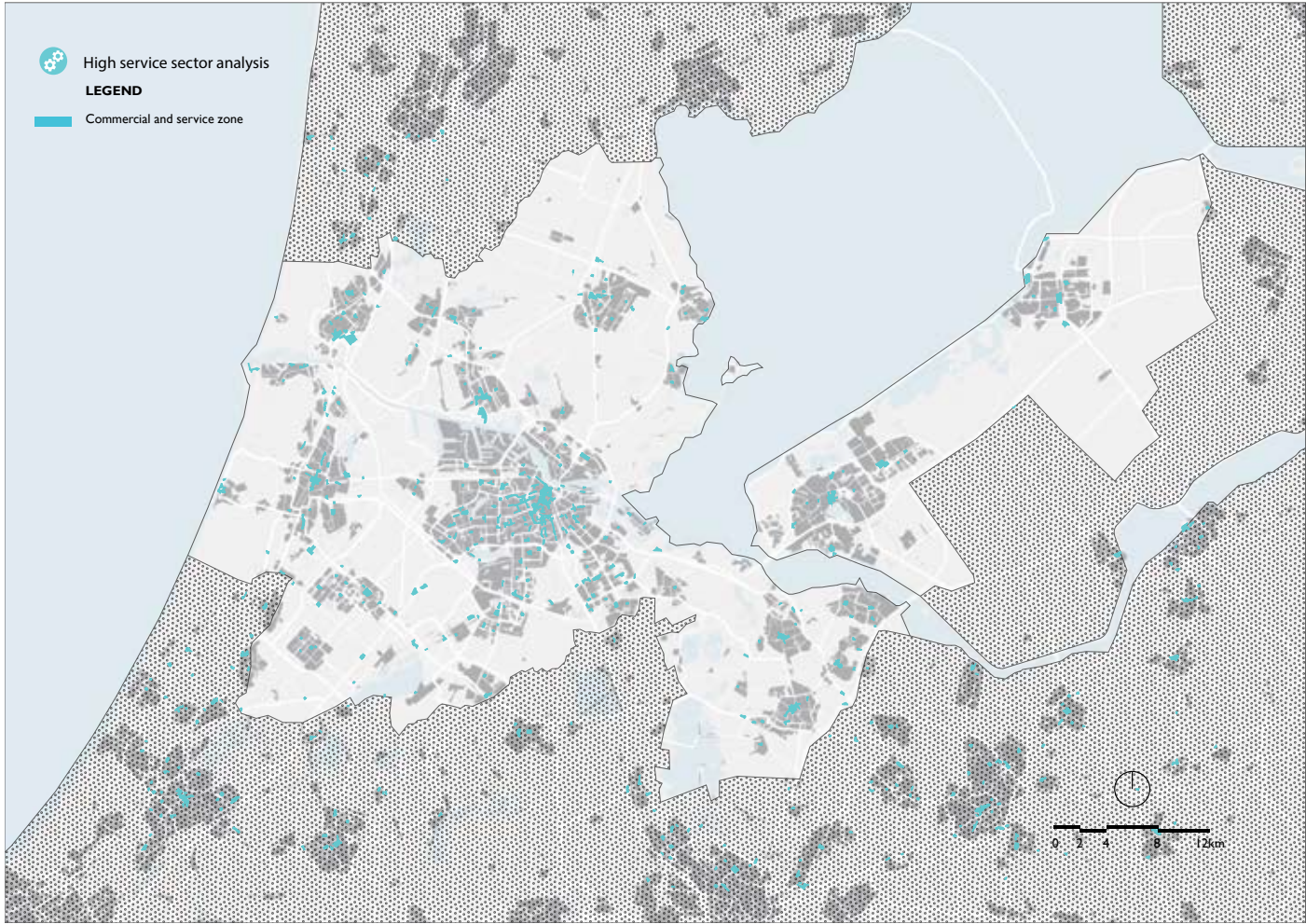




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PROBLEM STATEMENT

Economic Concentration

The SWOT analysis presents different weaknesses, which can be summarized as followed:

The AMA region has a too strong economic dependency on the city of Amsterdam.

This economic concentration causes several subproblems, which will be described separately.

The majority of all national economic activities take place in Amsterdam city, which is also home to a number of large multinational companies; either Dutch in origin or international concerns which have established regional headquarters in the country (Map 1) (Amsterdam Tips, no date). The well functioning economy contributes to the region's population growth by 0,8% per year, facing a large problem of accommodation. The housing prices are constantly increasing (Map 2). Gentrification takes place in neighborhoods like the Pijp and the Eastern Docklands and the middle class is slowly but surely dispelled.

The huge amount of companies attracts thousands of commuters everyday. The city of Amsterdam has to deal with huge daily flows of people. Even though a large number of the commuters is going to work by public transport, the private car is still a very popular means of transport. Traffic jams and overcrowded trains have become a standard during the rush hours (Map 2).

Besides that, passenger transportation as well as the cargo transportation and the related logistics are causing a considerable degree of air pollution and a lot of noise. This doesn't only increase the carbon footprint, but it also has a negative impact on the quality of life in the surrounding living environments.

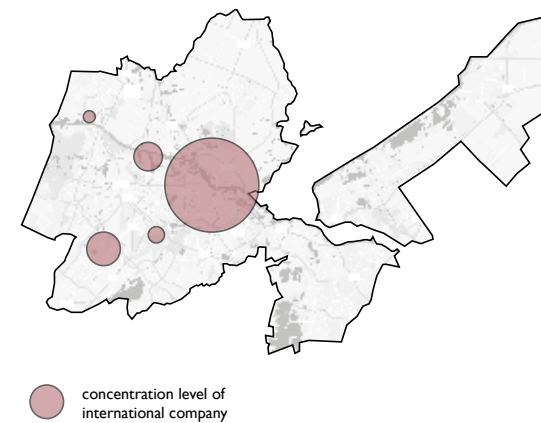
Apart from the carbon footprint, the ecological footprint also plays an important role. Amsterdam, and more precisely its inhabitants, consume a large amount of food every year. Therefore, they also produce a lot of waste, which is mostly food waste. In order to reduce the food related waste production, the consumption and distribution of food have to be revised.

The spatial constraints are also an issue of major concern; the city has reached its extension limit and no further development is possible. The dense development leaves less and less space for nature and underlines the pressing need to preserve the quality of the blue and green structures (Map 4).

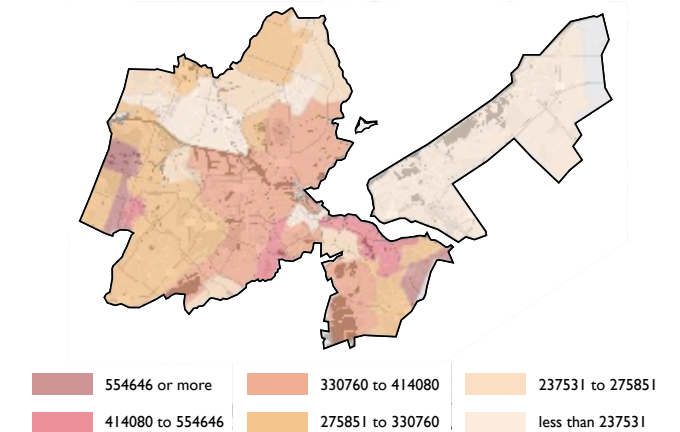
Even though the AMA region has high potential in terms of renewable energies, this potential is far from being exhausted. Fossil fuels are still the favourable source of energy, knowing that these resources are limited. Projects which promote renewable energy do not make the desired progress and know resistance from residents and even governmental organisations.

These are only a few of the challenges that the AMA region has to deal with nowadays. Managing the urbanization process and establish a more sustainable strategy for the further developments continue to be the biggest challenges in the Randstad and the Netherlands. These challenges, together with the robust economic dynamism, have created an unique set of circumstances. They form a starting point for the creation of a strategy, to steer the regional development in the right direction. First steps towards a balanced and sustainable regional development have already been taken in form of concrete interventions. Apart from sustainability, the term 'circular economy' has gained importance over the past years, not only in the economic sector. After focusing solely on benefits, ignoring all the side effects of the consumer society we have been living in for decades now, several public and private actors have finally recognized the importance and financial benefit of the circular economy. From the economic perspective, the sharing economy plays a determinant role and has to be enhanced.

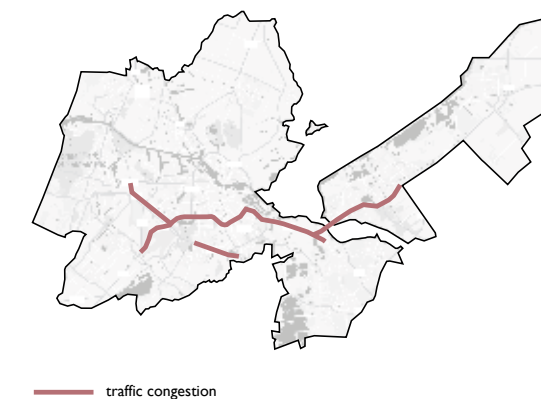
The AMA region has a growing interest in creating diversity, from an urban, landscape and functional perspective, and with emphasis on sustainability. Referring to three elements of 'sustainability': reduced energy use, climate neutrality and improved air quality. (Janssen-Jansen, 2011). These interests will be considered during the development of the vision and strategy.



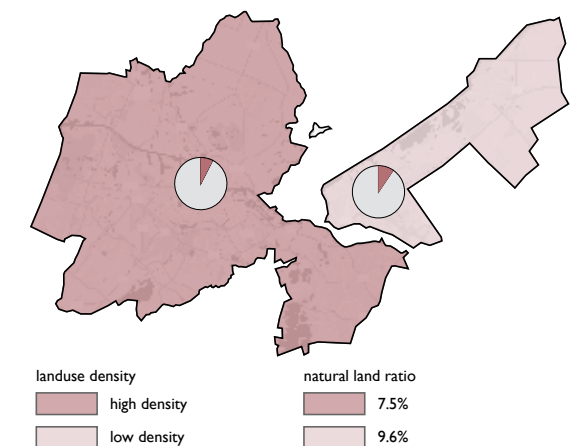
Map 1: Establishments of international companies



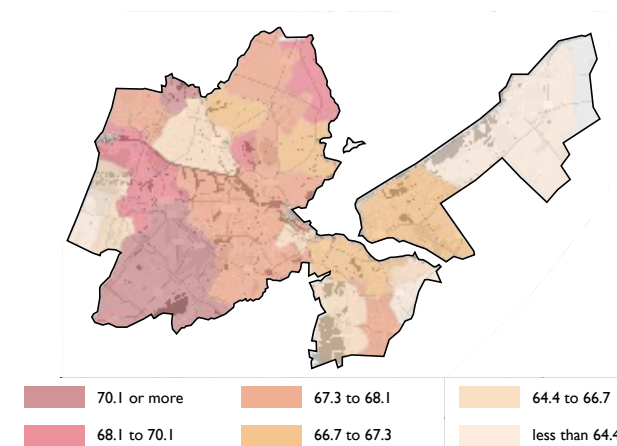
Map 2: Average housing prices



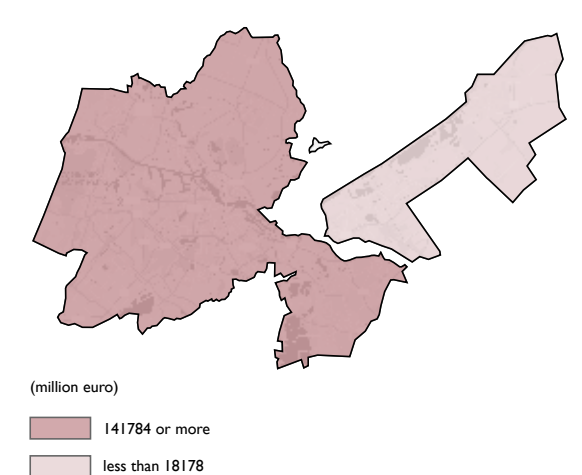
Map 3: Daily commuter problems



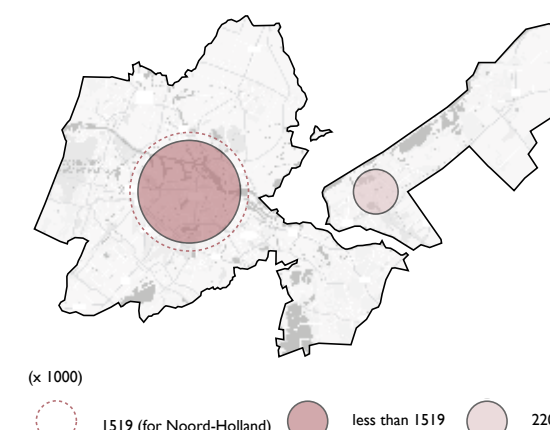
Map 4: Little space for nature



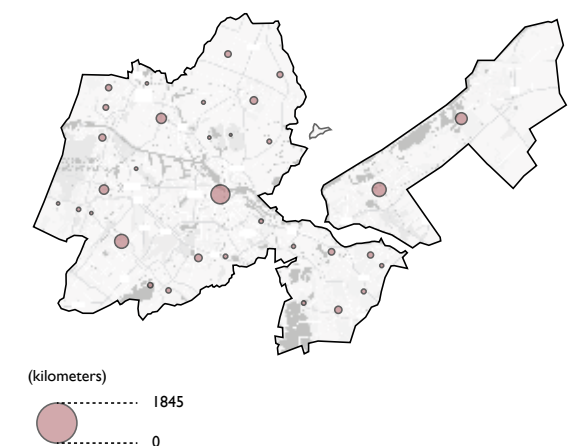
Map 5: Employment rate



Map 6: Gross domestic product



Map 7: Concentration of labour forces



Map 8: Length of roads

PROBLEM STATEMENT

Focus on East

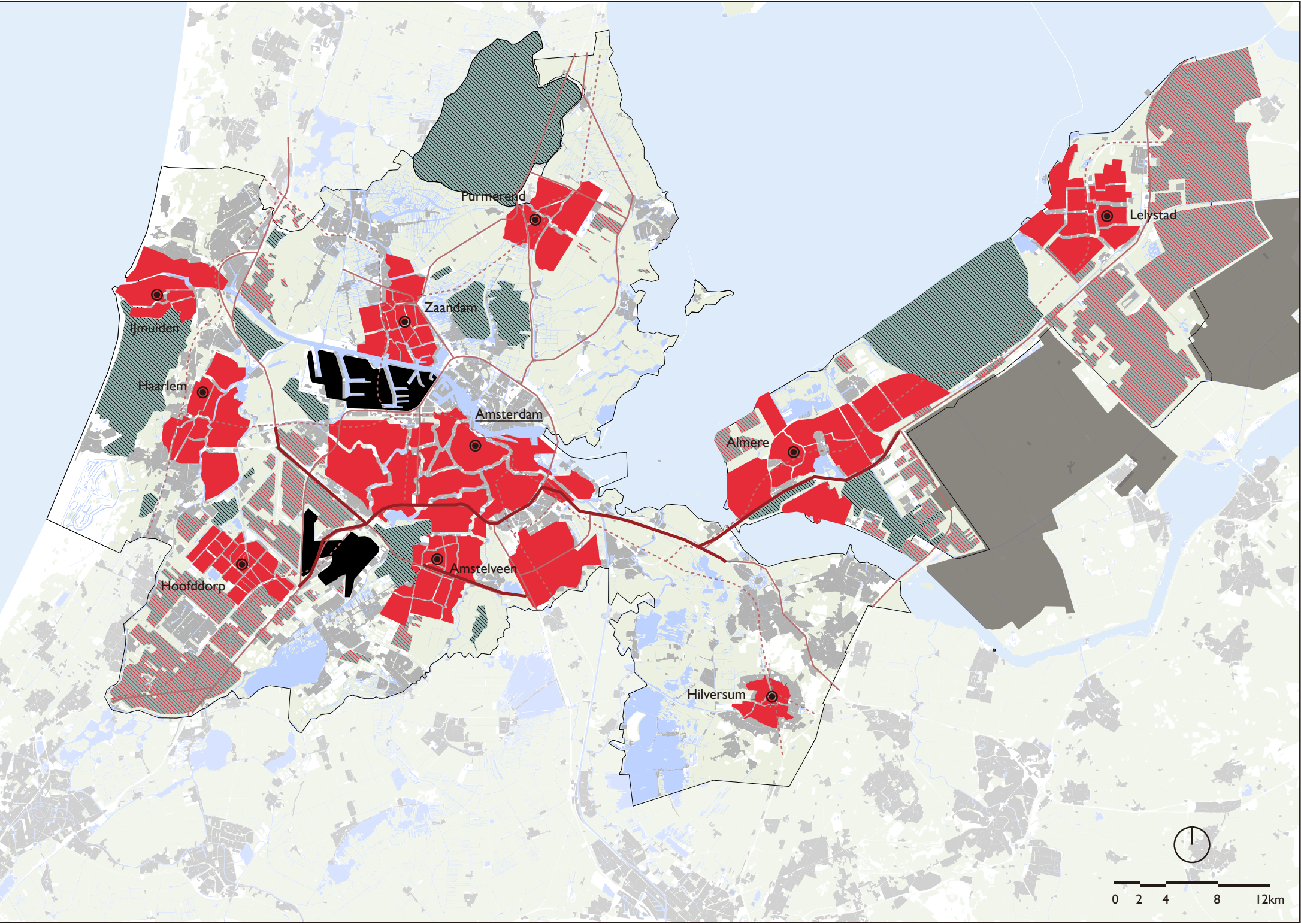
As our analysis and the subproblem maps already demonstrated before, a highly unbalanced system can be noticed within the AMA. Benefiting from the main logistic hubs, port of Amsterdam and airport Schiphol, and the high economic concentration in the city of Amsterdam, the western part plays a more determinant and important role in the AMA.

The eastern part is characterised by a low amount of urbanised areas, benefiting from its appealing rural surrounding. Between these two, an enormous level of congestion can be measured every day. This is due to the commuter problem. The trends show that the

Dutch preferred place of residence is the midsize city, but Amsterdam remains the most important place of work. Therefore, thousands of people commute to Amsterdam on an everyday base.

As we have recognised the benefits and potentials of the midsize city, we see the solution to this problem in creating an equilibrium. To do so, we propose to start with our interventions in the eastern part of the AMA. After having reached a more balanced system, further interventions will take place in order to reinforce the balance of the polycentric model.

PROBLEM MAP



On this map you see a high concentration of urban density, logistic hubs and economic activities in the Western part of the AMA. Amsterdam is the most important place to work, what causes congestion problems.

Existing situation:

- urban density
- logistic hub
- agricultural area outside AMA
- agricultural area
- grassland
- railway
- highway
- congestion

Theoretical Framework

In order to be able to carry out the project, we had to understand theories of several concepts. These concepts were found by formulating a research question and various sub research questions.

RESEARCH QUESTIONS

Research Questions + Methods

The main problem of the AMA is considered to be the economic concentration in Amsterdam. In order to become a more efficient and sustainable region, the polycentric nature must be increased in the midsize cities of the AMA. Therefore, the main research question of this project will be:

How do we make the Amsterdam Metropolitan Area more efficient and sustainable by moving from a monocentric region towards a polycentric region?

This research question contains several subjects, which will be considered prior to answering the main research question. For every subject a sub research question is formulated:

1. What is understood by sustainability?
2. What are the main disadvantages of a monocentric region?
3. What are the advantages of a polycentric region?
4. How can exploring and increasing the polycentric nature contribute to becoming more efficient and sustainable?
5. How can the circular economy support the process of becoming a polycentric region?

Every research question is related to a scientific or design methodology, which helps to answer the questions. Every method will be described briefly, to provide insight into the passed process.

1. To define what is understood by sustainability, various commonly used sources will be consulted. Besides that, personal understandings will be shared within the team, to come to a shared view of this extremely broad term.

2. To answer this question, the AMA region will function as study area. The negative effects of a monocentric region will be mapped and revised. In addition, literature can be consulted to get an understanding of this urban and economic structure.

3. The advantages of a polycentric region will be researched using literature. Worldwide, opinions are divided about the (dis)advantages of this theory, but it is assumed by the team to be a good solution for the AMA, based on previously acquired knowledge.

4. To answer this question, the understanding of the concepts efficiency and sustainability should be really clear. Thereafter, the strategy can be designed in such a way, that the enhanced polycentric nature of the region positively contributes to these objectives.

5. Various sources will be consulted to compose a shared view on the widely discussed concept of circular economy. Then, circular economy can, in all probability, support the design of the process of becoming a polycentric region.

Hierarchy of Theories

The theories which will be further examined are the concept of midsize cities, the model of circular economy, the concept of sustainable development and the functional polycentric model. This section will describe how these theories are related to each other.

By analysing the AMA, we found the unbalanced polycentric model of the region causing most of the problems. Firstly analysing the polycentric model on the Randstad level and secondly on the AMA level, a huge difference in terms of functioning had been noticed. For this reason we developed ideas to improve the current situation and turn the AMA into a well connected, balanced and complementary system.

In order to improve the current functioning, a project area had to be defined. As the midsize city offer a lot of space, qualities and potentials, they offer all conditions to be reinforced and play a more important role in the future. This development would also contribute to a better organized urban system within the midsize city itself.

By revealing the qualities and potentials of the midsize city, their identity can be strengthened. Additional to this, the relations between the different cities can be reinforced by providing a more complementary system. Instead of competing with each other, the cities are dependent on each other and share important functional links. This new system will make possible to turn the current mainly linear flows into circular ones. By creating circular flows on several scales, shortening the distances of transportation and introducing innovative and renewable systems, the whole AMA will perform better in terms of sustainability.

In our approach, one of the main tools to reach the goal of a sustainable and interrelated region is the model of circular economy. By reducing the use of natural resources and reinforce the 'sharing economy', not only the environment will be protected, but also the amount of investments can be reduced; a win-win situation for everyone.

MIDSIZED CITIES

In order to be able to carry out our project, the concept and functioning of midsize cities has to be understood. Therefore, several sources are used to gain a better understanding of the midsize city. This theory chapter is part of a larger theoretical framework, which contains theories about circular economy, sustainability and polycentric structures. Since midsize cities play a major role in our vision and form the starting point for the proposed interventions, theoretical background about this subject was rated as most valuable.

Theory Paper: Midsize Cities

Worldwide, urban development gets a lot of attention. Even in the Netherlands, a country with a high urban density in the Randstad, but with relatively tiny cities. For many countries, big cities are the driving force behind economic growth and are important to compete on an international level. Especially flourishing and heavily populated cities get a lot of attention. This is encouraged through the large rural migration flows of the last decades. But what about the midsize cities and their involvement? Midsize cities are considered as being important links in the urban network, but do we pay enough attention to them?

In 2011, over half of the Dutch working population was working in another municipality than where they lived. The number of commuters traveling to Amsterdam is by far the biggest in the country. They mostly lived in Almere, Zaanstad, Amstelveen, Purmerend, Haarlemmermeer and Haarlem, six of the nine designated midsize cities within the AMA (CBS, 2013). The rising number of commuters point to an ongoing trend of people living in midsize cities and working in the city of Amsterdam. Why this is happening, and how can the functioning of the midsize cities be improved?

The Size of Midsize

It is important to have a good understanding of the definition of 'midsize'. What is for sure, is that the one and only midsize city does not exist. According to Kunzmann (2010), a differentiation between 3 categories of midsize cities has to be made; cities within, outside and on the edge of bigger metropolitan regions.

In line with the knowledge program Midsize NL

(2016) it is not about the number of inhabitants, or the area which the city covers. It is not about quantitative values, but about qualities. It is about cities which traditionally have an important regional function and which offer a complete offer of facilities and economic activities. With this, the cities do not only meet the needs of the inhabitants, but also meet those of inhabitants from surrounding smaller agglomerations. They state most of the midsize cities in the Netherlands count around 50.000 to 100.000 inhabitants, but that does not apply to all. Small cities in uncrowded areas like Vlissingen or Drachten are of the same importance in the region as bigger cities like Alkmaar or Deventer, for example (Midsize NL, 2016).

Kunzmann (2010) states that the geographical location of a European midsize city has a strong influence on the function of the city for the surrounding region. Besides that, he describes the possible other functions of a midsize city more in detail. Such functions can be:

- a supply and stabilizing function; the task to sustain the role of a city as an economic, social and cultural centre in a region including the provision of goods and services to households, local firms and enterprises.
- a development function; the midsize city is an engine for regional spatial development.
- a relief function; the midsize city is being chosen as a location for functions, decentralized for economic or political reasons from the metropolitan core.
- a border, exchange and gateway function; an additional function of a town at inner- or outer European border as a gateway centre and a centre of cultural exchange.

Since the AMA is a very dense urban region, the possible functions of Kunzmann probably only apply to the midsize cities of the AMA to a certain extent. Most of them fulfill a relief function, to decentralize from the metropolitan core, which is the city of Amsterdam. Cities like Almere and Lelystad fulfill a development function, since they are further located from Amsterdam.

In short, the initial position of the Dutch midsize cities differs, but the trends and developments faced by the midsize cities are equal. The initial position determines whether and to which extent it may result in challenges or opportunities.



The Qualities of Midsized

Just away from the pull of the Randstad, urban regions are offering an unique combination of qualities: a pleasant and multi-faceted living environment with sufficient facilities and plenty of employment opportunities, easy to reach and located in magnificent landscapes. Anything not immediately to hand can be found within a couple of hour’s drive away. This is what is called Mid-Size Utopia by Daan Zandbelt (2011). He states that the small scale of midsized cities is their biggest quality.

According to Daan Zandbelt (2011), the midsized utopia is characterised by an attractive residential climate, good connectivity, pleasant living environments and vibrant inner cities with cultural and other amenities. With all the necessary facilities in direct vicinity, and therefore shorter distances, the quality of life will considerably increase. All daily activities, from living to working take place in the same environment. Furthermore, the functioning of the midsized city can easily be optimized by adding missing functions as the city commands large unbuilt areas with high potential.

Bettencourt et al. (2007) have demonstrated the qualitative changes which are associated with the size of a city. For instance, the larger the city, the greater the benefits when it comes to income earned, but also the greater the costs related to social interactions such as crime. Other gains could be in efficiency of infrastructure, because when cities become larger they use less space per inhabitant for facilities, infrastructure and residential living. So socio-economic characteristics such as income and crime all scale linearly with respect to population (Bettencourt et al., 2007). Therefore, Batty (2013) concludes there is a trade-off between benefits and negative feedbacks or costs. These negative feedbacks include those associated with traveling and congestion. From this, one can conclude that the smallness of the midsized city is a principal quality to cherish. All the advantages of the metropolis can be enjoyed, but without the infamous disadvantages.

The Interventions for Midsized

The interest in the promotion of midsized cities is not new, it has a long tradition. Within the polycentric model, the midsized city is often placed at a disadvantage. To bring a change to this situation, a range of various interventions can be applied. This specific type of city has to be encouraged to reinforce its potential and enhance its subregional cooperation networks, to benefit from economic and functional

relations, learn from each other and form interregional strategic alliances.

Characterised by a lower density and a high amount of undeveloped areas, the midsized city offers the optimal conditions to apply an acclaimed strategy for a balanced regional development. Furthermore, the geographical location, the existing qualities of the environment and the economic potential of the city play a decisive role in its future development. The specific interventions can be of different sizes and take place on different scales, each of them contributing to a better and more sustainable functioning of the city. The proposed interventions should not only enhance the local economic activity and close (improve) the resource flows, but they should also reinforce the identity of the midsized city in a way that the whole region benefits from it.

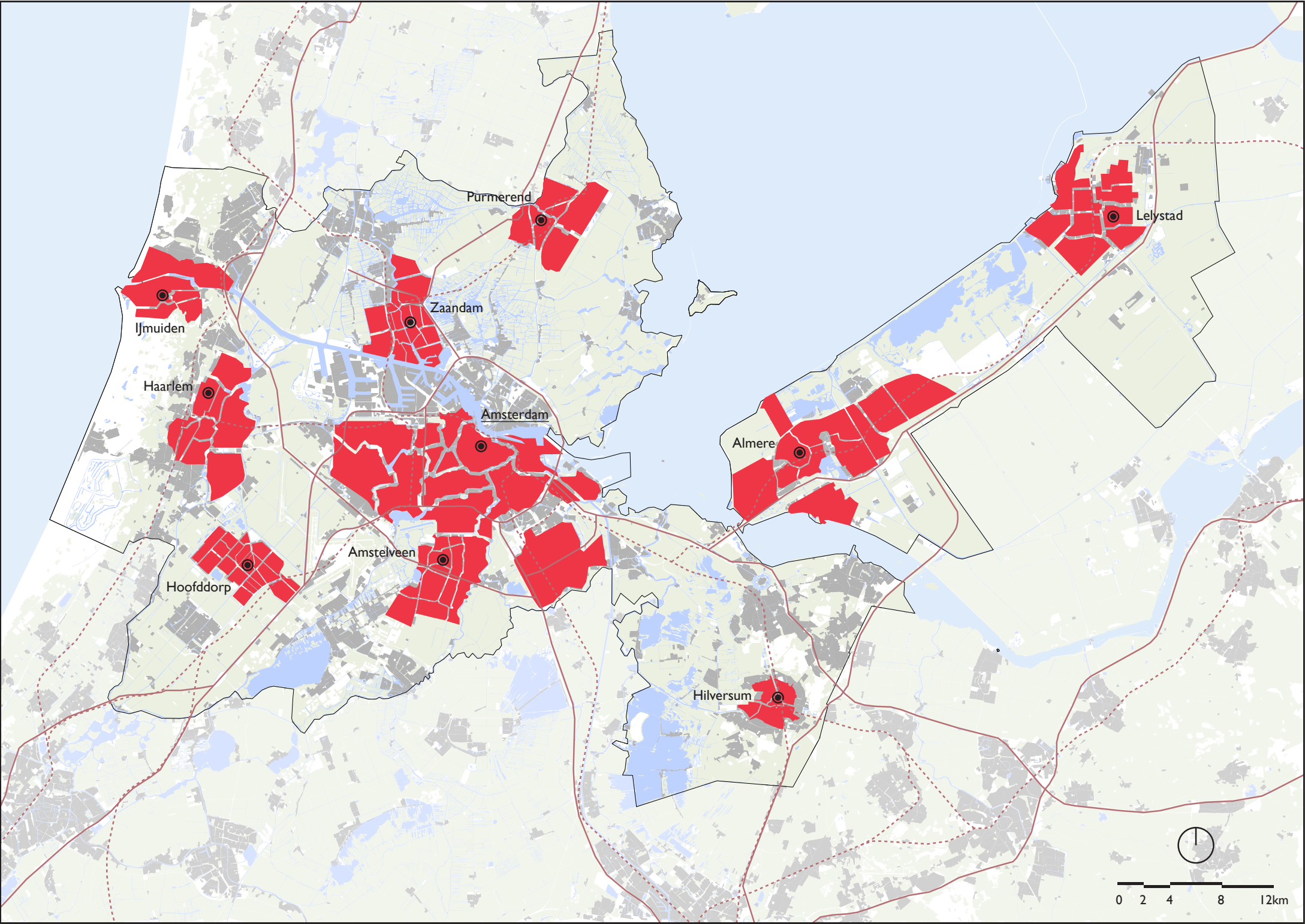
Application

In the application of the newly acquired knowledge of the aforementioned theories, we decided to focus in our project on the Dutch midsized city and its issues. Even though the AMA region counts several midsized cities, our vision first targets the cities of Almere, Lelystad and Hilversum. All of them are located in the eastern part of the AMA and form a subregion. Characterised by a weak performance in the regional urban structure, this subregion requires a reinforcement and needs to represent a more important role within the AMA, in order to create a balanced system. Not only the functional network within the AMA has to be considered, but also the connections to other midsized cities and major cities on the national and international level.

Being aware that even between the Dutch midsized cities a distinction has to be made, we elaborated a system in order to make a categorization. Considered as the Dutch dream city from the perception of the population, Haarlem serves as a comparison model. All criterion that qualify the city of Haarlem as a model, are taken into account for our project.

Our project revises the role and the position of the midsized city within a more complex system. The goal is to create an equilibrated system that gives more significance to the midsized city.

MIDSIZED CITIES AMA



On this map you see the midsized cities of the AMA and how they are connected by infrastructure. In general, the cities of the AMA are very well connected by highways and railways.

- Existing situation:
- urban density
 - highway
 - railway

CIRCULAR ECONOMY

Citation

"We have tremendous challenges ahead of us. We have to improve the human condition around the world as the population grows, while at the same time learning to tread more lightly on our planet. The only way we'll meet them – and I'm confident that we will – is with a combination of technological progress, innovation, markets and goodwill."

~ Andrew McAfee

Co-Director, MIT Initiative on the Digital Economy;
Author, The Second Machine Age.

Definition

The dominant economic model of our time operates as a linear system and relies on large quantities of easily accessible resources and energy. The concept of circular economy has attracted attention in recent years and is characterised as an economy that is restorative, regenerative and aims for keeping products, components and materials at their highest utility and value at all times.

The concept distinguishes between technical and biological cycles; all of them conceived as a continuous positive development cycle that preserves and enhances natural capital, optimises resource yields and minimises system risks by managing finite stocks and renewable flows. Working on every scale.

Our understanding

Our understanding of circular economy may be summarised as follows: produce, use, remanufacture. An intensive research allowed us to gain a deeper insight into the concept of circular economy. In our opinion, the main idea of the circular economy is to change from a linear towards a circular consumption model. The resource-saving system playing a key role in this.

Being aware of the resource scarcity in the near future, a more indulgent system has to be promoted and established. This includes a more

efficient and circular network of flows. In fact, every flow, regardless of their nature, has to be circular in order to make fully use of its potential. And at the same time, the waste production has to be minimised and the transport routes shortened.

Furthermore, the functioning of the economy in itself has to be revised. The sharing economy, for example, does not only have environmental but also economic advantages. By preventing unnecessary investments, resources can be conserved and money can be saved; a win-win situation for everyone.

The involvement of the urbanist

The difficulty lies in defining the role of the urbanist in this highly complex concept. From our perspective, the task of the urbanist can be divided in two main categories; policy planning and spatial design.

Through policies, guidelines for further developments can be given and at the same time developments with negative or even harmful effects can be prevented. But policies can also ensure the participation and contribution of each actor in order to fully establish the concept of circular economy.

By means of spatial design, spatial programmes can be defined that have to be considered in future developments. This ensures that the functional programme of the city/region will be balanced.

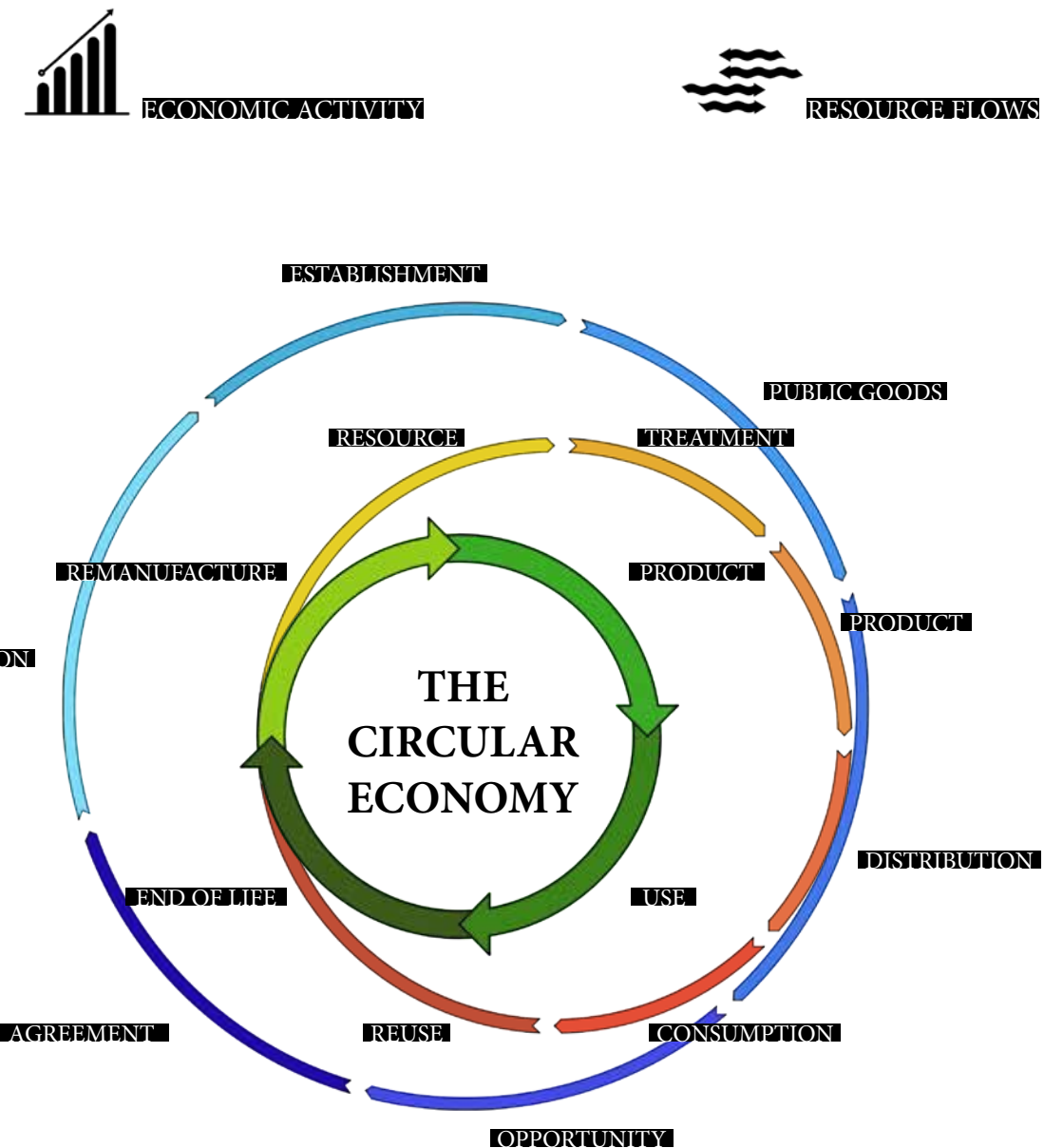
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SUSTAINABILITY

Citation

"Sustainable development is the pathway to the future we want for all. It offers a framework to generate economic growth, achieve social justice, exercise environmental stewardship and strengthen governance."

~ Ban Ki-moon

South Korean diplomat and secretary-general of the United Nations from 2007-2016.

Definition

Even though there is no universally agreed definition on what sustainability means, there are many views on what it is and how it can be achieved. The concept of sustainable development became common language at the world's first earth summit in Rio de Janeiro in 1992.

The original definition of sustainable development is usually considered as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Our understanding

From our perspective, the concept of sustainability is characterised by 3 aspects; economy, environment and society. And sustainability can only be achieved if these 3 aspects are addressed on an equal footing. To build a more sustainable model, the current system

has to change from fossil resources towards renewable resources. Thereby the carbon footprint will be reduced and the environment preserved, which will be a huge improvement for both; humankind and nature. All this is happening within the context of a long-term solution.

The involvement of the urbanist

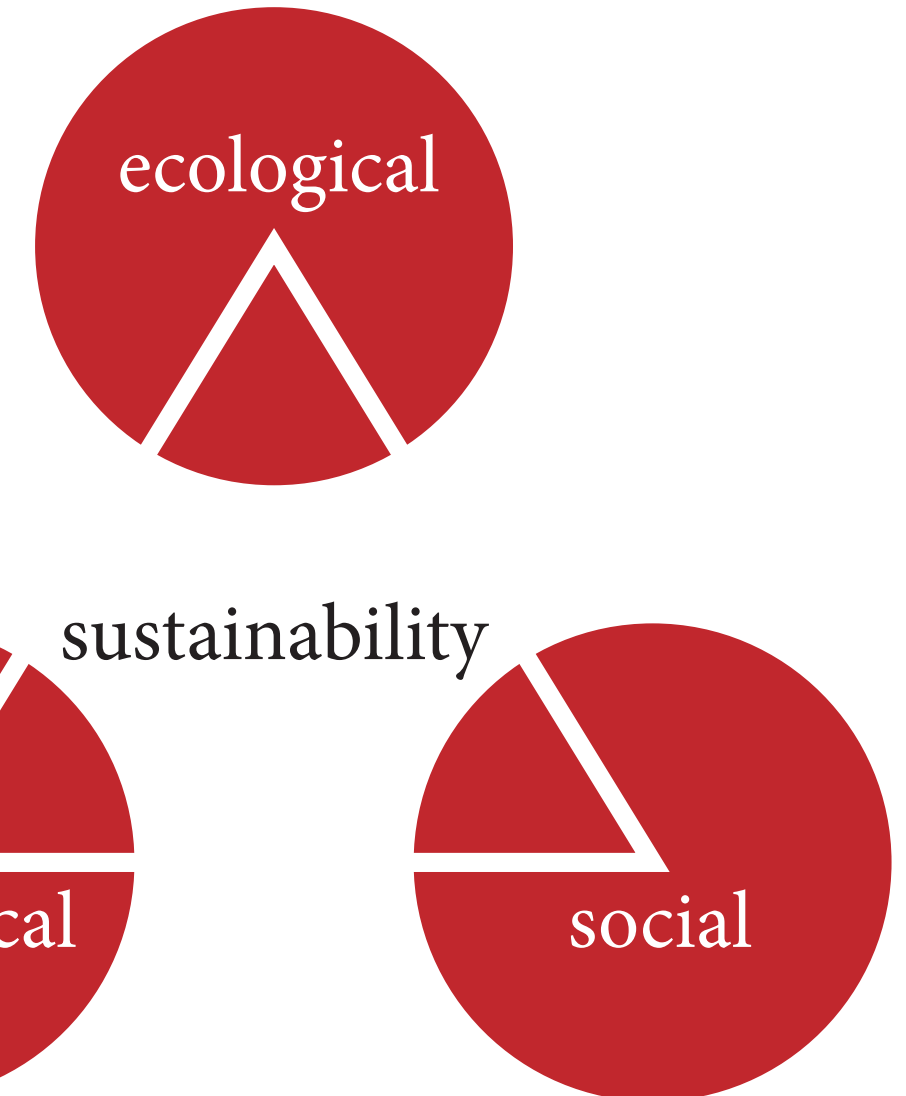
The role of the urbanist consists of designing urban development plans that consider the needs of the three pillars (economy, environment, society) equally. The well-being of the population may seem to have the highest priority, but a good performing economy and a protected environment are necessary to achieve this. Therefore, the main tasks of the urbanist is to formulate policies and give sustainable development guidelines.

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FUNCTIONAL POLYCENTRIC MODEL

Definition

Polycentrism is the principle of organization of a region around several political, social and financial centres.

Despite the scale-dependent interpretation of polycentricity, one of the common characteristics of polycentric development policies is that they all seek the spatial integration of particular regions through urban network development.

A central idea of the polycentric development is the interconnected nature of towns and built-up areas where urban-rural development is not contradictory but rather, complementary. The polycentric model is an attempt to impede ongoing concentration on a few metropolitan areas where most of the dynamics processes are localised.

The more evenly flows are distributed, more multidirectional rather than mono-directional, the more polycentric they are. Such an equal balance in the distribution of inflows can be found in an urban system in which functional relationships are not directed at one centre, but two-sided (reciprocal) and criss-cross.

Furthermore, the degree of network density reflects the extent to which centres in a region are functionally interdependent.

Our understanding

From our perspective, a functionally polycentric model is characterised by a network of cities of different sizes and the in between space, all being dependent on each other and working as a complementary system. The

different places are connected by multidirectional flows of different nature, forming urban networks. In order to enhance the polycentric model, the qualities and potentials of each city have to be revealed, the links between the different cities strengthened and complementarity promoted.

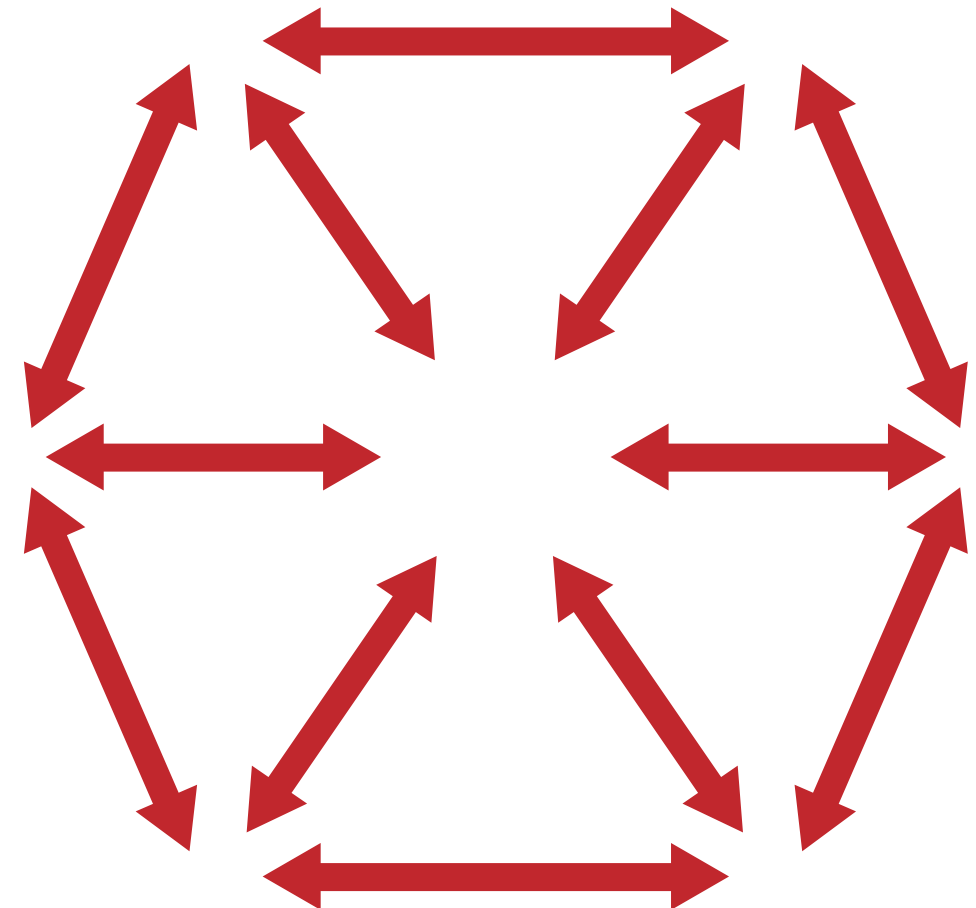
A polycentric model is only successful if more than one location in the region is performing well. At the moment, the city of Amsterdam is the dominant mountain within the AMA, crushing all chances of the mid-sized cities to develop their own potential.

The involvement of the urbanist

Even though polycentrism is a highly complex topic that involves a various range of actors, the urbanist can play an important role in the process. By identifying the current problems, revealing alternatives and implementing accurate interventions, the polycentric model can be improved in its functioning and become a benefit for the region.

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http://www.nordregio.se/Global/Publications/Publications%202002/R2002_1/R0201_p99.pdf
<http://journals.sagepub.com/doi/abs/10.1177/0042098011407095>



Spatial Vision

A first product of the regional design process is a spatial vision. It builds up upon insights into current regional development trends and problems. Against this background it promotes a desirable spatial future that serves as a normative frame and guiding principle.

VISION

Growing the Dutch Mountains

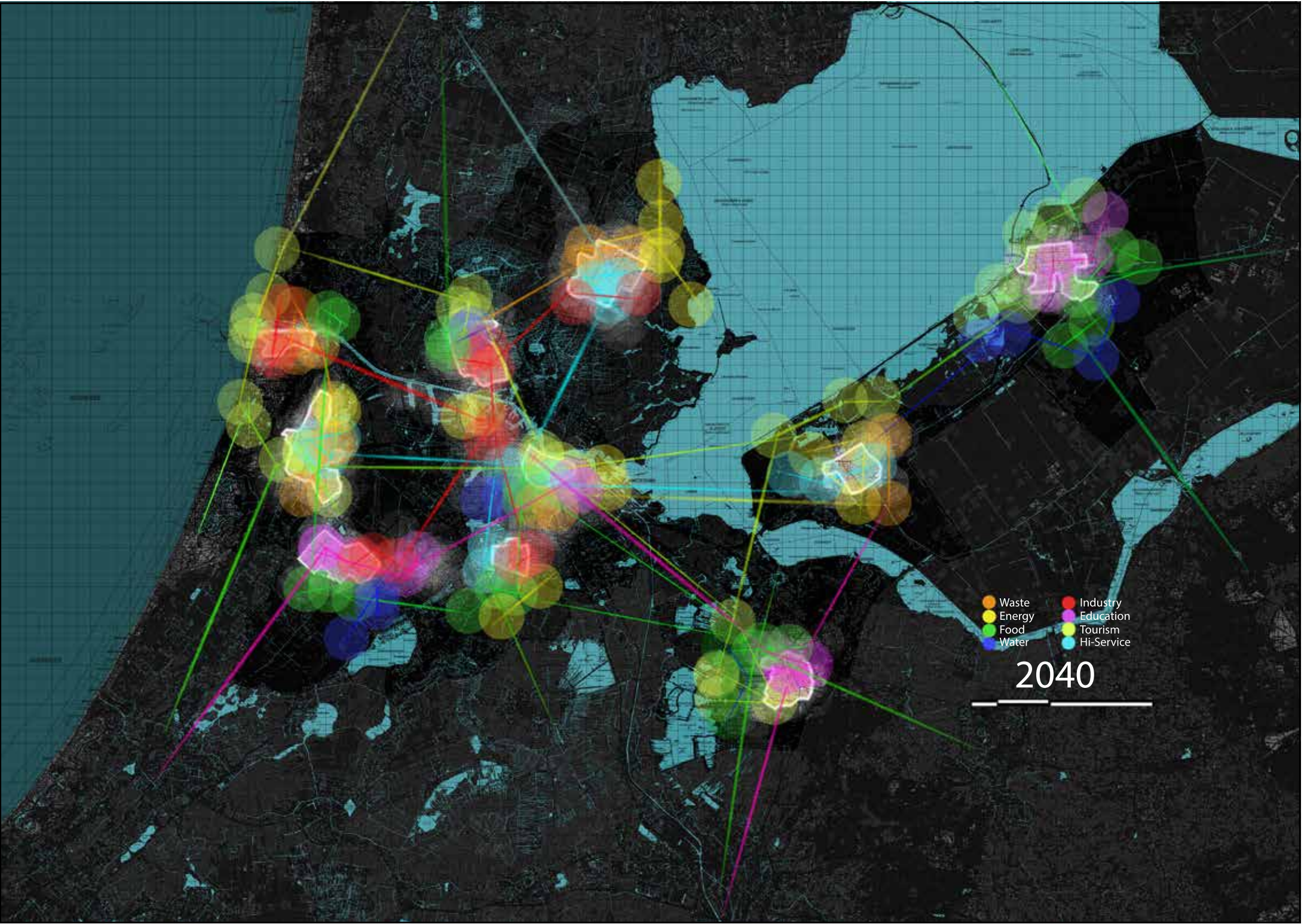
From an economic concentration towards a strong & diverse economic region.

Even though the polycentric model is working well on the scale of the Randstad, it is unbalanced on the AMA scale. Characterised by a polycentric urban structure, the Amsterdam Metropolitan Area is mainly focusing on the city of Amsterdam; the dominant mountain in the economic landscape. This economic concentration gives less and less opportunities to the midsized cities and strengthens their dependent identity. Current trends show shrinking rural areas, due to the population's movement towards the big cities. Even though the dutch preferred place of living is the midsized city while the city of Amsterdam remains the most important place of work, attracting thousands of daily commuters. This is also due to its international and flexible economy. A shift towards an energy transition as well as sustainable ideas and actions have been noticed over the last years, but there is still a long road ahead.

Due to a lack of space, the current relation between the economic sectors and the resource flows is restricted. Therefore, the polycentric region needs a reinforcement on the intermediate scale. Midsized cities offer space, potential and hidden spatial qualities. This potential can be understood as opportunities to close (enhance) the resource flows and create hereby circular flows. This is done by creating local economic activities tailored to each city's potential.

By reinforcing the midsized cities themselves and on a subregional scale, a strong and well performing structure is created which is able to connect to the surrounding mountains, in and outside of the AMA. Always aiming for a complementary functional region, the midsized cities do not compete with each other, on the contrary, they cooperate and aim for the same goal. The creation of a well functioning network of all the cities will make a diverse, functional identity possible. The Dutch economic landscape will shift from one mountain to one chain of mountains.

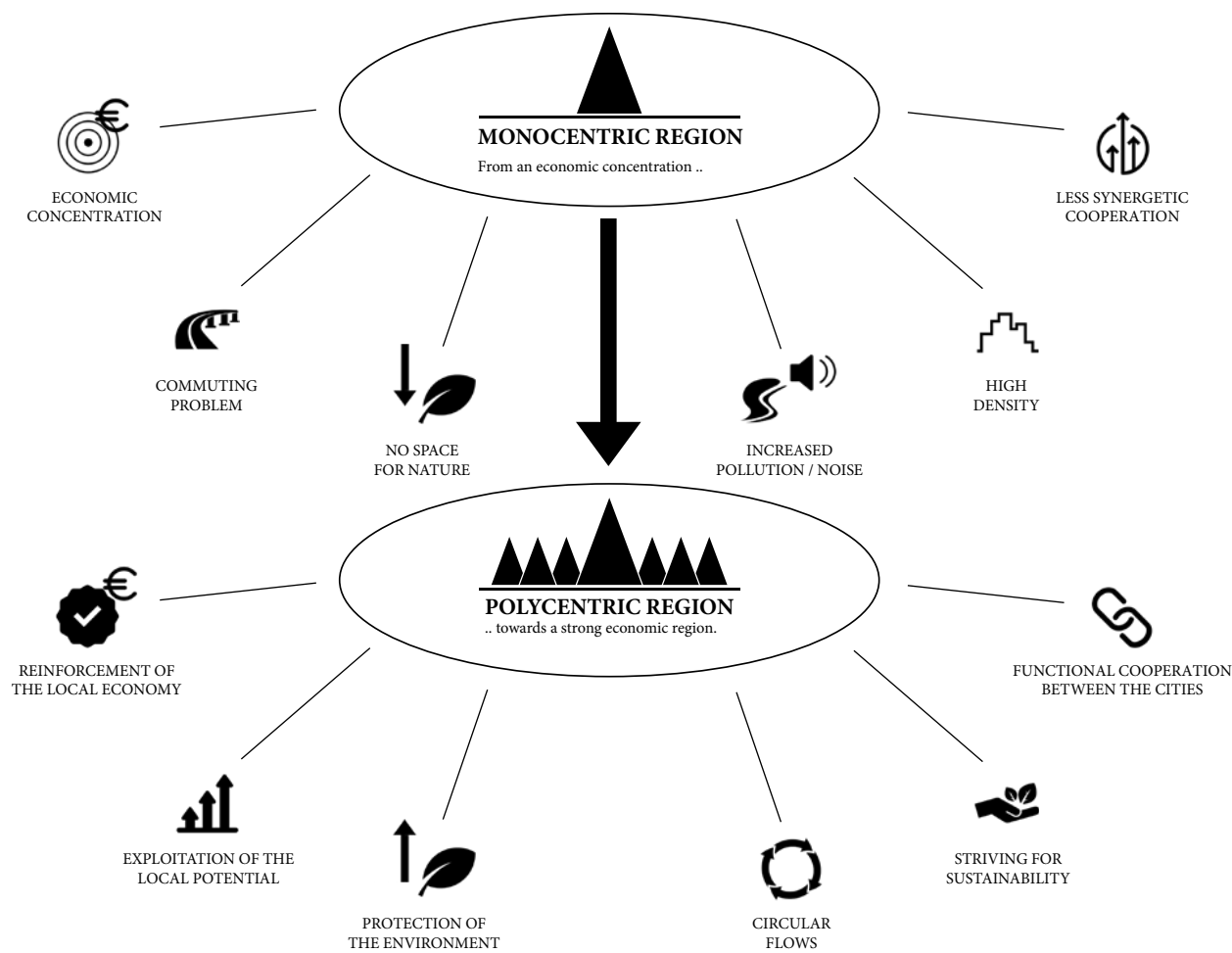
METAPHORICAL VISION



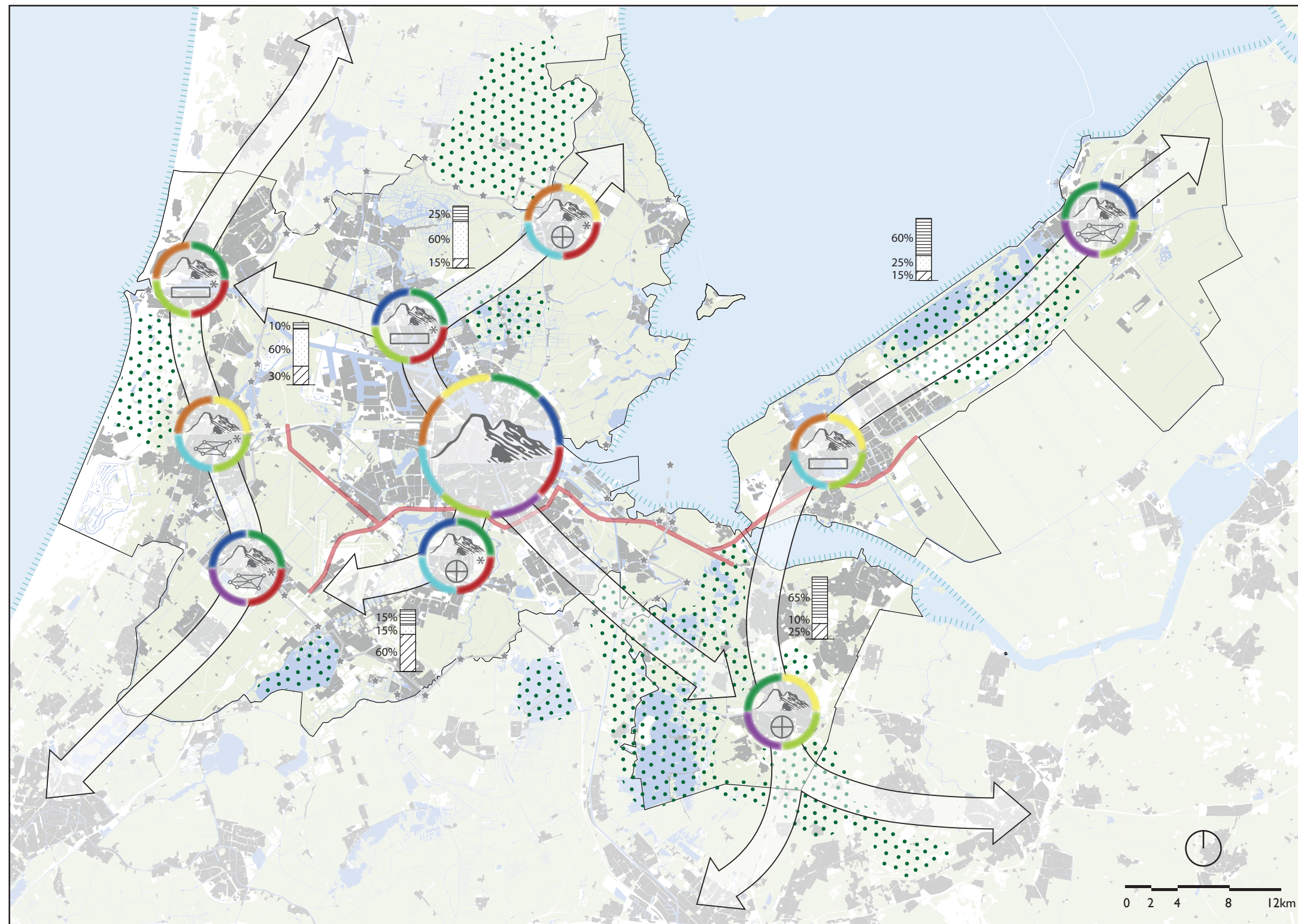
On this map you see that the functional polycentric model will be improved by enhancing the potentials of the midsized cities of the AMA and the connections between them.

CONCEPTUAL VISION

40



SPATIAL VISION



41

- Existing elements:
- dominant mountain
 - flow potential
 - recreational area
 - Defence Line of Amsterdam
- Proposed elements:
- quality improvement coastline
 - quality improvement infrastructure
 - main connections
- Typologies of interventions:
- punctual intervention
 - linear intervention
 - network of interventions
 - indicative intervention
- Program of interurban area:
- recreation
 - polder
 - infrastructure
- Flows:
- waste
 - energy
 - food
 - water
- Economic sectors:
- high-tech
 - knowledge
 - tourism
 - high services

Methodology

During the process several methodologies are developed in order to be able to make evidence-based decisions. For example to find the qualities and potentials of the midsize cities. The data used for this methods can be found in Appendix 2.

QUALITIES

Our evaluation of qualities is based on the example of the mid-sized city of Haarlem. There is one particular reason for this: nationwide Haarlem is considered as the dream Dutch city.

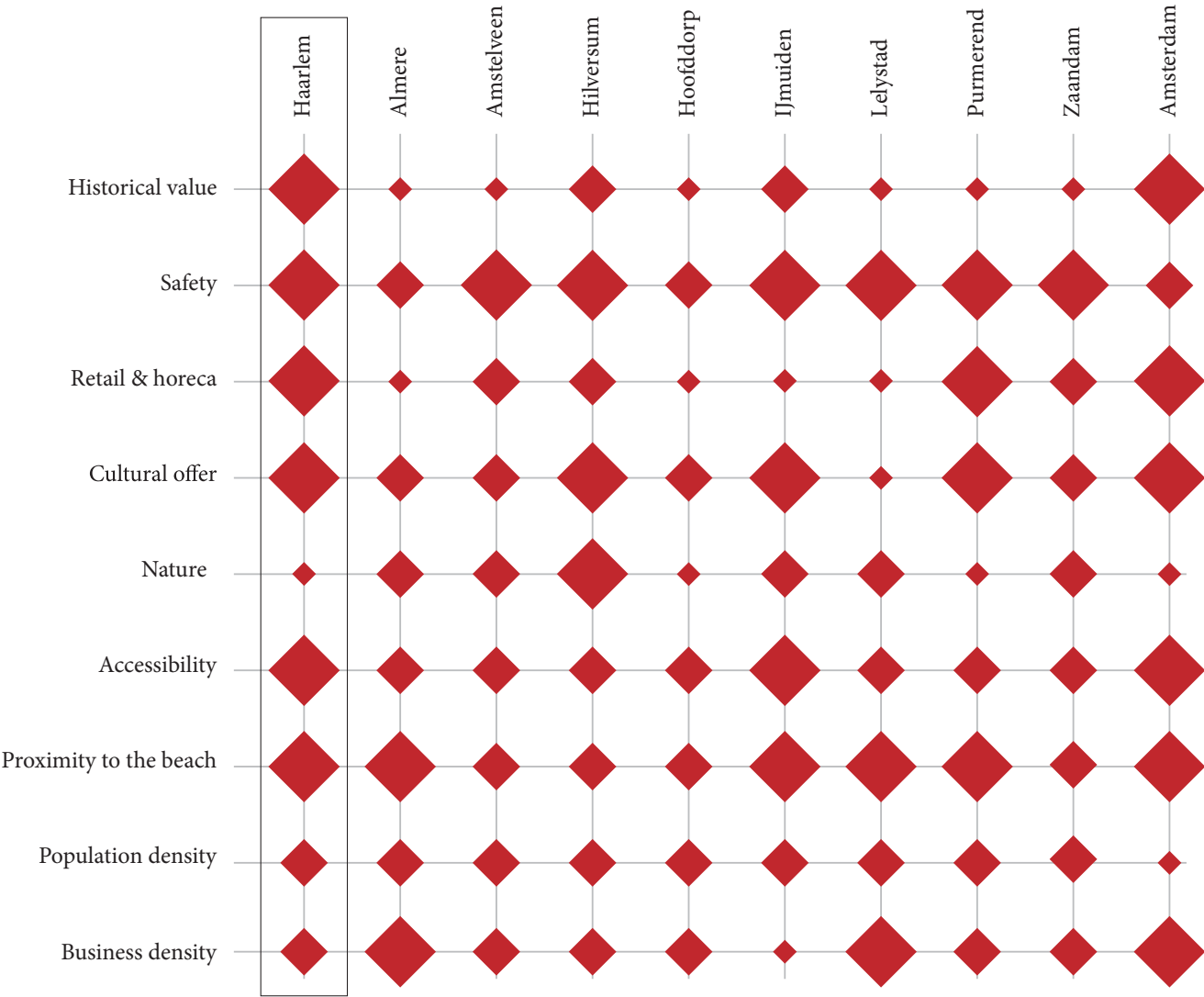
But what exactly makes Haarlem the perfect place of residence?

Of course it has to do with its good geographic location; close to the city of Amsterdam and the Airport Schiphol, on one hand, and in direct distance to the beach on the other hand.

But besides the location, Haarlem has much more to offer; well known for its beautiful historic city centre, it attracts a lot of tourists every year, the safety

index of Haarlem is one of the highest of all Dutch cities and also from the economic perspective the city is performing well. Furthermore, the river Spaarne, a blue local recreation area, is an additional value for the city.

As Haarlem is used as a reference, all characteristic criteria of the city are taken into account and from this point, the qualities of the other cities are evaluated. Of course we don't want the other cities to become just like Haarlem. The current qualities are just analysed to strengthen them, in combination with developing the potentials. In this way, the mid-sized cities will get their own, unique identity.



Qualities per mid-sized city

POTENTIALS

After defining the qualities of each city, the potentials have to be revealed. Therefore, 2 categories of potentials have been defined: the resource flows and the economic activities; each of these categories having 4 subcategories.

The proposed potentials are based on the existing conditions of the AMA and the Netherlands in general.

Resource flows:

- Water
- Waste
- Food
- Energy

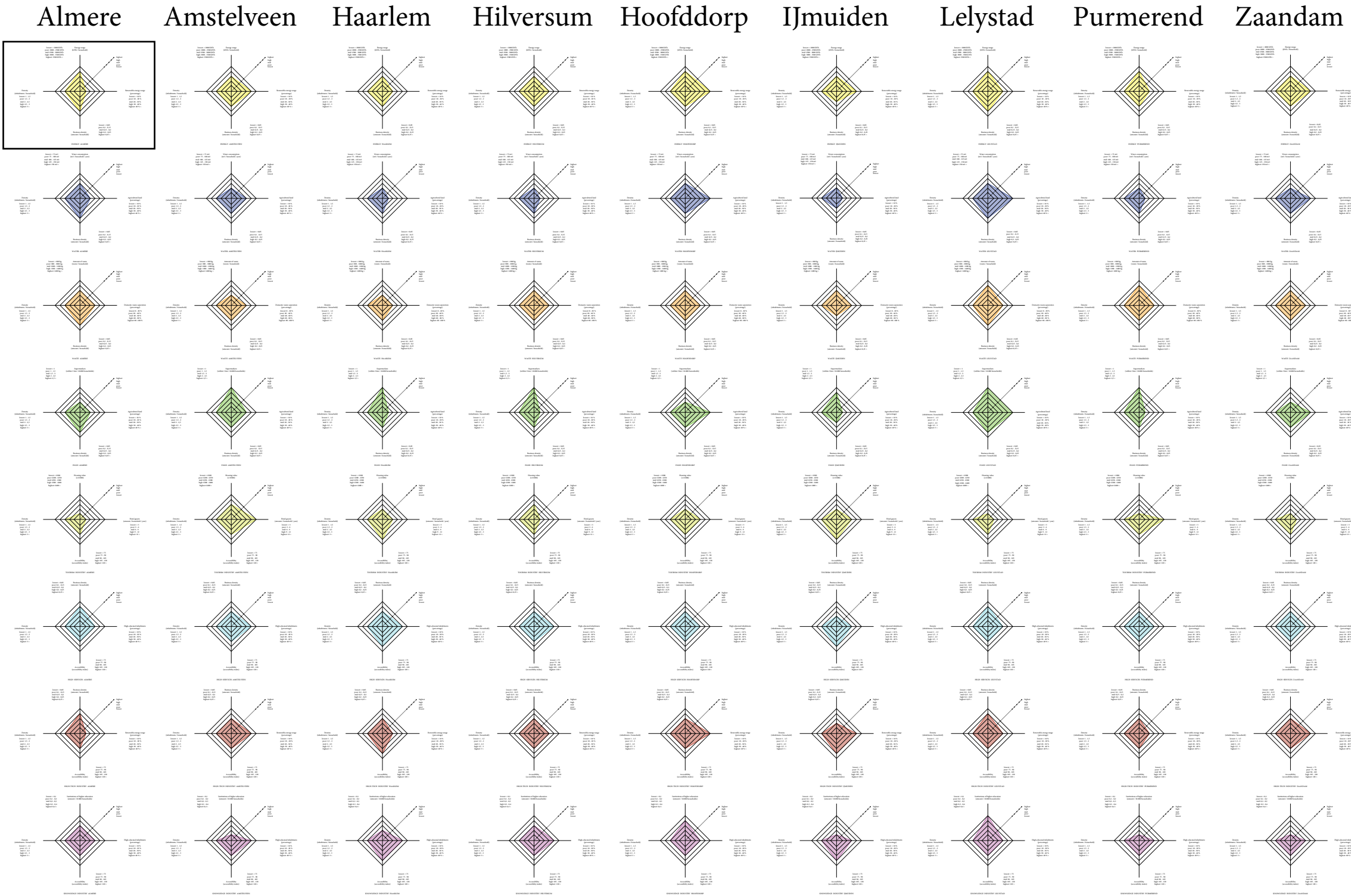
Economic activities:

- Tourism
- Knowledge
- High Services
- High-tech Industry

After defining the categories of the potentials, the variables to calculate the potentials have to be determined. And a principle to evaluate the outcome has to be developed.

In the end, every midsized has 4 designated potentials: 2 resource flows and 2 economic activities.

In the next steps, the theory will be put into practice.



Energy

Water

Waste

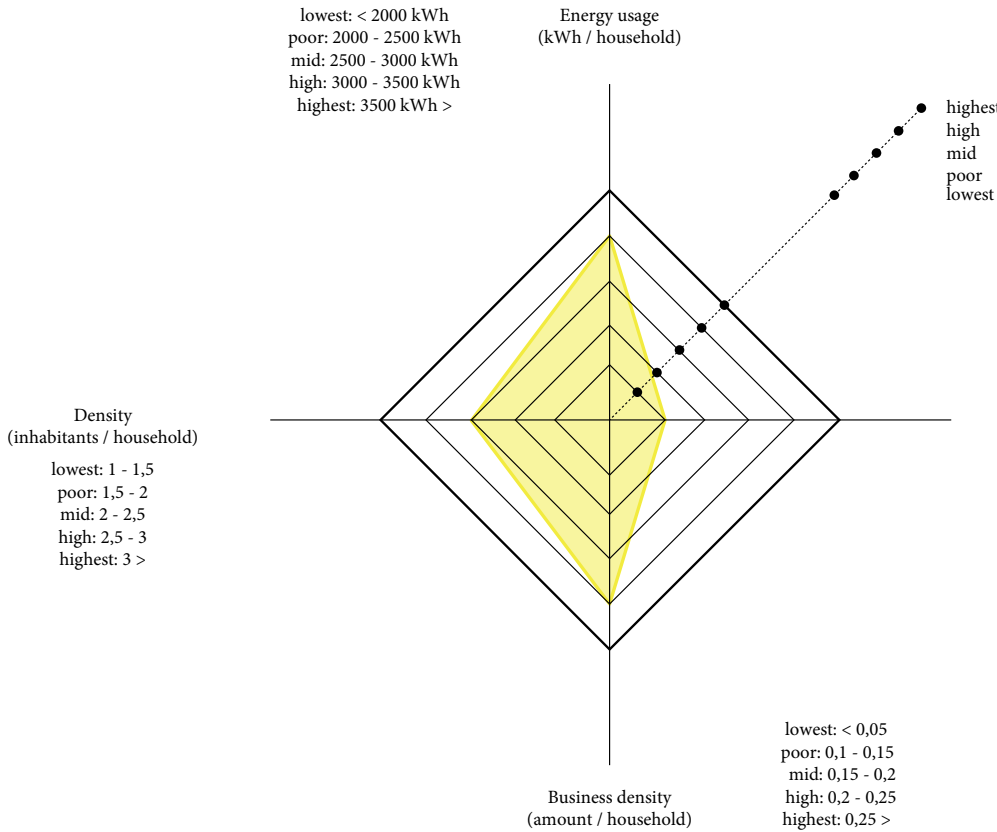
Food

Tourism Industry

High Services

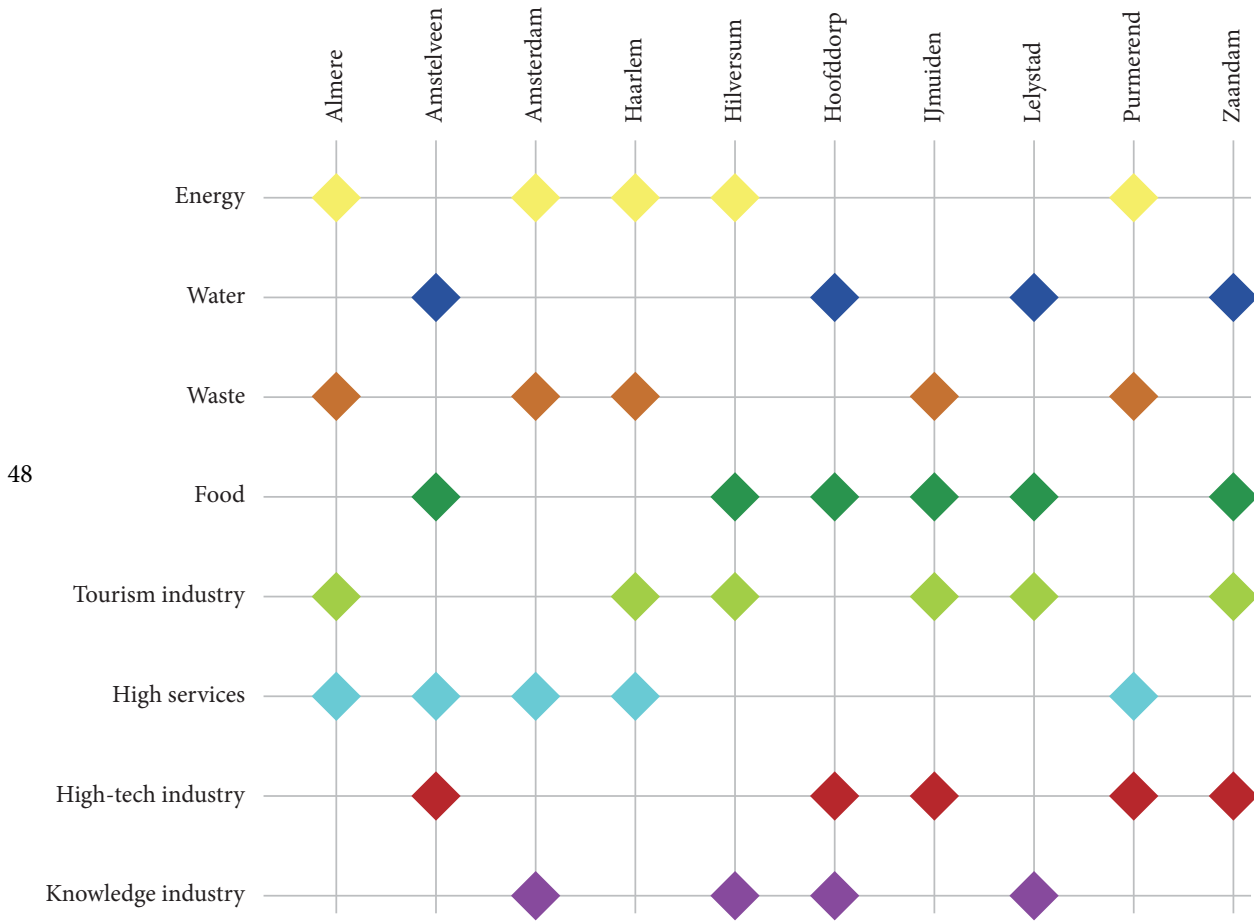
High-Tech Industry

Knowledge Industry

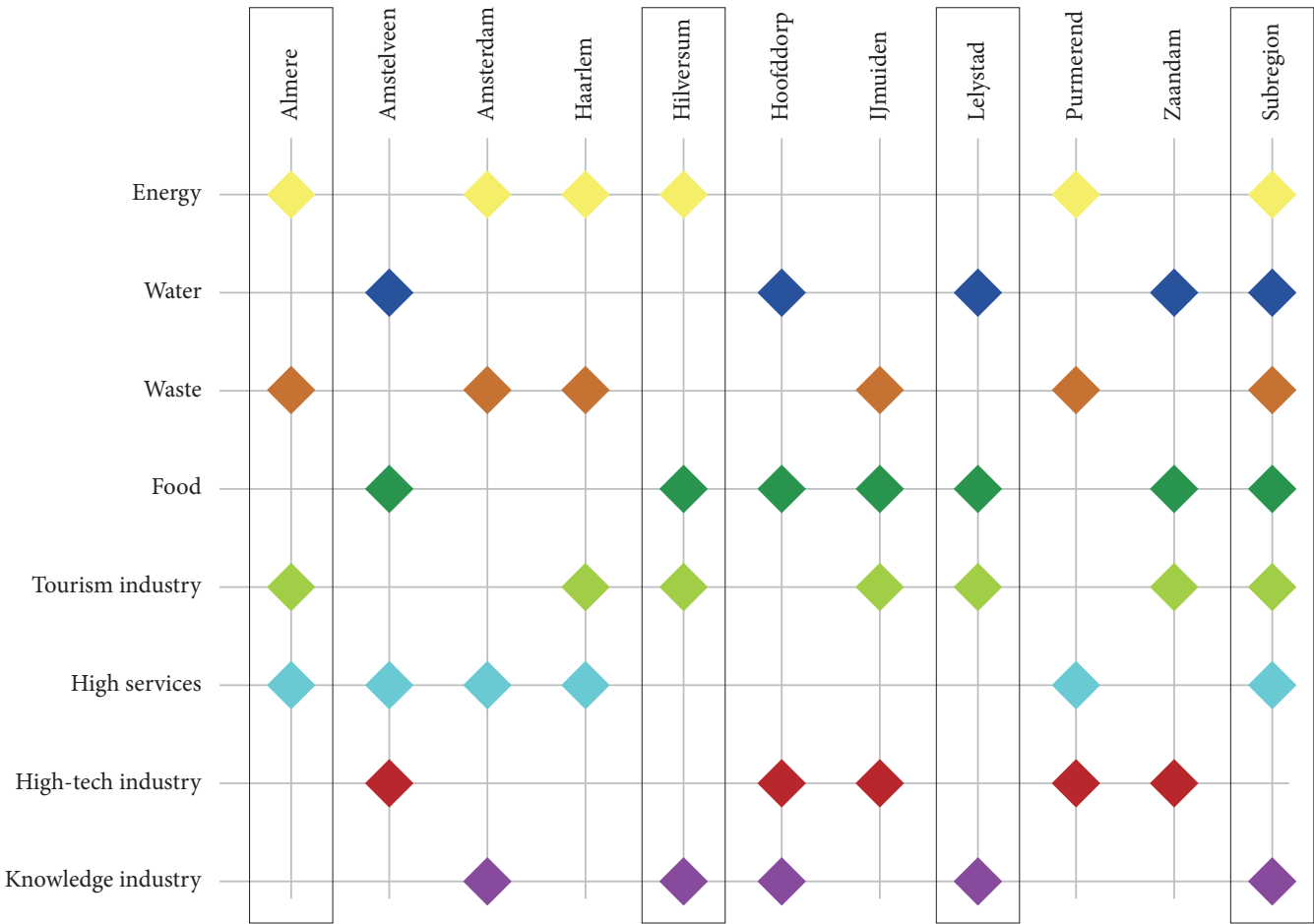


POTENTIALS

This diagram clearly shows that each of these midsize cities offer a different spectrum of potentials. For example: Almere, Lelystad and Hilversum offer the conditions for different potentials. As none of them has all the potentials, functional links between the cities have to be created.



By combining their potentials, a complementary system can be created. These cities rely on each other and exchange 'goods' with the surrounding cities. These functional links to other midsize cities, the city of Amsterdam and other cities outside the AMA will be beneficial for the development of it.



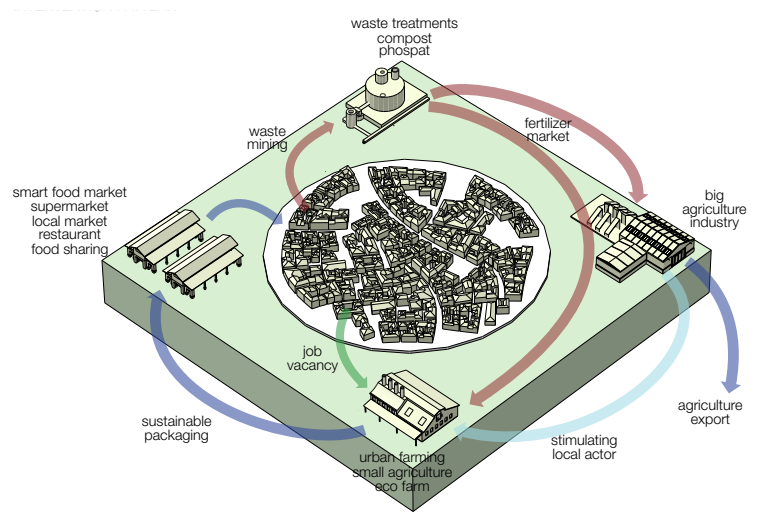
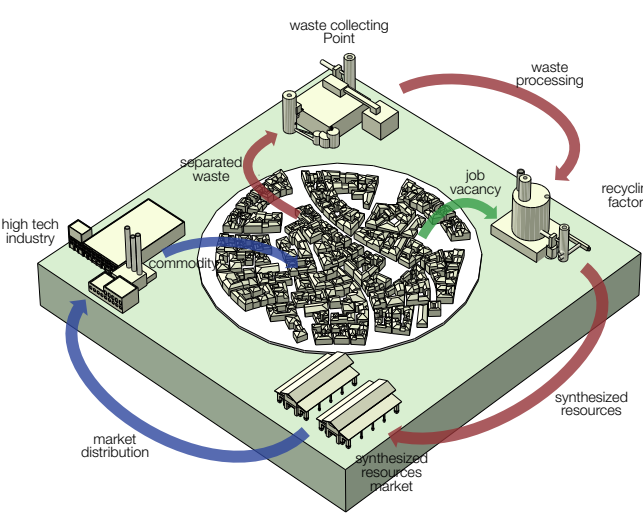
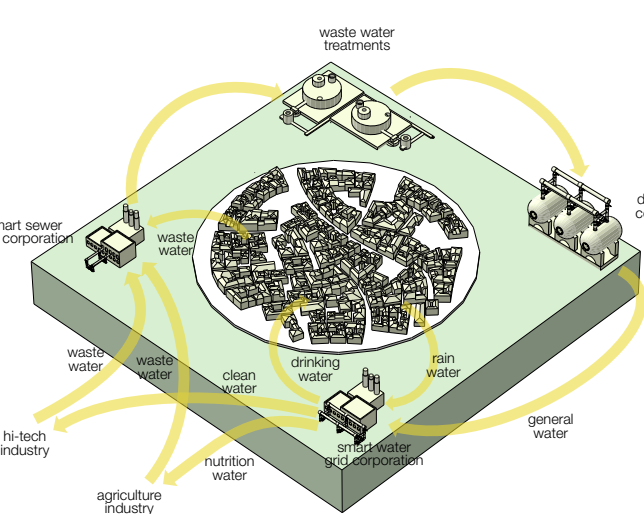
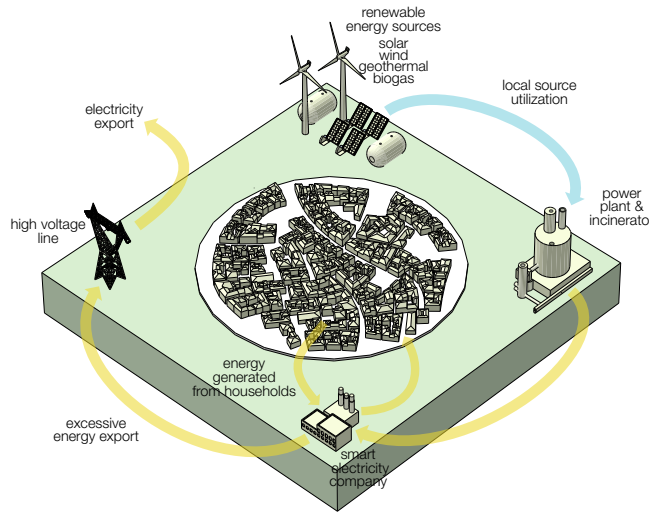
HYPOTHESES

For each resource flow and each economic activity, we reflected on the question ‘What would the ideal scenario be like?’

By discussing each subject, we mapped what the ideal circular flow would look like, what facilities are needed, what actors are involved and how would it contribute to the sustainability.

We also made a distinction between the types of connections between the different elements, some of the links being physical and others intangible. And tried to integrate all the categories of actors in every circle, because a single citizen as well as an international can contribute to become more circular and sustainable.

Resource Flows



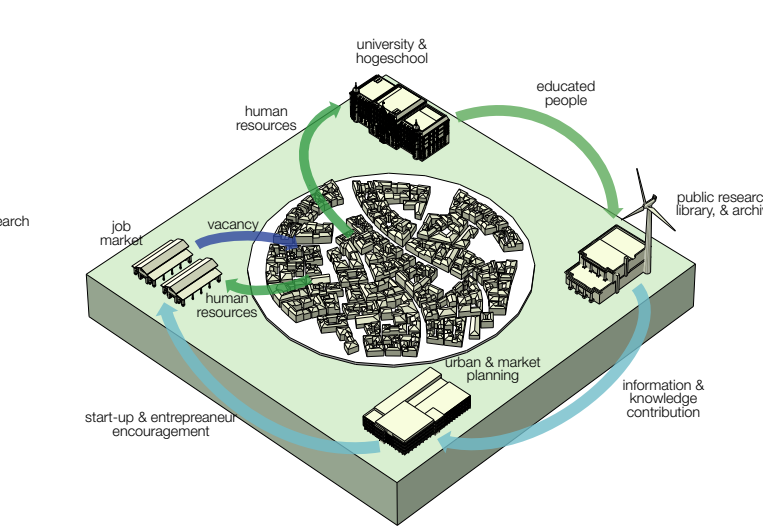
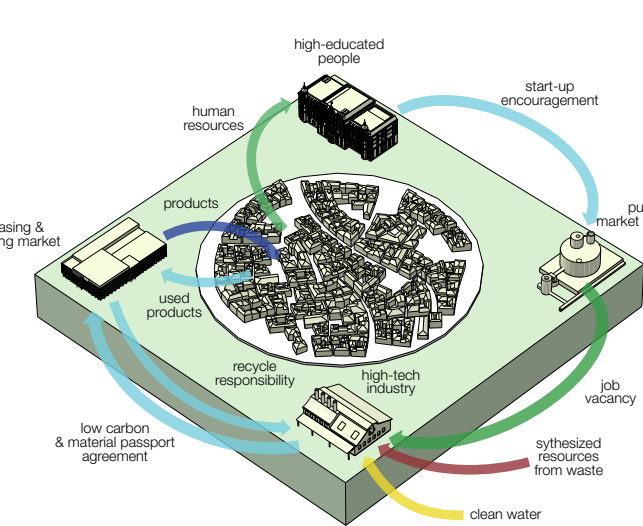
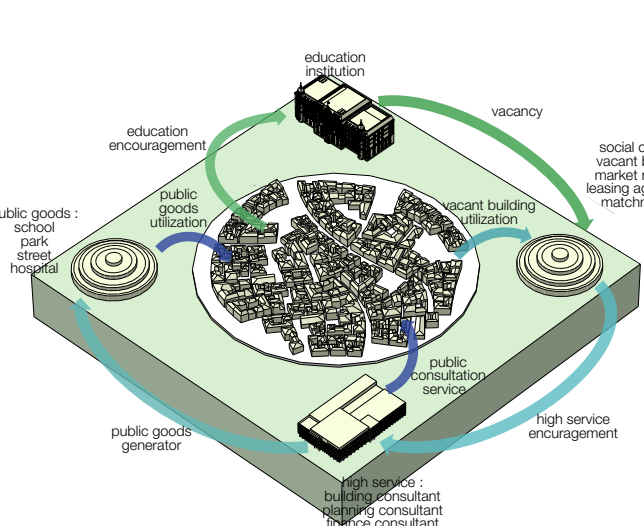
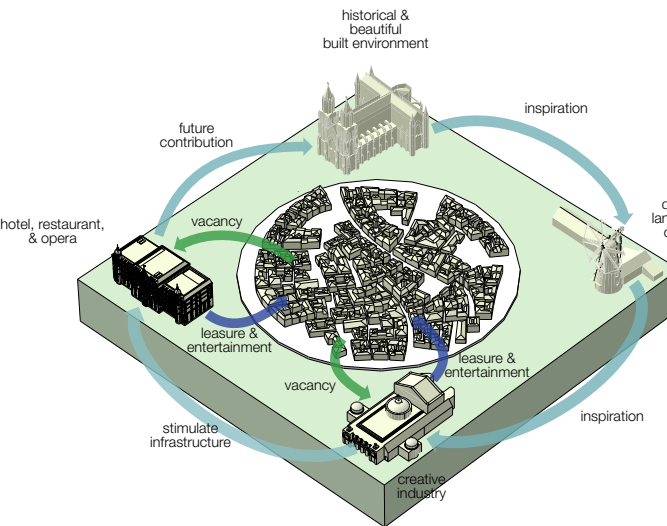
Energy

Water

Waste

Food

Economic Sectors



Tourism Industry

High Services

High-Tech Industry

Knowledge Industry



Subregion

Zooming in to the subregional scale provides insight into the typologies of interventions, which will take place in the midsize cities. The considered subregion is located in the East part of the AMA, and contains the midsize cities of Almere, Lelystad and Hilversum.

VISION

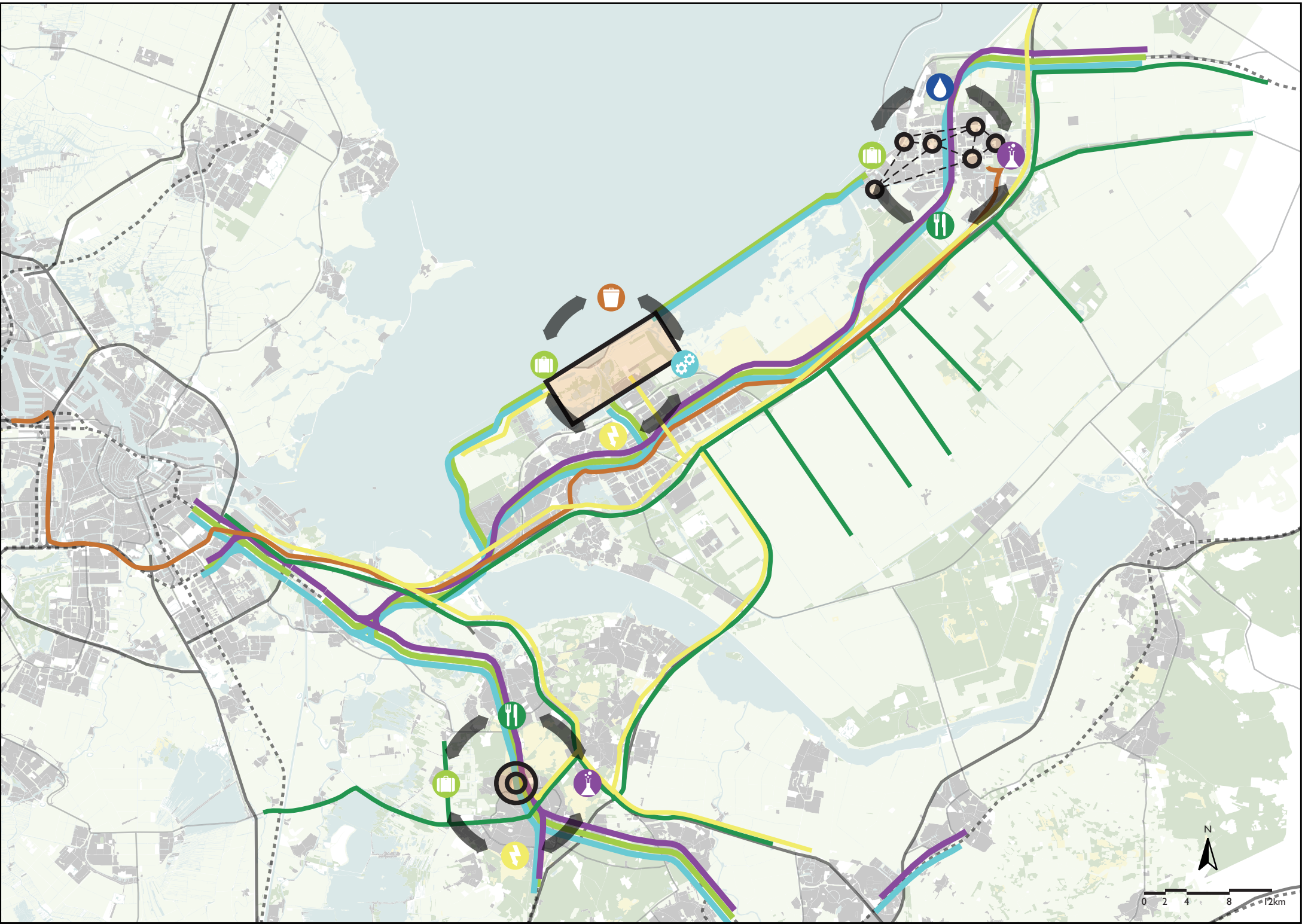
Subregion

The accumulation of proposed projects within the subregion will turn it into a more attractive and strong performing area. Through the local interventions, new links and relations between the cities will be created. The diversity of functional links will also be enhanced, the city of Amsterdam will still be of high importance for the system, but especially the relations with the north and the south will be enhanced.

Even though the midsized play a determinant role, the in between space should not be forgotten. This space will be mainly used for local recreation, offering a diverse natural landscape. Furthermore, this space is used for infrastructure and agriculture.

54

SPATIAL VISION



55

On this map you see the Eastern subregion of the AMA, which contains the cities Almere, Lelystad and Hilversum. Their potentials are complementary to each other and should be related.

- Typologies of interventions:
- punctual intervention
 - linear intervention
 - network of interventions
- Flows:
- waste
 - energy
 - food
 - water
- Economic sectors:
- high-tech
 - knowledge
 - tourism
 - high services

VISION

Subregion

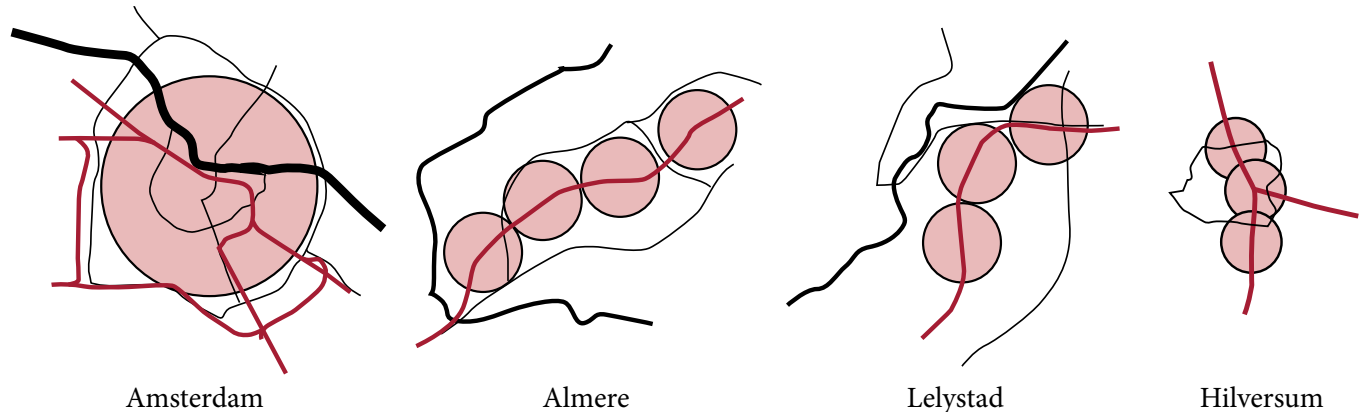
This subregion offers a lot of environmental qualities, the most important one is the waterfront. In our opinion, this quality has not really been enhanced yet. Therefore we propose to develop an urban waterfront along the urban areas, such as Almere and Lelystad, to make it also more attractive for regional and international tourism. Along the rural areas, the waterfront will keep its natural character. This proposed diversity along the waterfront will highly increase the attractiveness of the subregion.

Besides the waterfront, the blue and green local recreation areas are also of huge importance for the subregion. They contribute to the quality of life of each city and to the subregion in general.

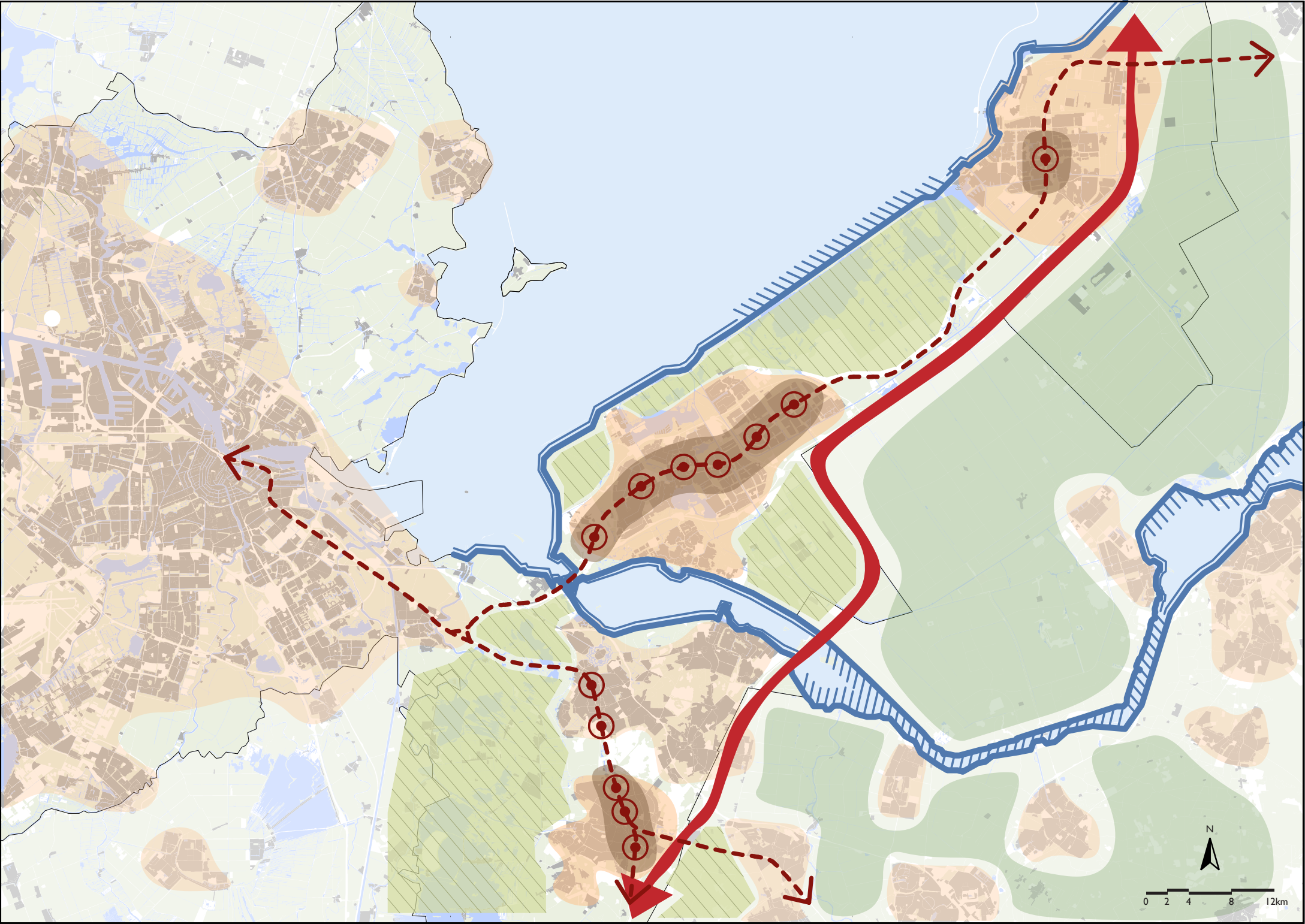
To guarantee a better connectivity within the subregion and to other important cities, new infrastructure lines and directions have to be promoted. In this specific case, the north-south connection will get a higher importance, to make the north better accessible and improve the link to the city of Utrecht.

Giving a new identity to the subregion will also attract more people. As we want to maintain the level of density as it is at the moment, we propose a transit orientated development (TOD). This will also stimulate the urbanity of the city centres. In this way, the average density of the cities will not increase dramatically, since this relative low density is a quality of the midsized cities.

56



PROPOSED SPATIAL DEVELOPMENT



Proposed development:

- Urban density
- TOD
- Regional recreation
- Local recreation
- Urban waterfront
- Natural waterfront
- Main public transport routes with stops and catchment area
- Reinforcement North-South connection

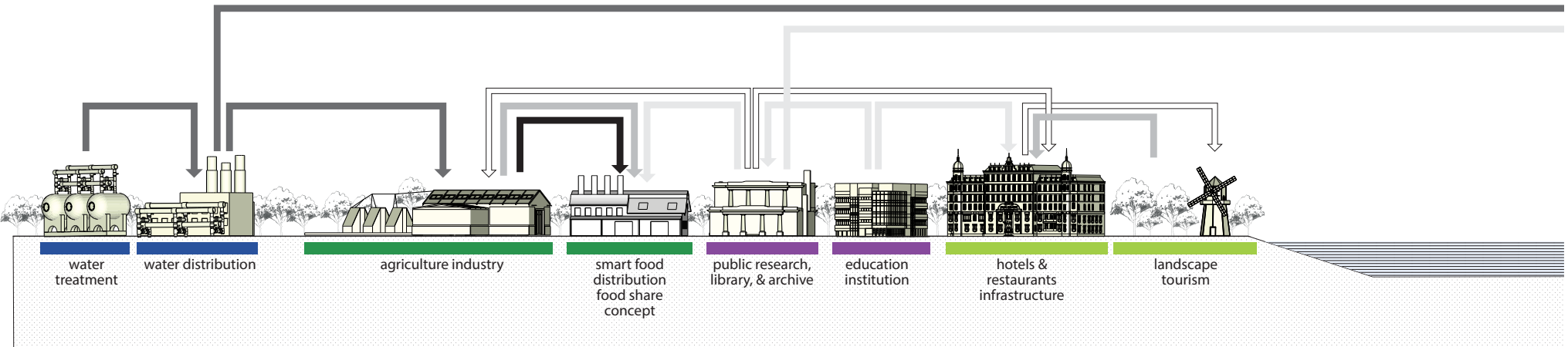
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HYPOTHESIS

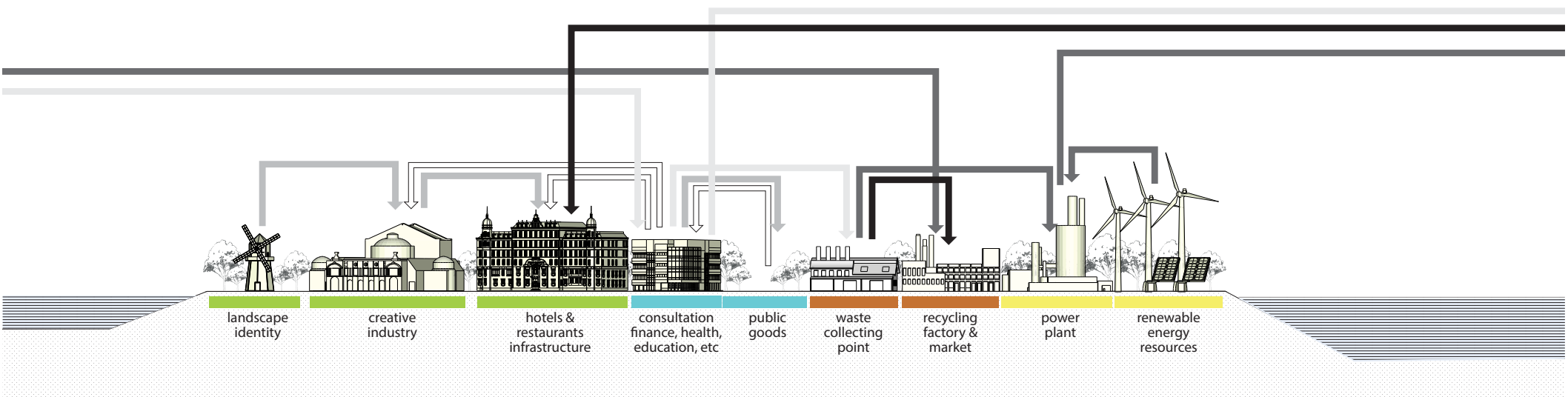
Synergies

Showing the schematic functioning of the subregion, the section shows the functional links between the cities and its complementary functioning. A differentiation between the types of link (physical or intangible) and the level of relation (city, municipality, subregion, region,...) has been made.

SYNERGIES

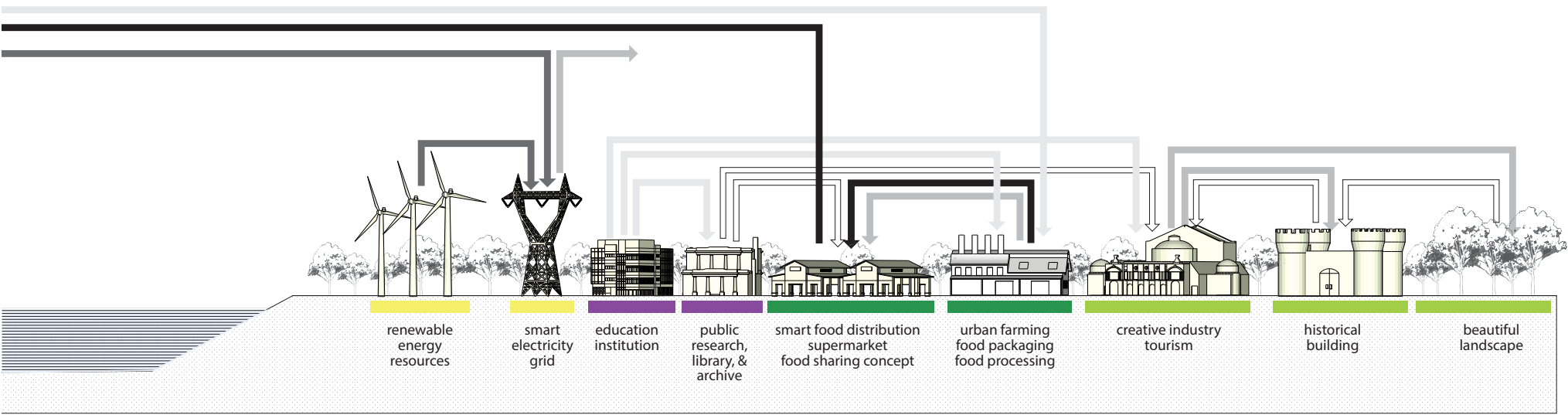


Lelystad



Almere

Flows:	Economic sectors:
waste	high-tech
energy	knowledge
food	tourism
water	high services



Hilversum

Cases

Zooming in from the scale of the midsize city should provide insight into more specifically allocated qualities, potentials and interventions. The cases even zoom in to 1x1 kilometer, and elaborate on the proposed interventions for that specific area.

CASE 1: ALMERE

Spatial Qualities

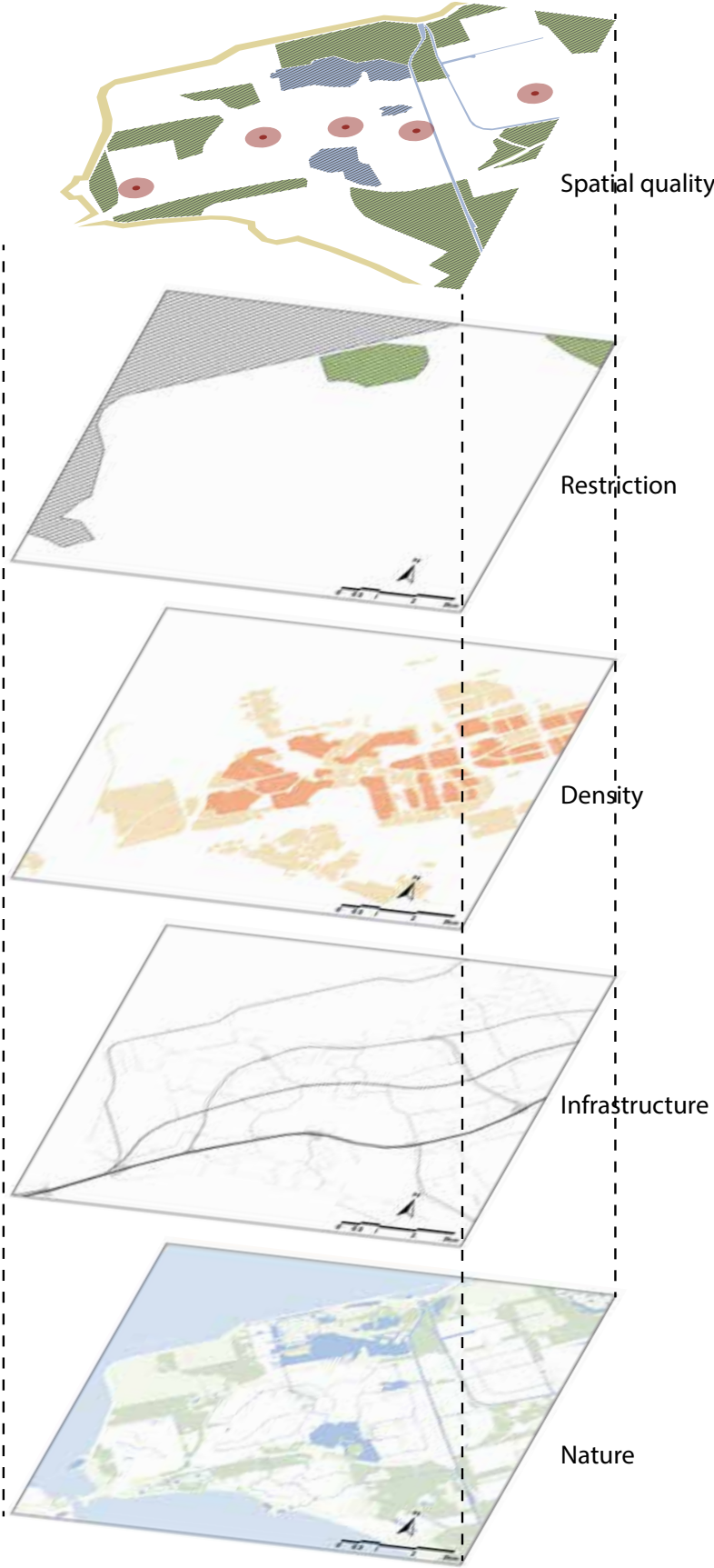
One of the main spatial qualities of Almere is its geographical location at the waterfront. Furthermore, large green and blue areas in and around the urban area of the city serve as local recreation areas and highly improve the quality of life of the residents

Spatial qualities:

- Infrastructure hub & catchment area
- Waterfront
- Green areas for local recreation
- Blue areas for local recreation



SPATIAL QUALITIES



CASE 1: ALMERE

Potentials

Our evaluation has shown that the mid-sized city of Almere has the following potentials:

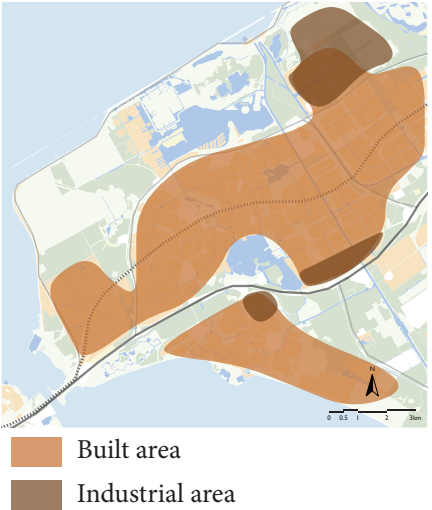
Resource flows:

Energy
Waste

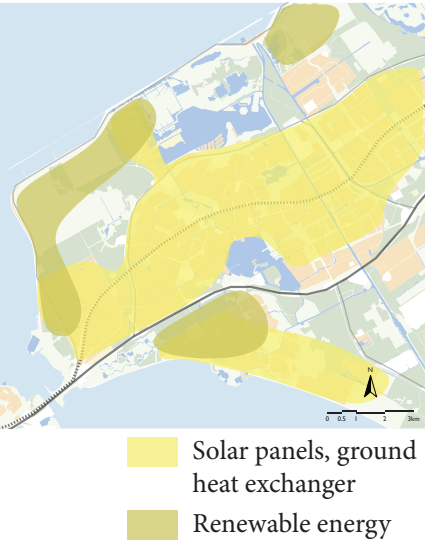
Economic activities:

High Services
Tourism

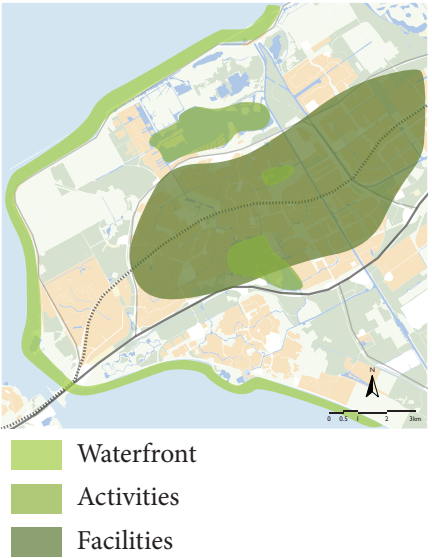
Waste



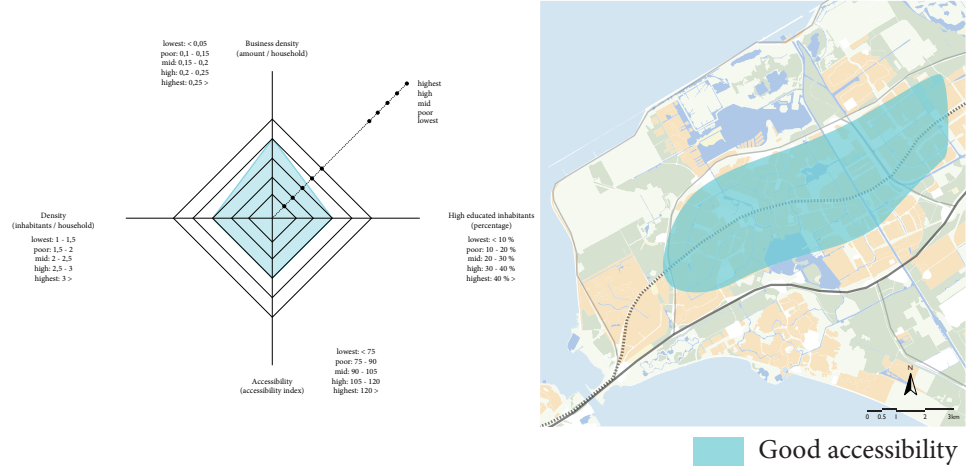
Energy



Tourism Industry



High Services

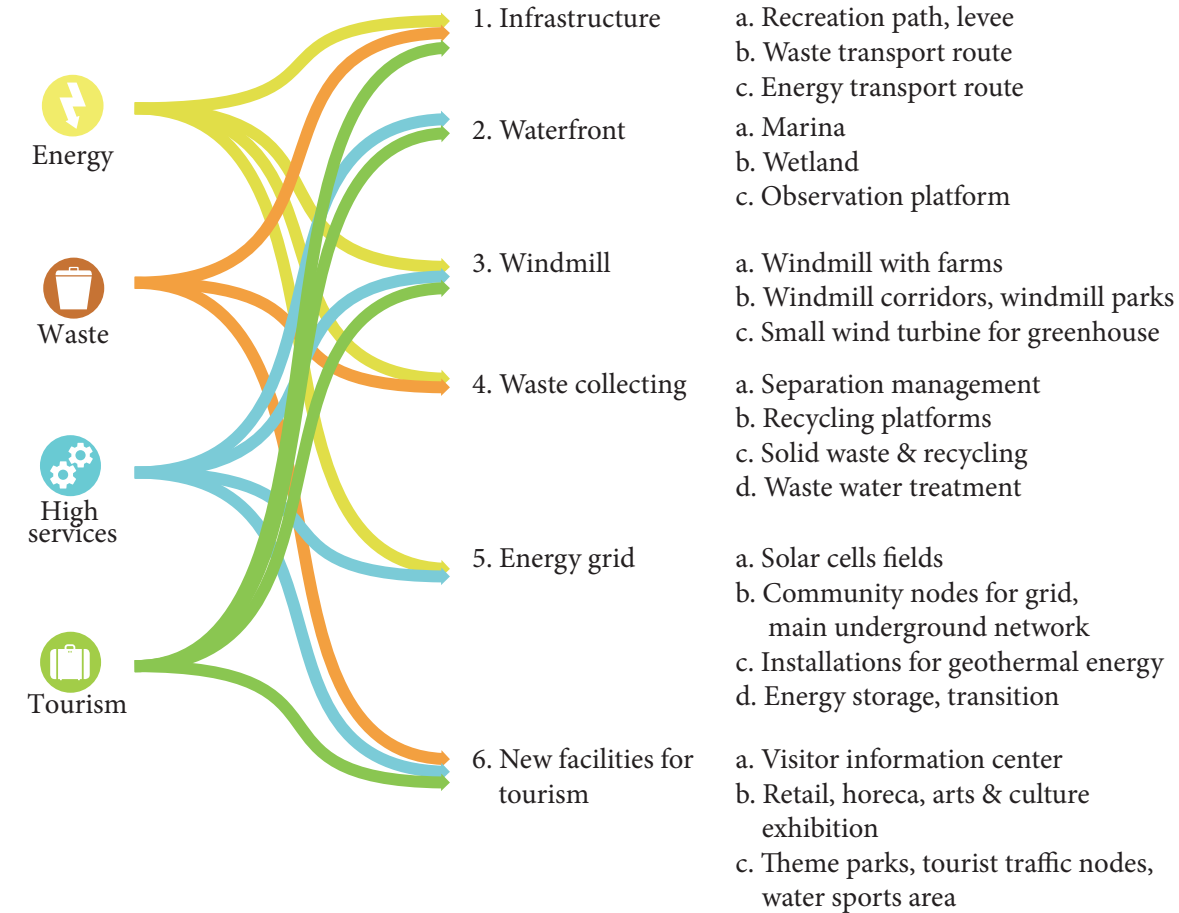


CASE 1: ALMERE

Proposed Changes

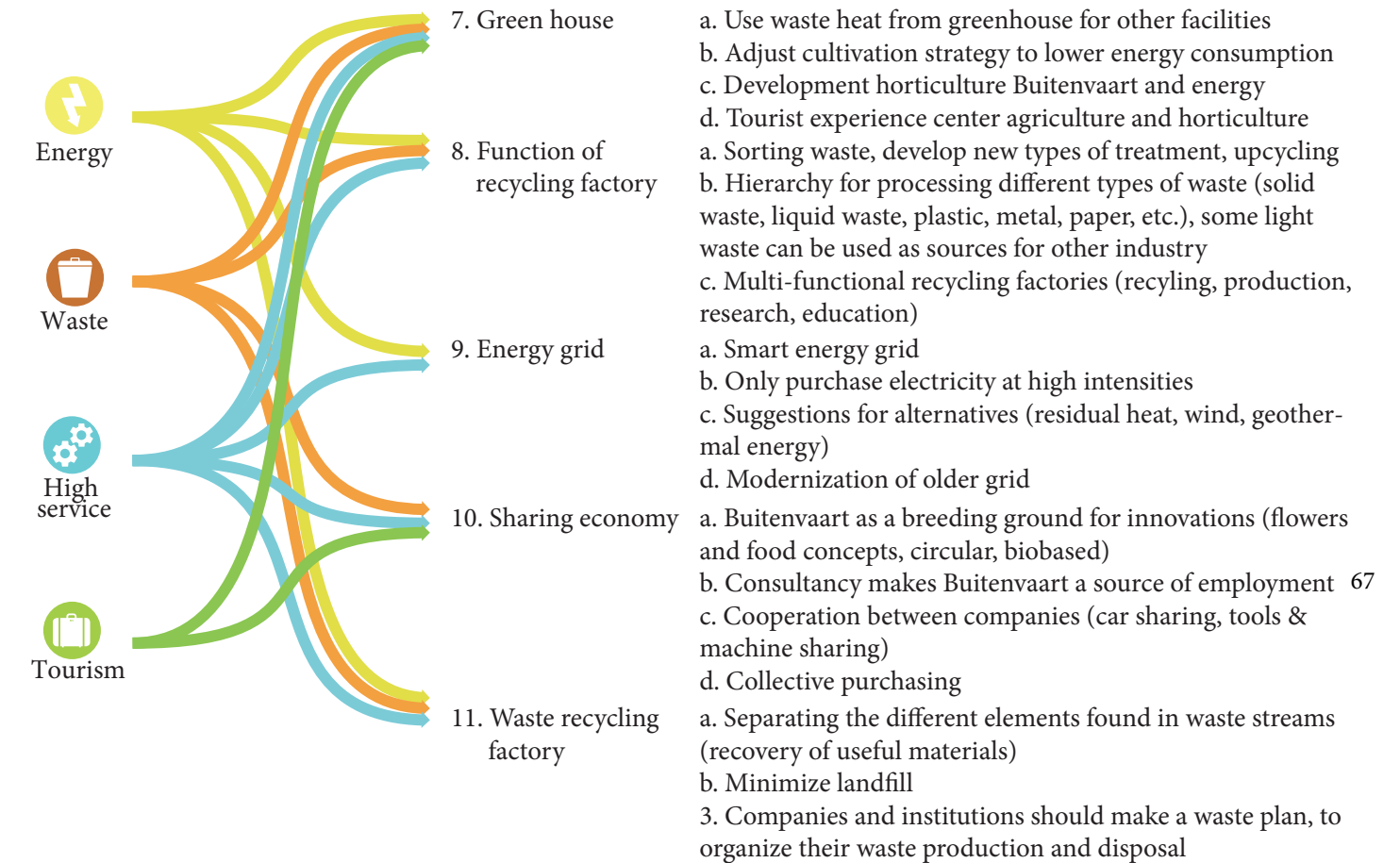
Spatial Interventions

Potential



Policies

Potential

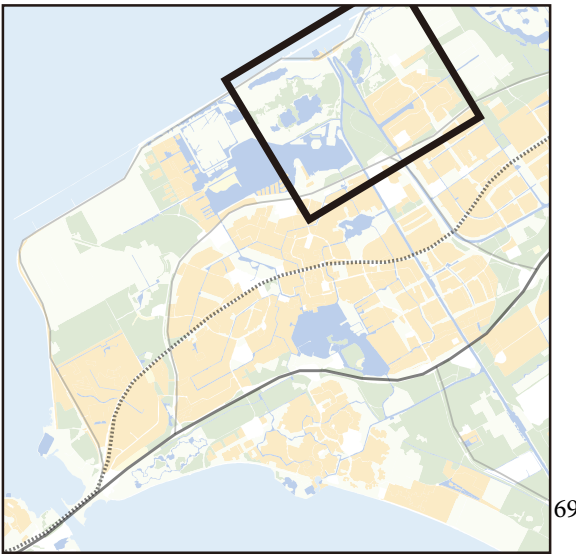
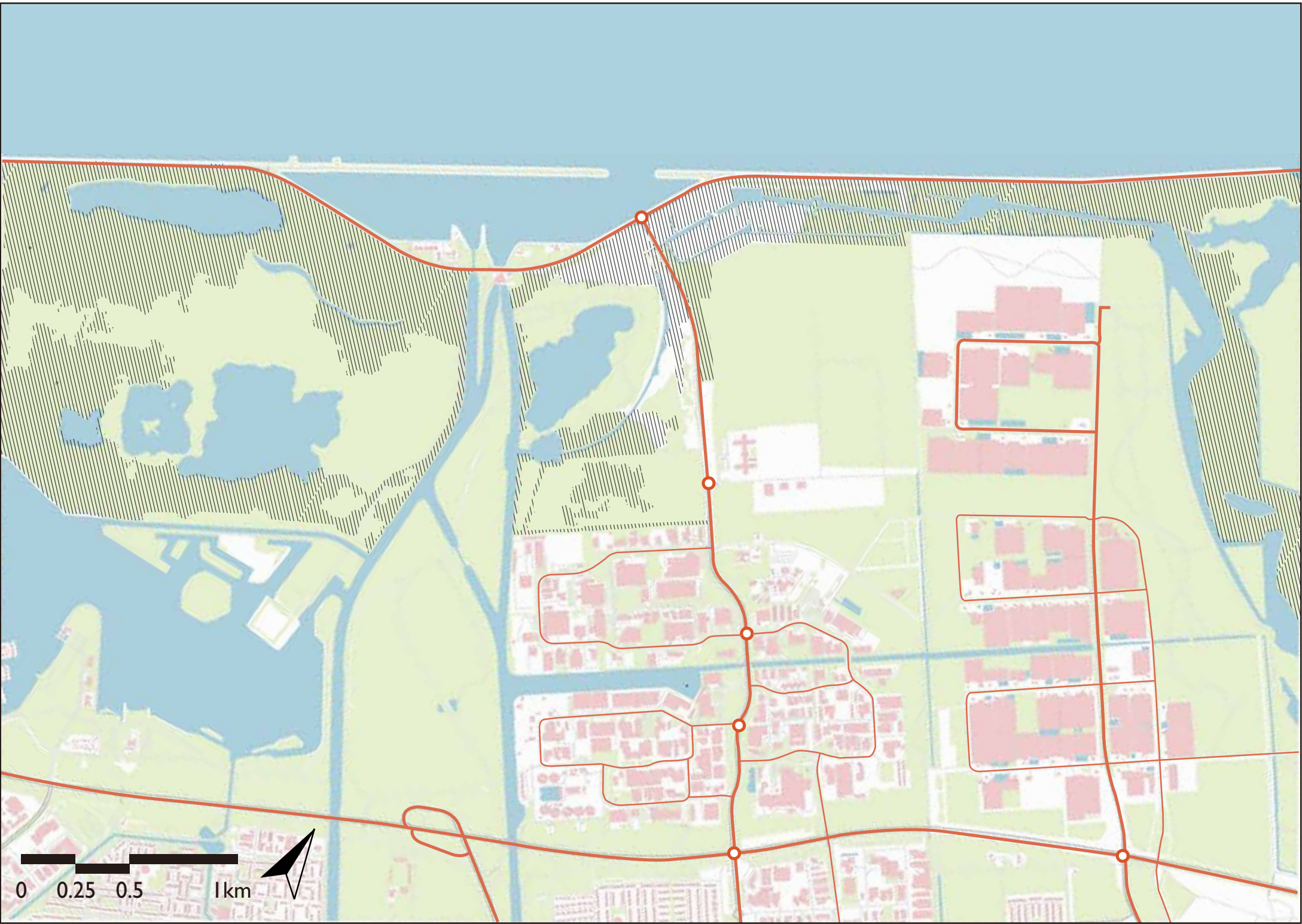


CASE 1: ALMERE

Existing Situation

The intervention area of Almere is located along the waterfront and includes different kinds of 'landscapes', for example wetlands, polder, urban area and infrastructure.

EXISTING SITUATION



Existing program:

- wetland
- main road
- secondary road

Potentials:

- energy
- waste
- high services
- tourism

Proposed key projects:

- P1. infrastructure
- P2. waterfront
- P3. windmills
- P4. waste collection
- P5. energy grid
- P6. tourist facilities

CASE 1: ALMERE

Proposed Situation

For Almere, we propose an evidence based design in form of a linear intervention. Actually, it is a combination of multiple interventions along the waterfront. A major interest was paid to find synergies between potentials and develop projects that cover more than one potential.

The proposed interventions will have a positive impact on the city development and give a new face to the waterfront. By proposing a more diverse program for the coastline, the infrastructure lines going from the city centre towards the waterfront will also be reinforced.

Furthermore, all interventions are proposed in a way that they increase the quality of life within the city, bringing additional benefits to its residents.

PROPOSED SITUATION



- Proposed program:
- geothermal area (P5)
 - solar roofs (P5)
 - small wind turbine (P5)
 - waste separation management (P4)
 - pathway (P1)
 - power transmission (P1)
 - energy transport (P1)
 - key projects
- Proposed interventions:
- P2 1 marina
 - 2 floating wetlands
 - 3 wetland terraces
 - 4 stormwater swale & wetland
 - 5 wetland boardwalk
 - 6 freshwater wetland & stormwater retention pond
 - 7 observation platform
 - 8 levee
 - 9 recreational path
 - P3 10 windmill with farms
 - 11 windmill corridors, windmill parks
 - P4 12 recycling platforms
 - 13 waste transfer station
 - 14 composting facilities, categorical disposal facilities
 - 15 waste water treatment
 - P5 16 energy storage facilities
 - 17 solar cells fields
 - P6 18 visitor information center
 - 19 retail, hospitality, arts & culture exhibition
 - 20 tourist traffic nodes, theme parks, water sports area

CASE 1: ALMERE

Design Patterns 1x1 km

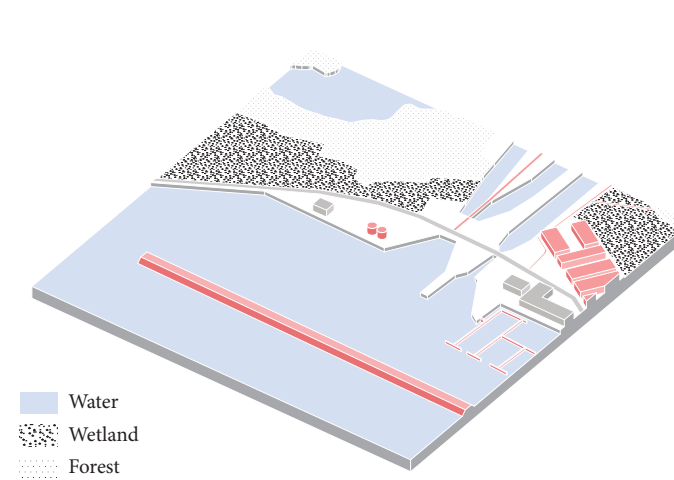
This design patterns of 1x1 kilometer zoom in on a few of the interventions which take place in Almere. The locations are chosen in such a way, that synergies can be found between several resource flows and/or economic sectors.

The first location is focussing on the relation between tourism and nature. The marina will be expanded, an observation platform will be created, and more horeca facilities will be added.

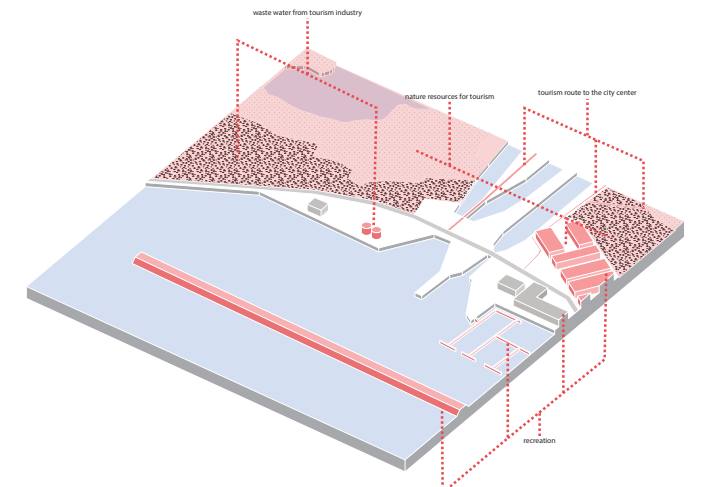
The second location shows how the smart energy grid could be implemented in the area. Energy storage facilities are available, and wind mills and fields with solar panels will provide energy from sustainable resources.

The third location zooms in on the synergy between energy and waste. Composting facilities will be created, where organic waste will be collected and digested, in order to create biogas.

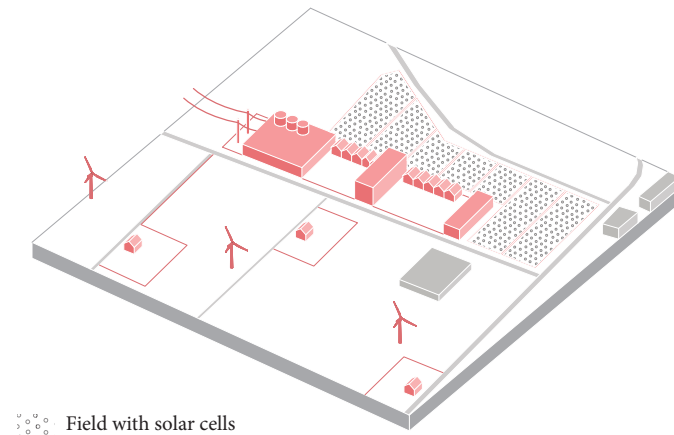
Spatial interventions, location 1



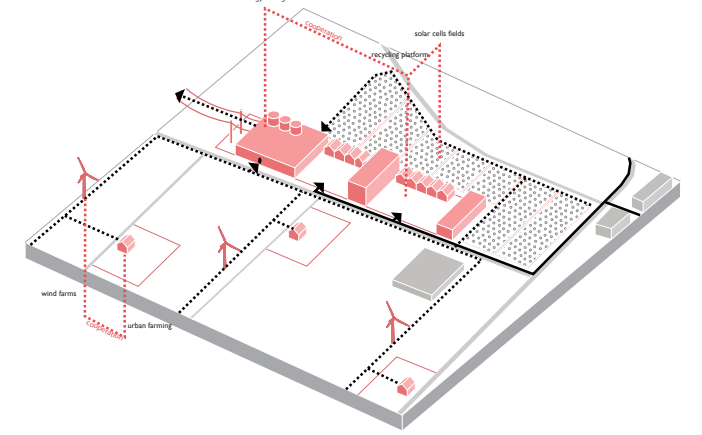
Design guidelines, location 1



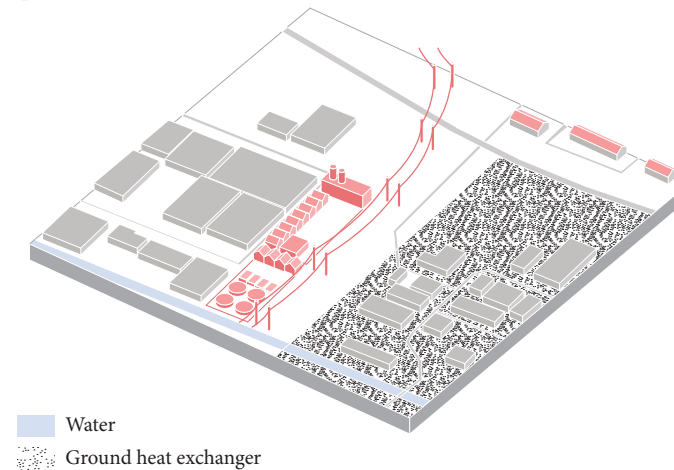
Spatial interventions, location 2



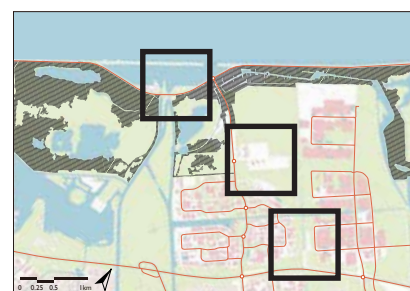
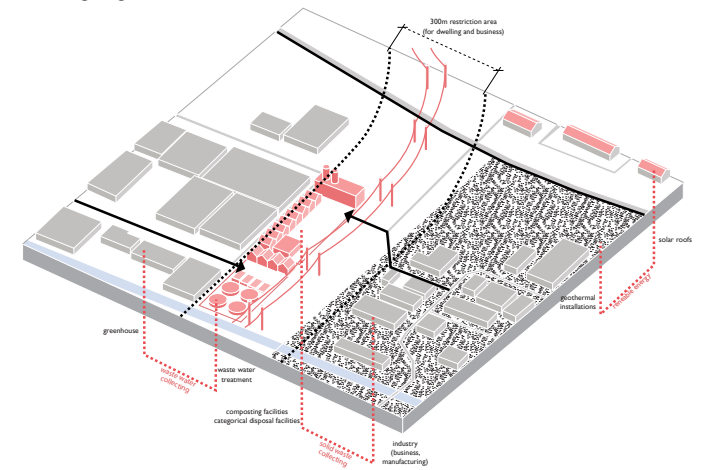
Design guidelines, location 2



Spatial interventions, location 3



Design guidelines, location 3

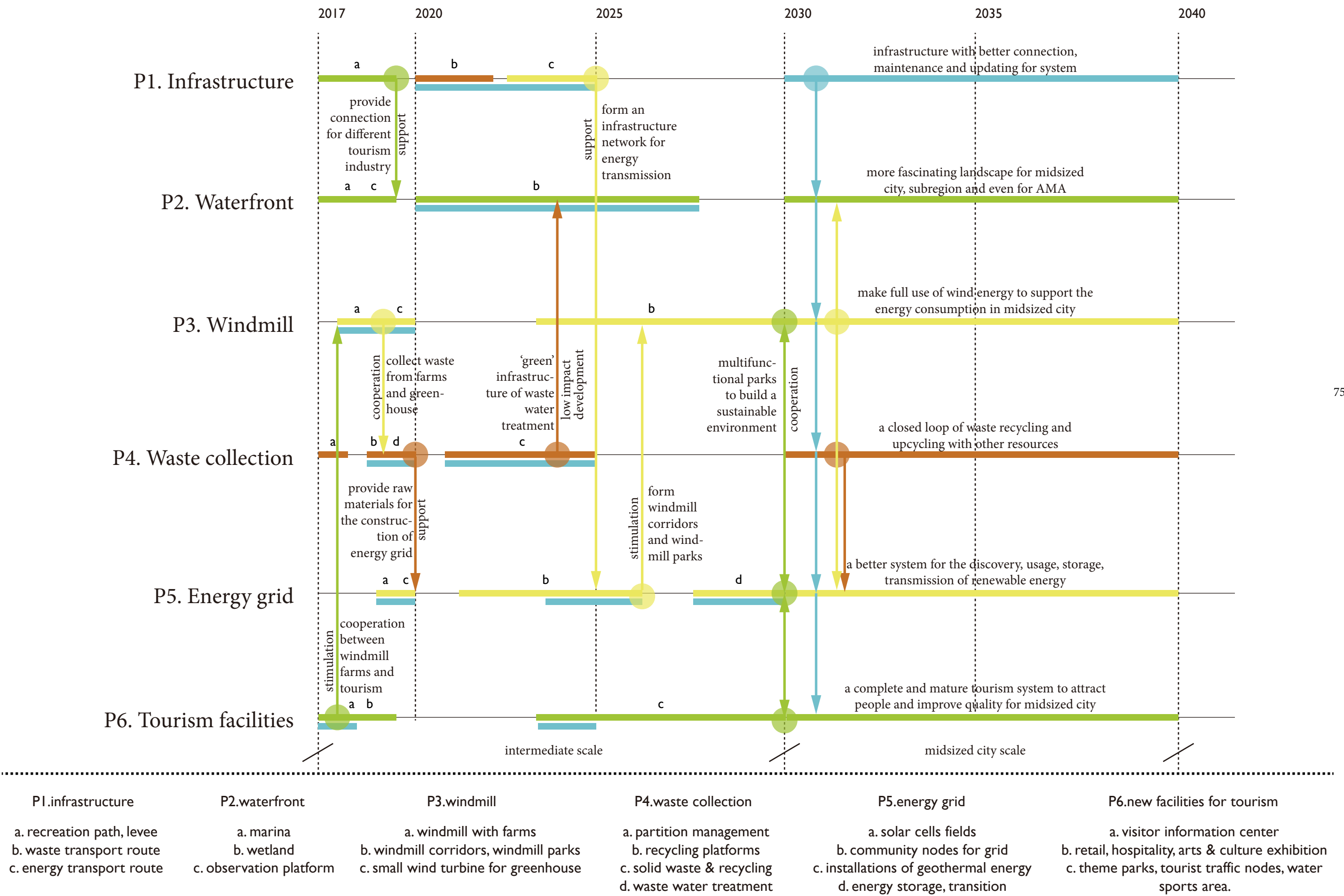


CASE 1: ALMERE

Timeline

This timeline indicated how the key projects of Almere are related to each other. Some projects have priority over others, because of their dependency. Every five years, one will reflect on the projects to revise the strategy where needed.

TIMELINE



CASE 2: LELYSTAD

Spatial Qualities

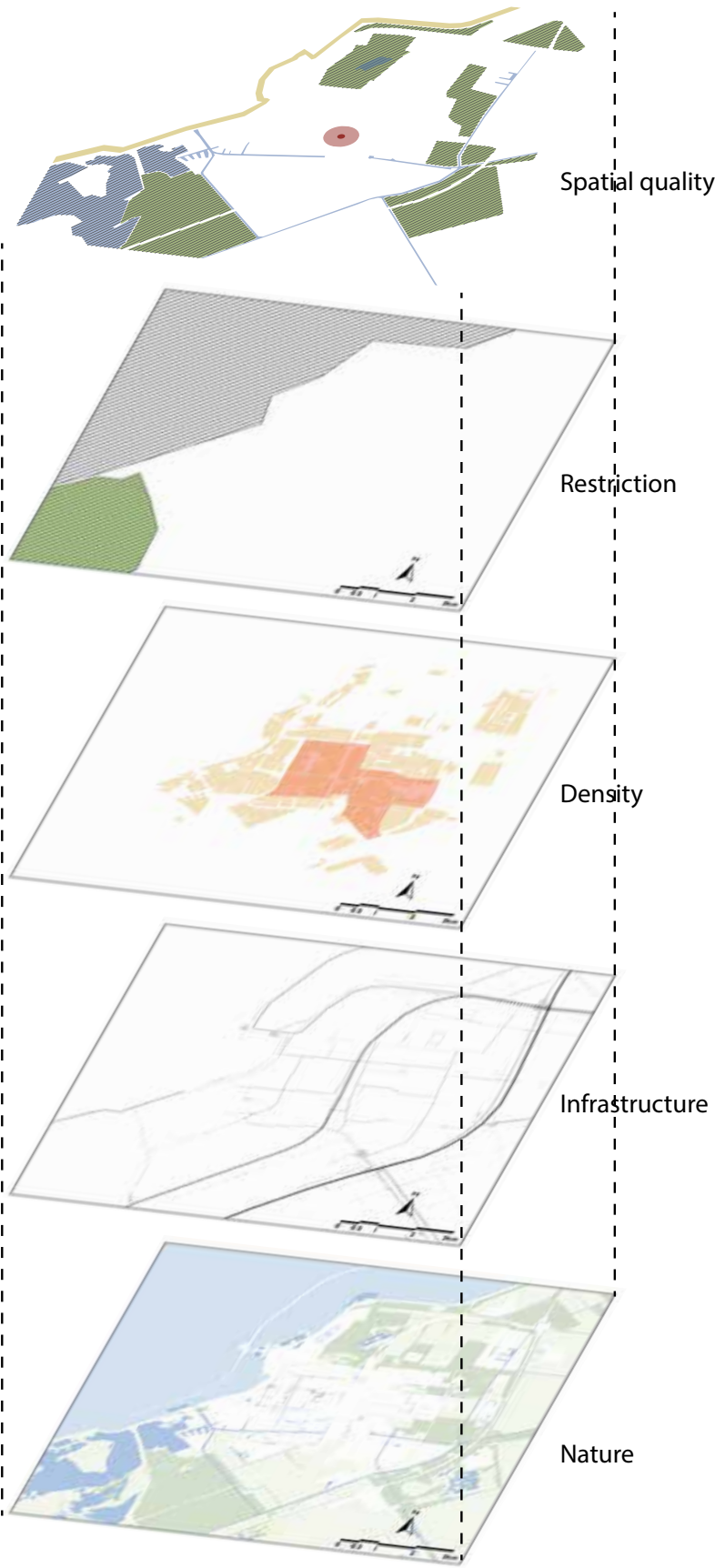
Lelystad is characterised by its rural surroundings and its location next to the waterfront. These aspects both have a positive effect on the quality of life and should also be conserved in further developments.

Spatial qualities:

- Infrastructure hub & catchment area
- Waterfront
- Green areas for local recreation
- Blue areas for local recreation



SPATIAL QUALITIES



CASE 2: LELYSTAD

Potentials

Our evaluation has shown that the mid-sized city of Almere has the following potentials:

Resource flows:

Food

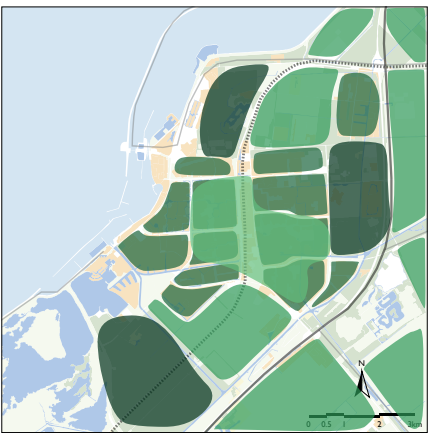
Water

Economic activities:

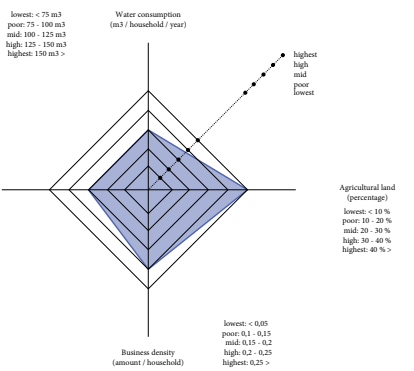
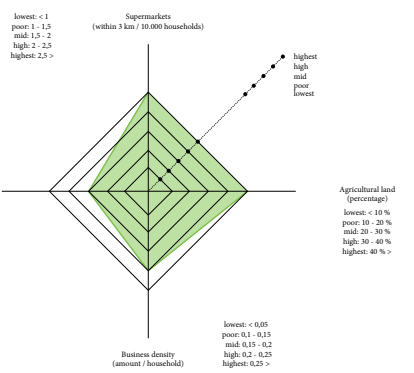
Knowledge

Tourism

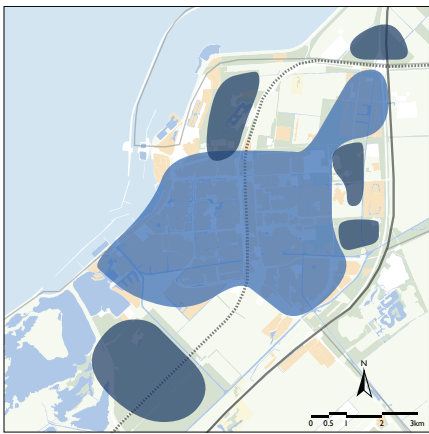
Food



- Workshops, foodsharing
- Agriculture
- Communal gardens
- Urban farming

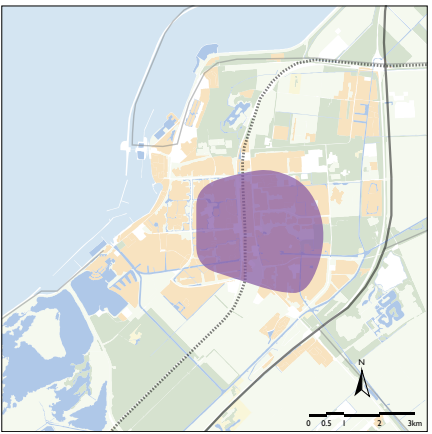


Water

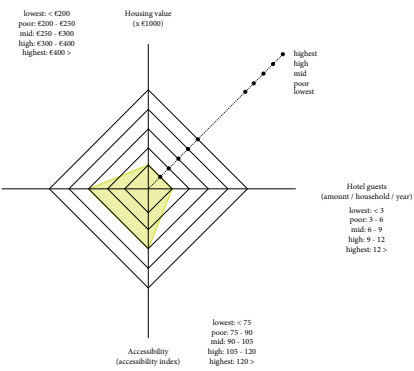
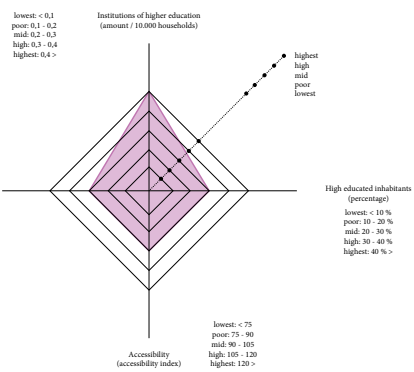


- Rainwater collection
- Bio swale

Knowledge Industry



- Urban density



Tourism Industry

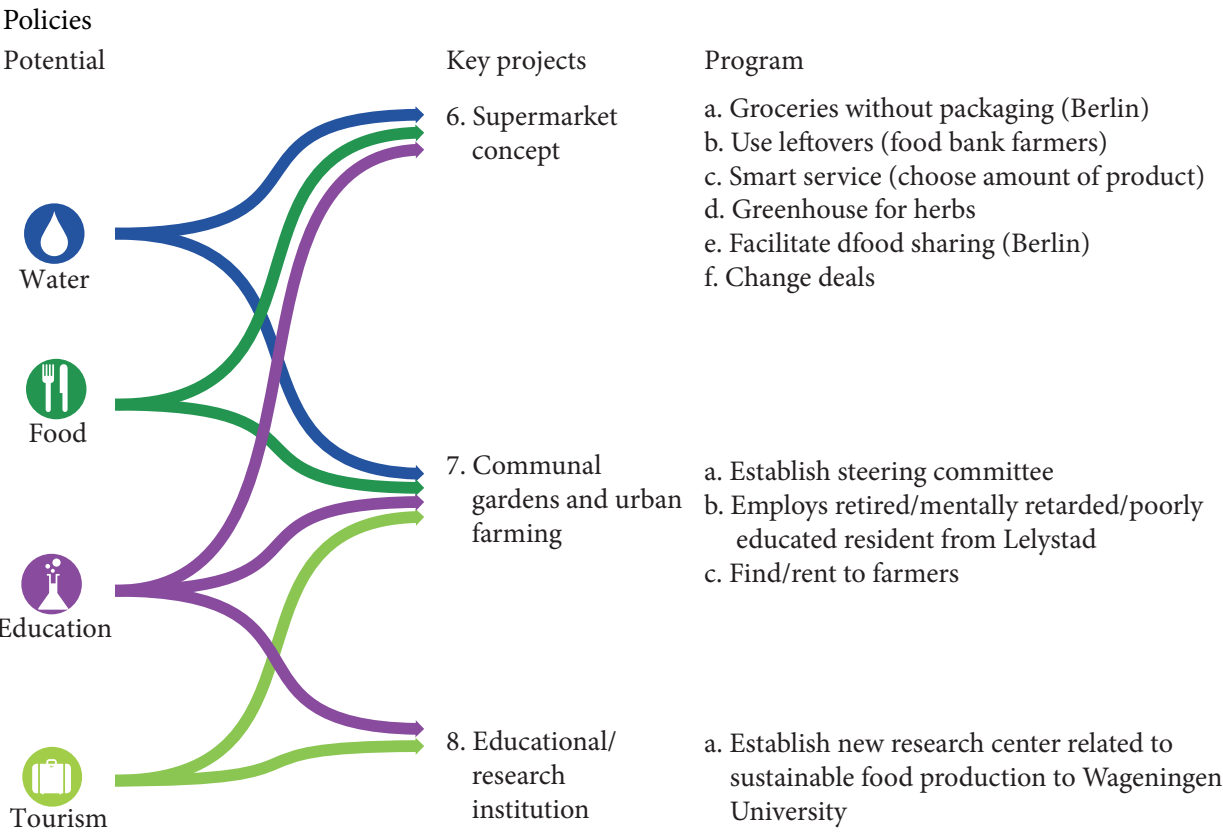
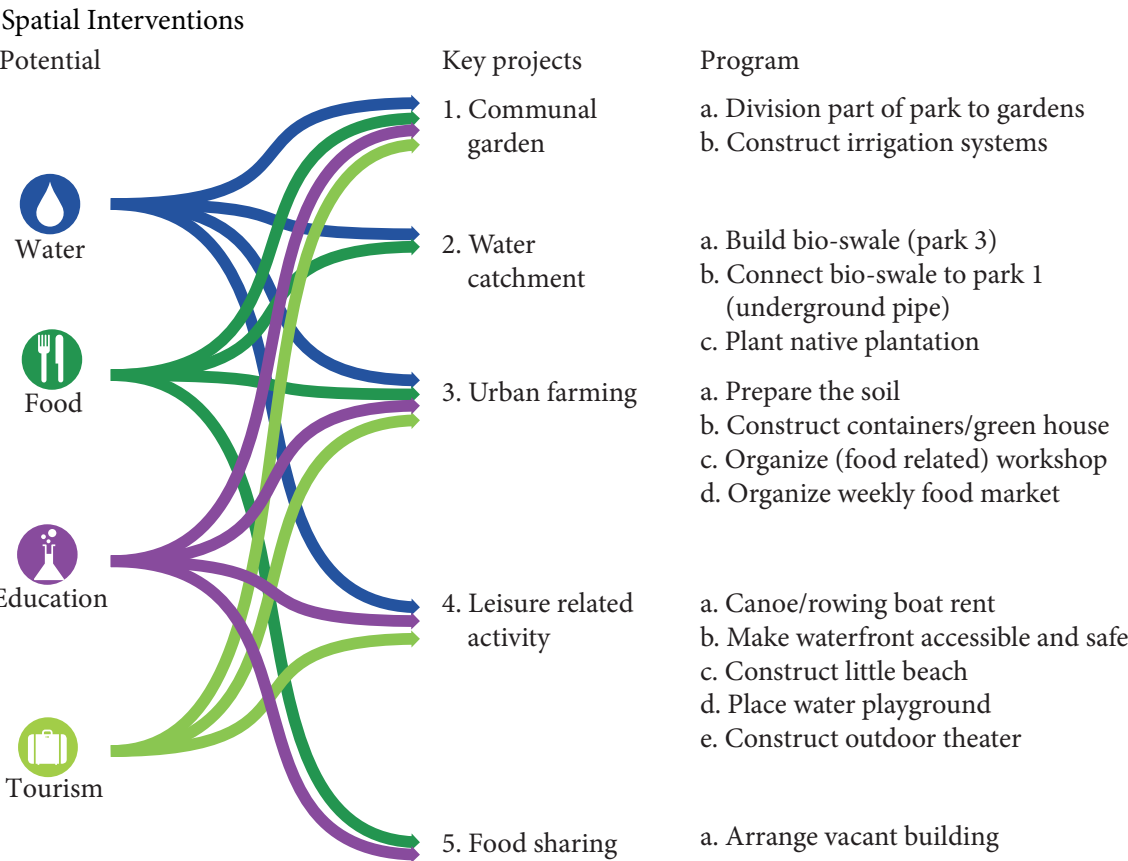


- Waterfront
- Activities
- Facilities

CASE 2: LELYSTAD

Proposed Changes

80



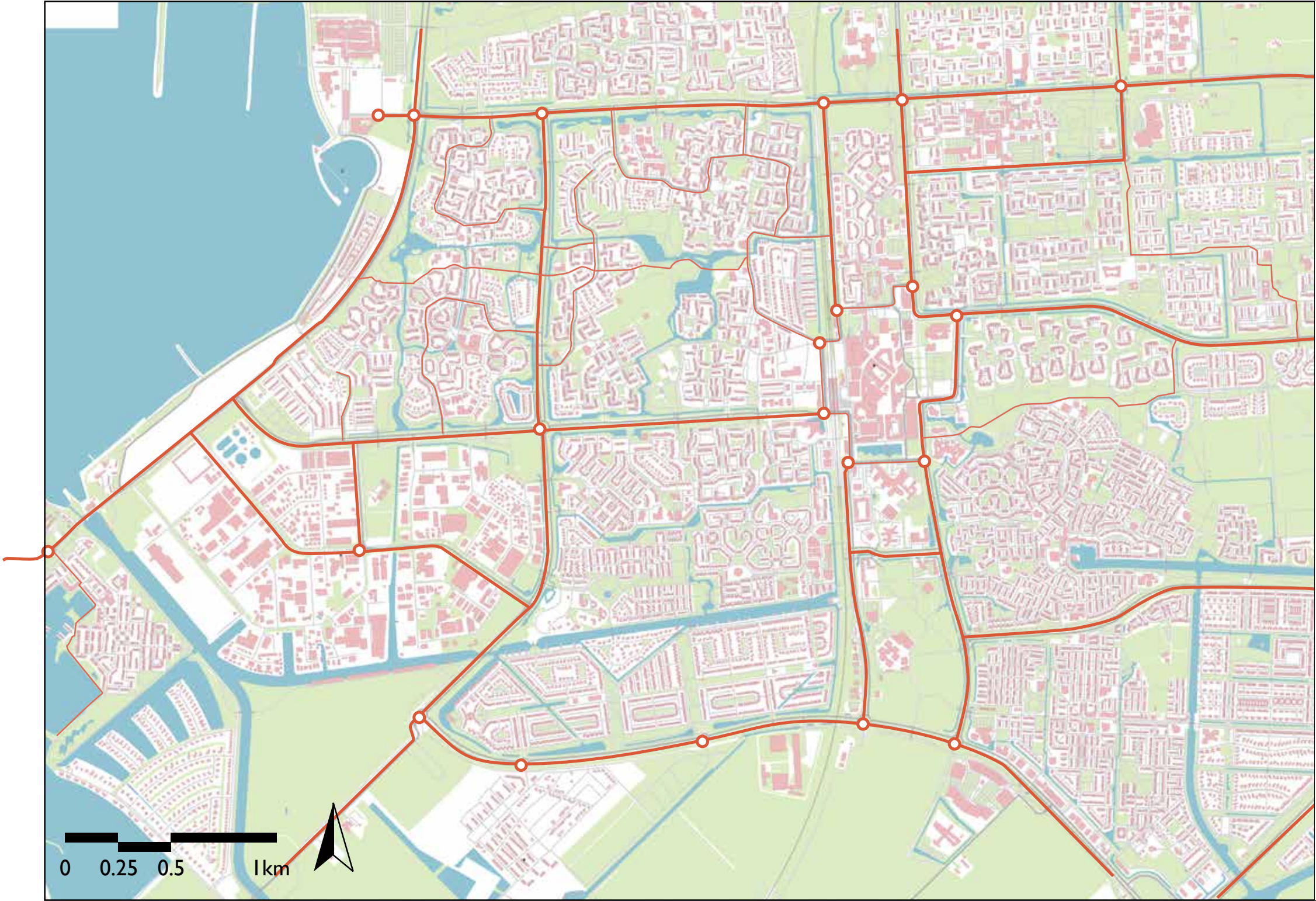
81

CASE 2: LELYSTAD

Existing Situation

The intervention area of Lelystad is located throughout the city and includes several parks. At the moment, these parks are not all functioning well, so the municipality decided to redesign them. We used their vision to locate the key projects.

EXISTING SITUATION



- Existing program:
- main road
 - secondary road
- Potentials:
- water
 - food
 - knowledge industry
 - tourism
- Proposed key projects:
- ■ ■ P1. communal garden
 - ■ P2. water catchment
 - ■ ■ P3. urban farming
 - ■ ■ P4. leisure related activity
 - ■ P5. food sharing

CASE 2: LELYSTAD

Proposed Situation

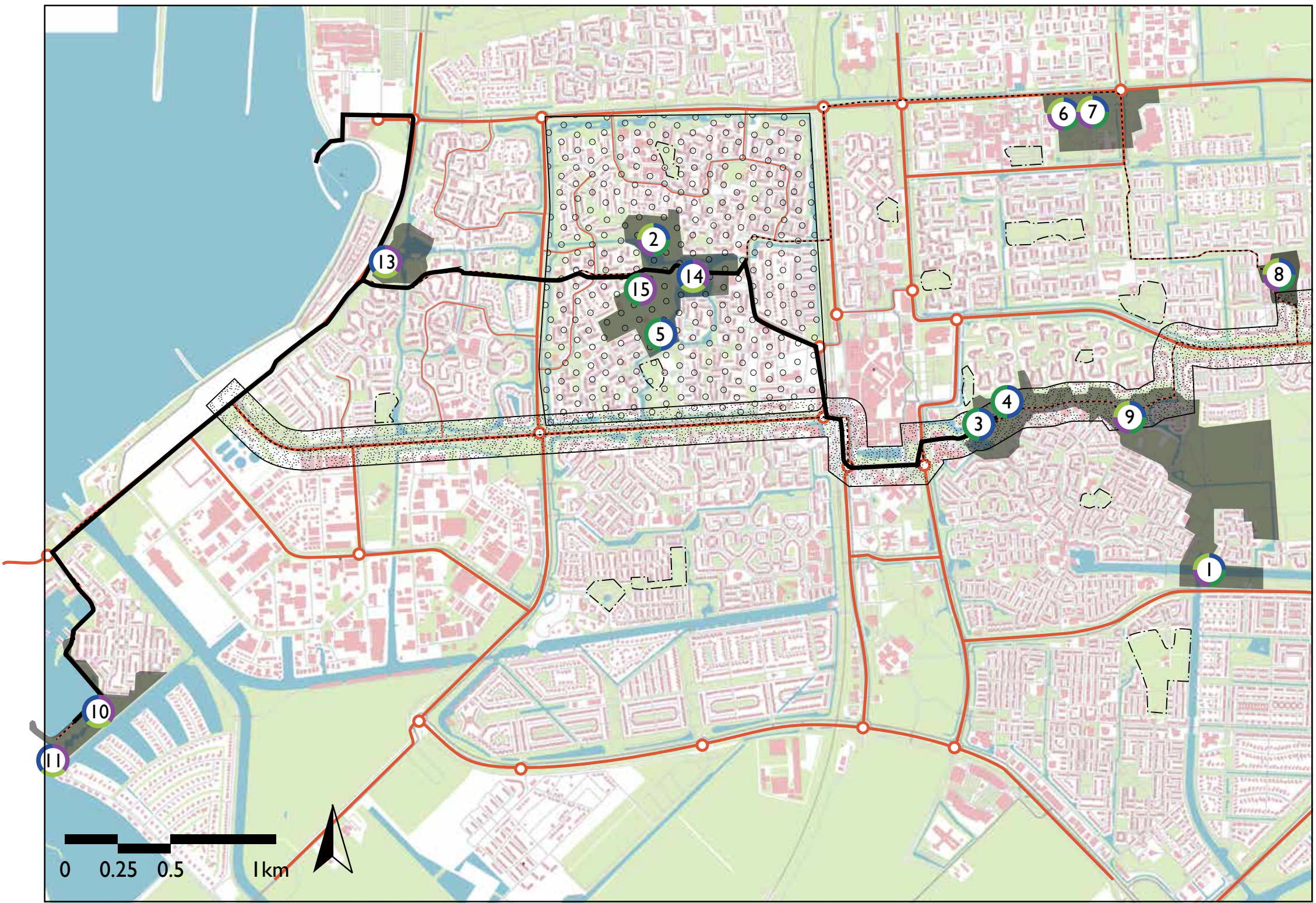
As intervention typology for Lelystad we propose a network of interventions. In this case, interrelated interventions of small and medium size will take place on different locations within the midsize city.

This proposed network will revise the current functioning of the city and increase the quality of life. Furthermore, the links between the different locations will be reinforced, and from there enhance the infrastructure in general.

As the natural surrounding of the city has a high value for the city, the environment has to be protected. Therefore a transit orientated development is proposed, allowing only the area around the train station to be densified.

84

PROPOSED SITUATION



Proposed program:

- bioswale connection (P2)
- food sharing area (P5)
- communal garden committee (P3)
- food logistic flow (P3)
- tourism path (P4)
- key projects

Proposed interventions:

- P1 1 division part of park to gardens
- 2 construct irrigation systems
- P2 3 build bio-swale
- 4 connect bio-swale to other parks (underground pipes)
- 5 plant native plantation
- P3 6 prepare the soil
- 7 construct containers/green house
- 8 organize (food related) workshop
- 9 organize weekly food market
- P4 10 cande/rowing boat rent
- 11 make waterfront accessible and safe
- 12 construct little beach
- 13 place water playground
- 14 construct outdoor theater
- P5 15 building arrange vacant

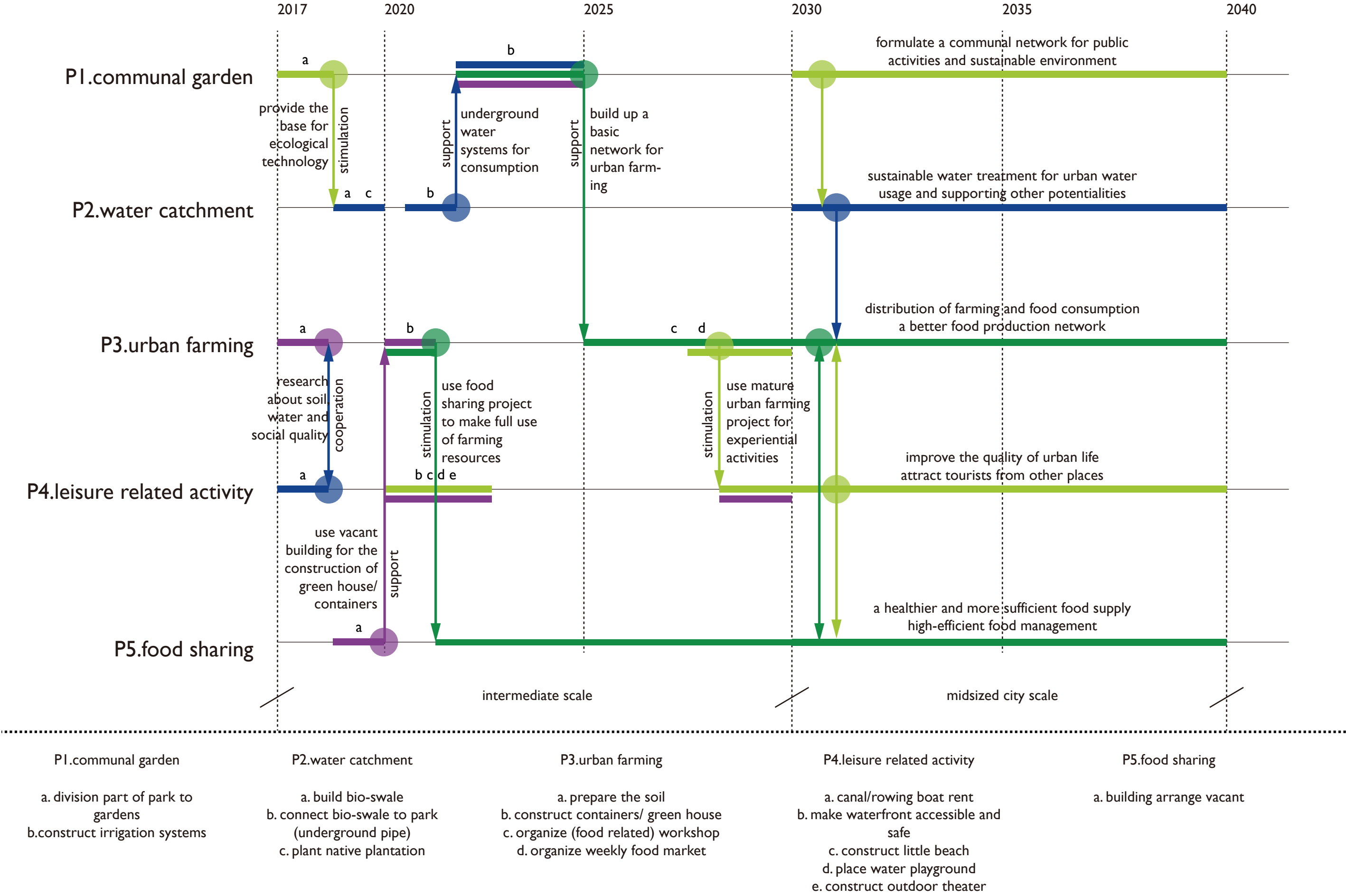
85

CASE 2: LELYSTAD

Timeline

This timeline indicated how the key projects of Lelystad are related to each other. Some projects have priority over others, because of their dependency. Every five years, one will reflect on the projects to revise the strategy where needed.

TIMELINE



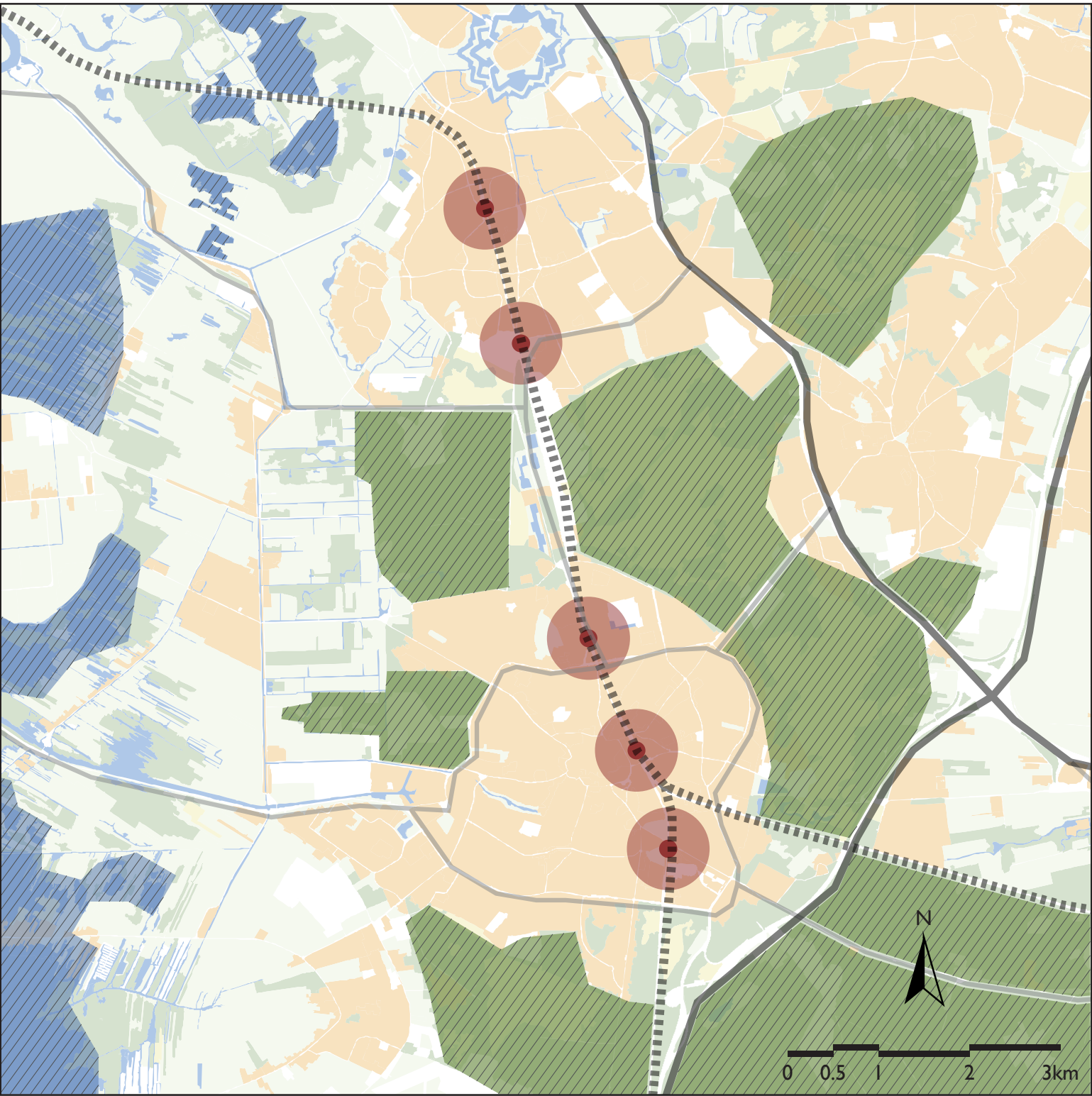
CASE 3: HILVERSUM

Spatial Qualities

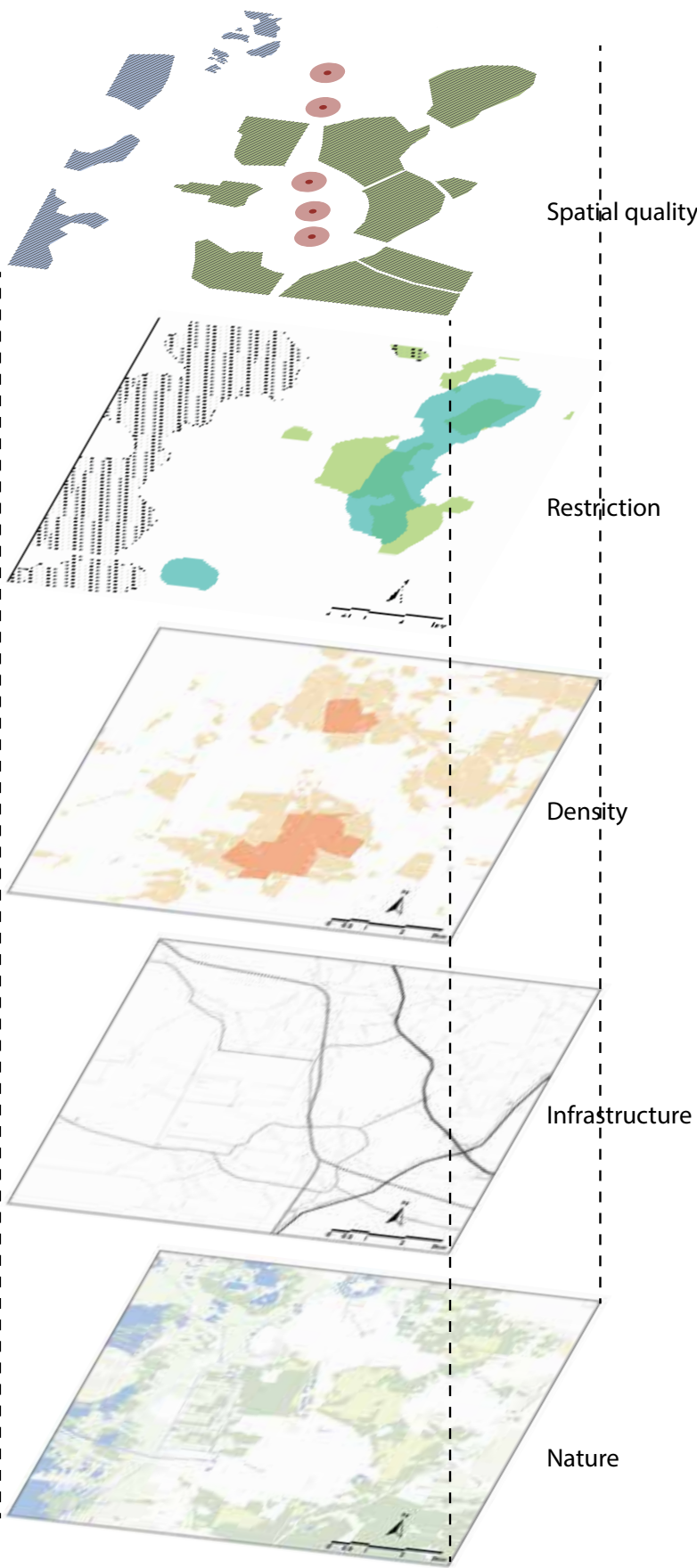
Hilversum takes benefits from its geographically good location close to the city of Amsterdam and is really well connected by public transport. Furthermore, the mid-sized city is surrounded by several blue and green local recreation areas.

Spatial qualities:

- Infrastructure hub & catchment area
- Waterfront
- Green areas for local recreation
- Blue areas for local recreation



SPATIAL QUALITIES



CASE 3: HILVERSUM

Potentials

Our evaluation has shown that the mid-sized city of Almere has the following potentials:

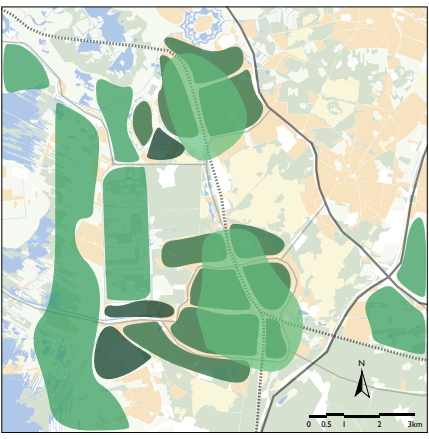
Resource flows:

- Energy
- Food

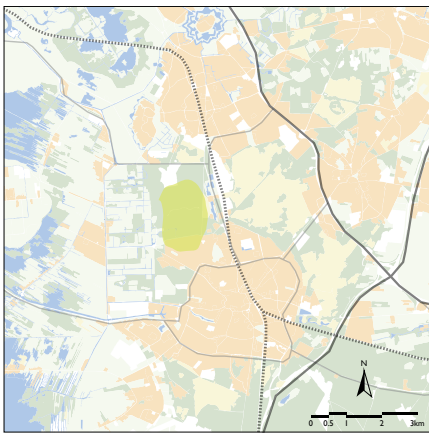
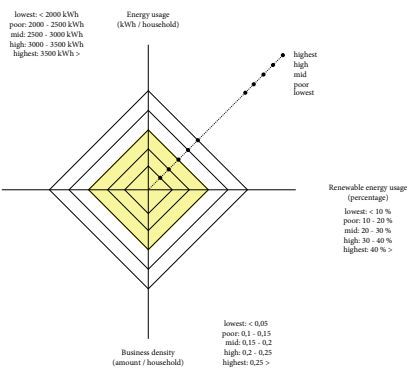
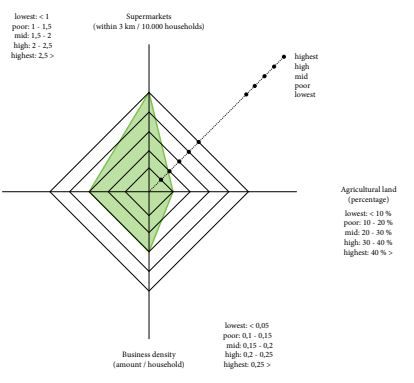
Economic activities:

- Knowledge
- Tourism

Food

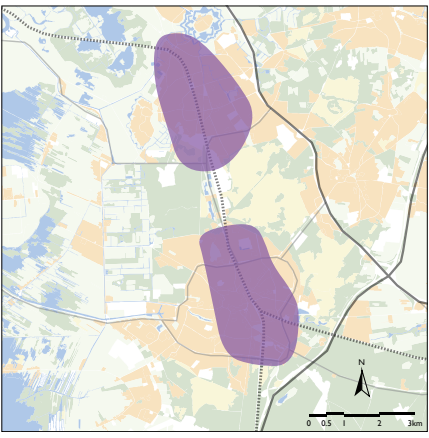


- Workshops, foodsharing
- Agriculture
- Communal gardens
- Urban farming

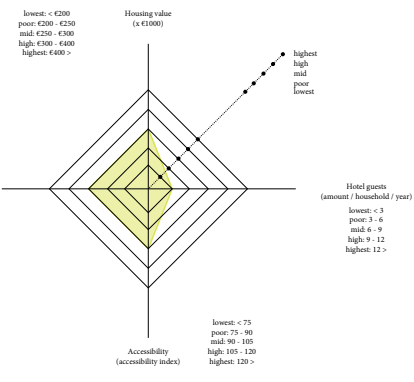
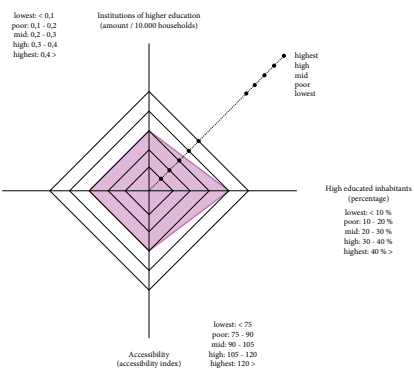


- Solar panels, ground heat exchanger
- Renewable energy

Knowledge Industry



- Urban density



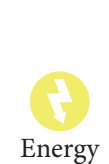
- Waterfront
- Activities
- Facilities

CASE 3: HILVERSUM

Proposed Changes

Spatial Interventions

Potential



Energy



Food



Education



Tourism

Key projects

1. Creative media park
2. E-transportation adaptation
3. Petting farm
4. Conservation-recreation
5. Gastronomic food waste
6. Social square education

Program

- a. Media education institution
- b. Leisure educative park
- a. Charging point for E-car and E-bike
- b. Infrastructure for E-bike lane
- a. Public agriculture park
- b. Daycare farm
- a. Conservation safari
- b. Flora-fauna sanctuary
- a. Food waste restaurant for food stamp
- b. Food processing school
- a. Adult education center
- b. Parenting school

Policies

Potential



Energy



Food



Education



Tourism

Key projects

7. Knowledge publication
8. Systemic vacancy
9. Waste distribution
10. Energy grid

Program

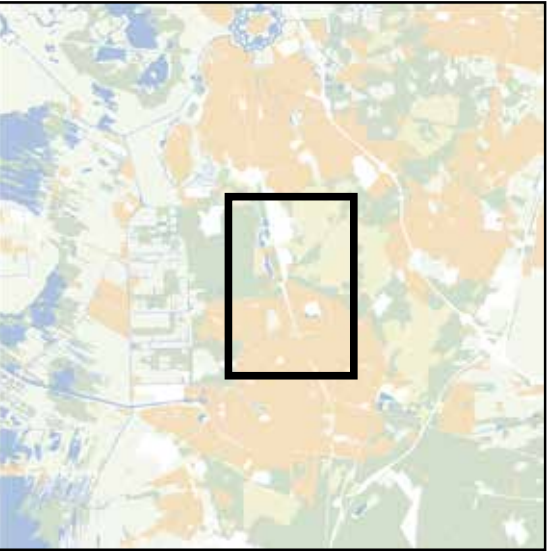
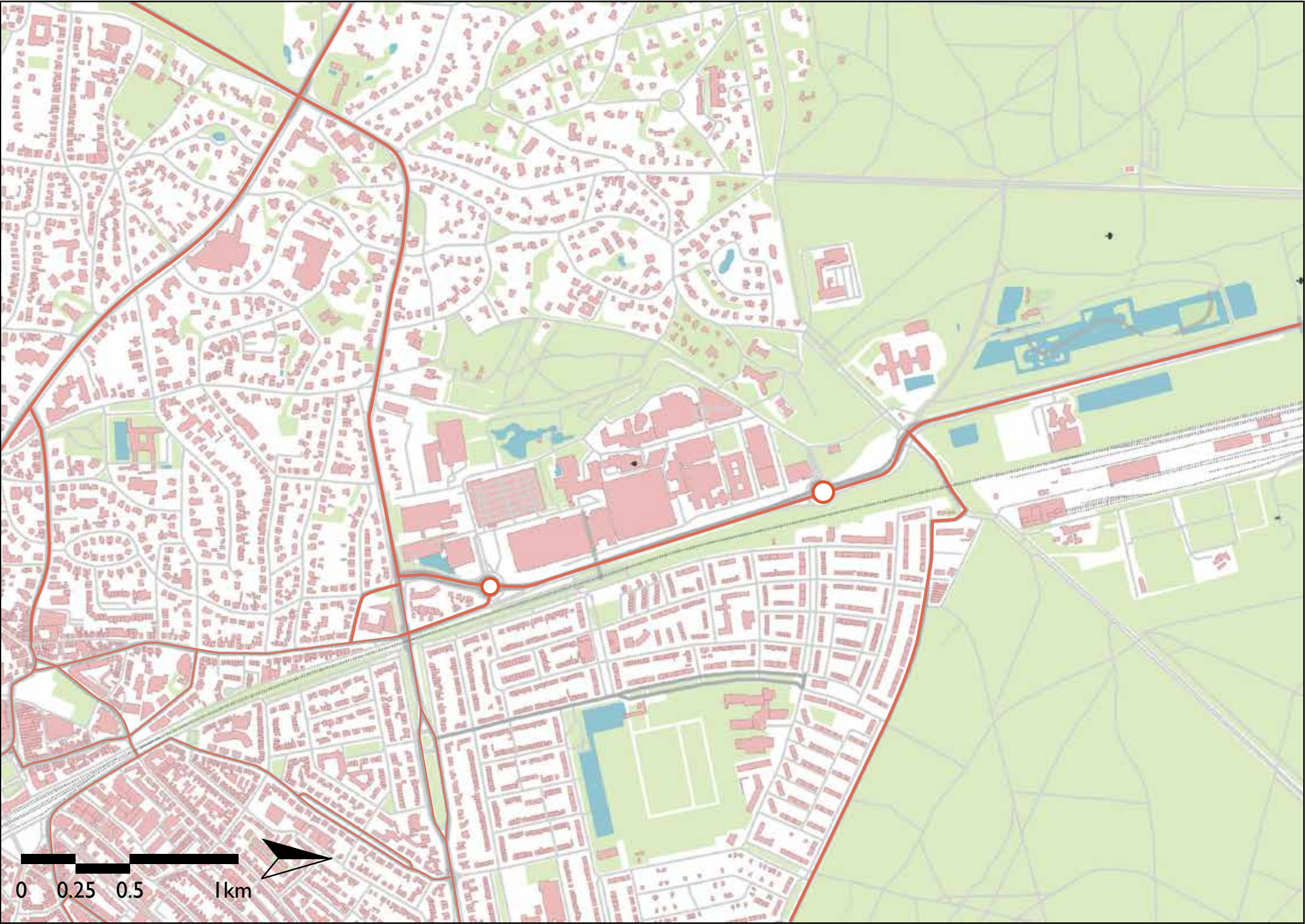
- a. Educative poster in public transportation
- b. Connect all the supply and demands of all the existing companies, offices, and industries via governed website to reveal the missing links. These can be a potential for another sector of economy and job vacancy
- a. Start up encouragement and vacancy information
- b. Resources cycle publication
- a. Organize the compost producer as local fertilizer for urban farming
- b. Organic waste management from supermarket and restaurant
- a. Householdsolar panel encouragement
- b. Outdoor charging point
- c. Electronic transportation shift encouragement

CASE 3: HILVERSUM

Existing Situation

The intervention area of Hilversum is located in the Mediapark. This location is very suitable for implementing pilot projects, since the Mediapark nationally known. In this way, we expect to raise public support and get a lot of attention for our sustainable projects.

EXISTING SITUATION



Existing program:

- main road
- secondary road

Potentials:

- energy
- food
- knowledge industry
- tourism

Proposed key projects:

- P1. creative media park
- P2. E-transportation adaptation
- P3. petting farm
- P4. conservation-recreation
- P5. gastronomic food waste
- P6. social square education

CASE 3: HILVERSUM

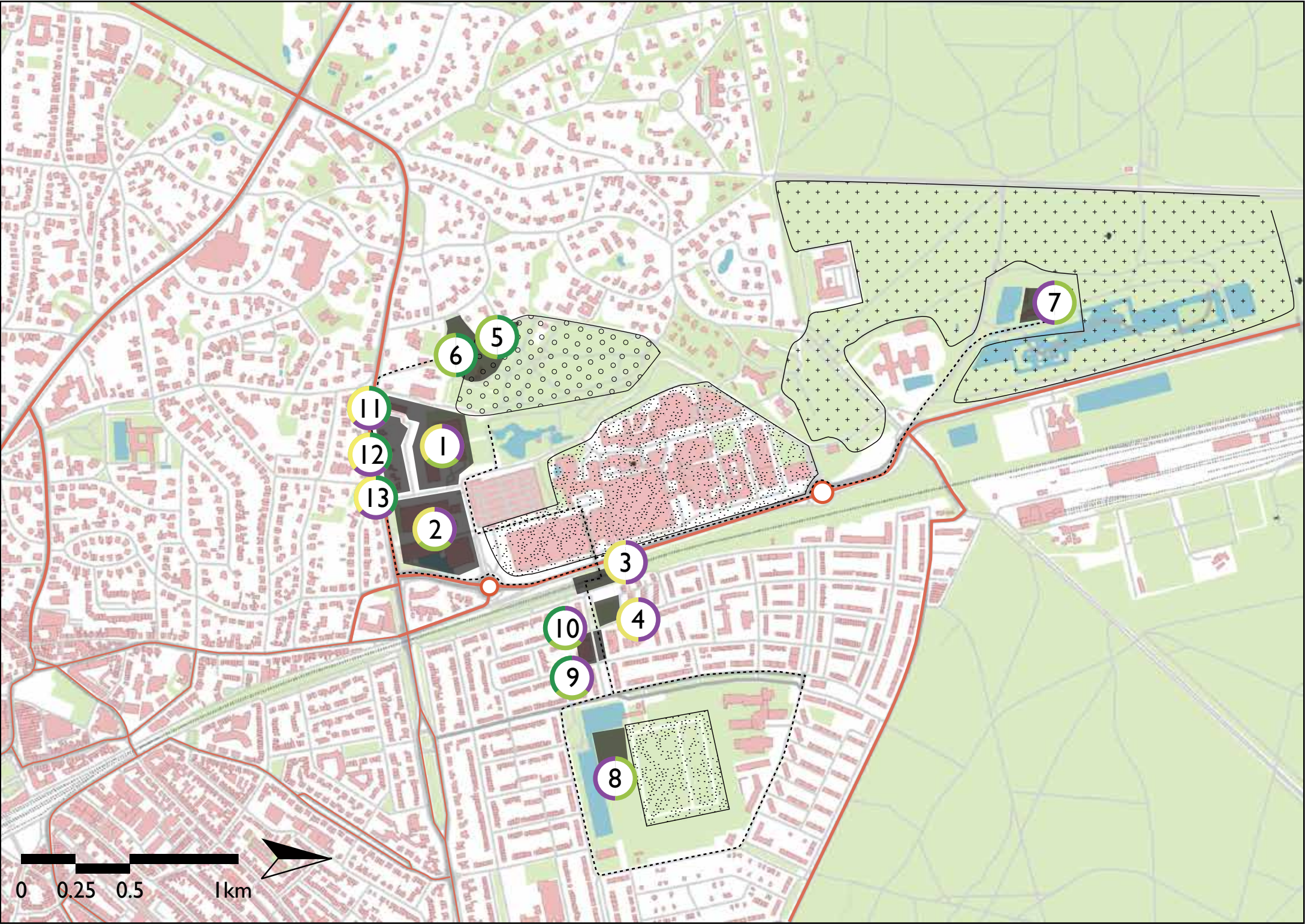
Proposed Situation

The proposed intervention typology for Hilversum is punctual. Even though the trigger project will be of medium scale, its impact can be measured on the regional and even national scale, since the intervention takes place in the Mediapark.

Due to its ideal geographic location and its good accessibility, Hilversum offers the perfect conditions for this kind of intervention. As Hilversum is of smaller size, compared to other midsize cities, it is of high importance to reinforce the local potential and give an identity to the city in order to make it more attractive.

Of course, the spatial qualities have to be preserved in order to maintain the high quality of life. Therefore, the average density of the city remains the same and only the areas around the train stations will get the possibilities for densification.

PROPOSED SITUATION



- Proposed program:
- educative media policy (P1)
 - urban park sanctuary (P3)
 - natural safari (P3)
 - E-transportation pathway (P2)
 - key projects

- Proposed interventions:
- P1 1 media education institution
 - 2 leisure educative park
 - P2 3 charging point for E-car and E-bike
 - 4 infrastructure advancement for E-bike lane
 - P3 5 public agriculture petting farm
 - 6 daycare farm
 - P4 7 conservation safari
 - 8 flora-fauna sanctuary
 - P5 9 food waste restaurant for food stamp
 - 10 food processing school
 - P6 11 adult education center
 - 12 parent school
 - 13 data center

CASE 3: HILVERSUM

Timeline

This timeline indicated how the key projects of Hilversum are related to each other. Some projects have priority over others, because of their dependency. Every five years, one will reflect on the projects to revise the strategy where needed.

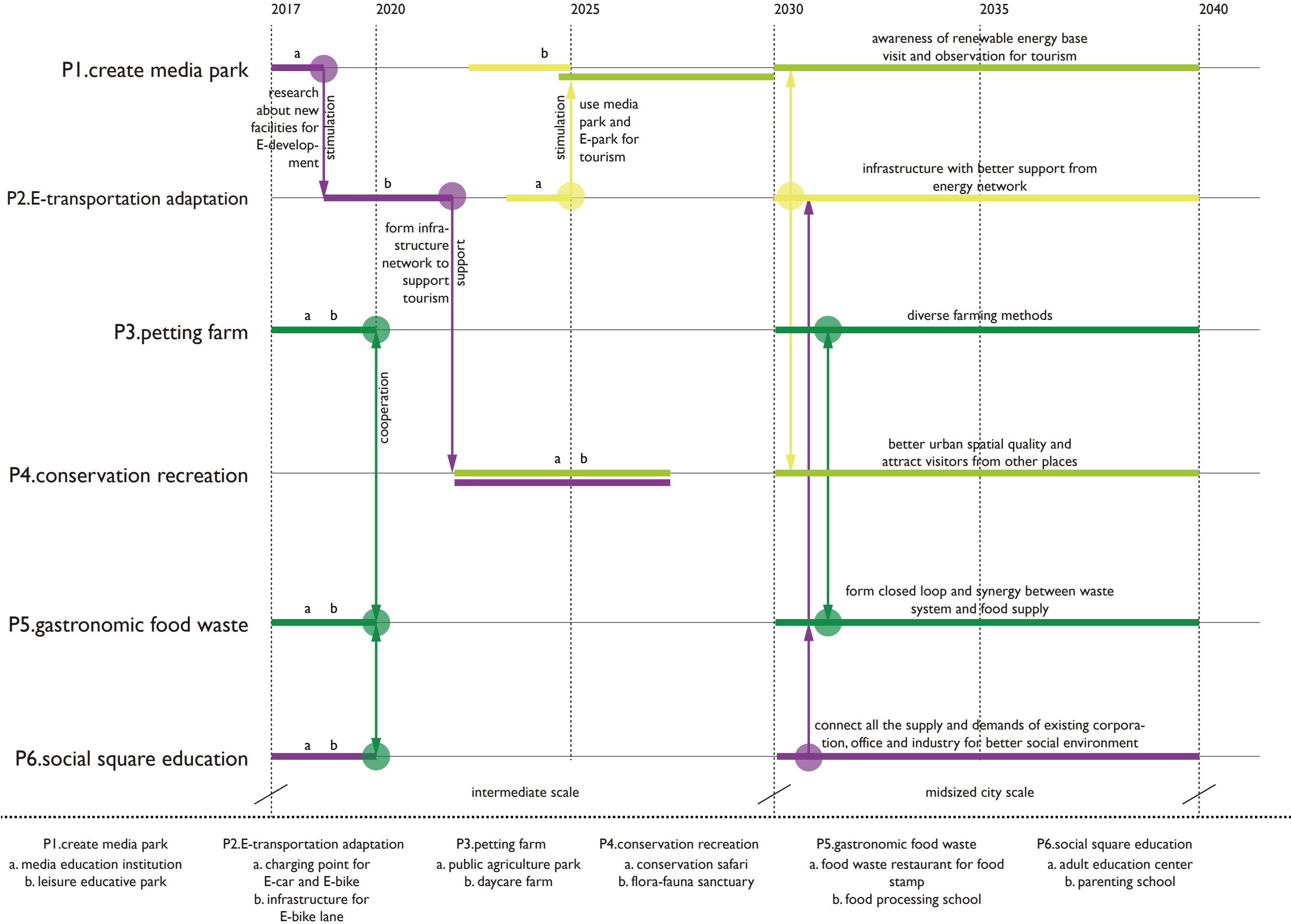
Energy

Food

Knowledge Industry

Tourism Industry

TIMELLINE



Societal Impact

Of course this project will have an impact on society. Ethical considerations will be questioned, just like the scientific contribution of the project. And when the project will be implemented, what will be the next steps? The following descriptions will give insight in these aspects.

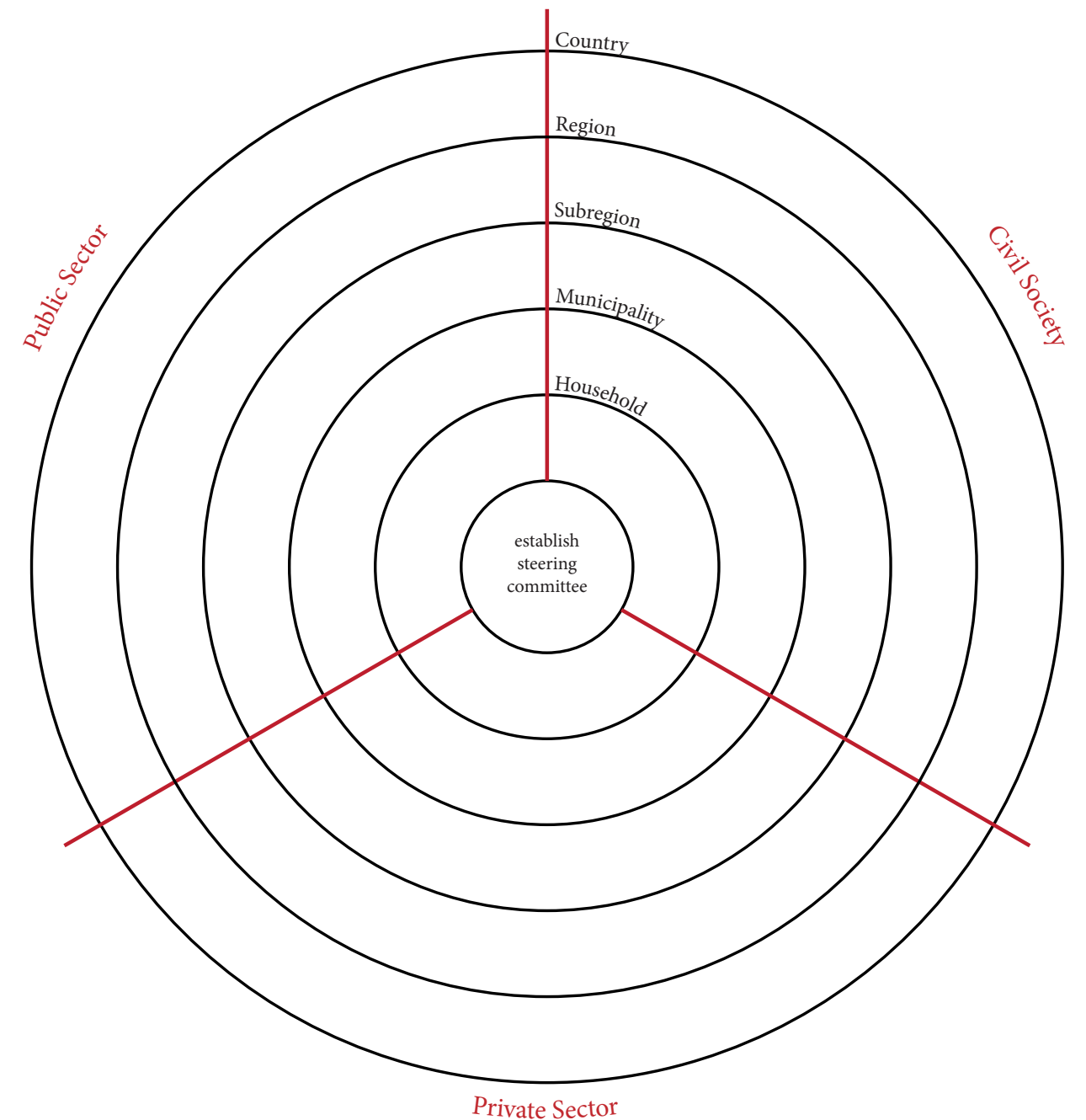
ACTOR ANALYSIS

As every intervention is defined by a certain level of complexity and by time, we developed a strategy to illustrate our interventions. The intervention takes place on a certain scale and is promoted by a certain category of actors. For the categorization of the actors, we are differentiating between 3 types: the society, the private sector and the public sector.

Every intervention always involves the 3 categories, but their level of involvement might differ. For example: A project elaborated by the public sector is paid with tax money and has to benefit the society, but the project is carried out by the private sector (consulting firms, construction companies,...).

Some projects might have a favourable impact on only 1 or 2 of the aforesaid categories, therefore it is necessary to ensure that the intervention network is balanced and beneficial to all the groups.

Since the project needs to have a few people who keep the overview and steer the process, a steering committee will be established. This event will also indicate the kick-off of the project.



Values, ethical issues and social contribution

The AMA's polycentric model currently suffers from a functional, economical and environmental imbalance. Our project 'Growing the Dutch mountains' targets two main problems; improving the quality of life and aiming for a more sustainable system. By transforming our vision into reality, we are tackling several ethical issues and adding values of different nature.

The value of the midsize city and its role within the polycentric model are redefined by reinforcing its potential and hidden qualities. The enhancement of the local economy will stimulate the job market as well as the commuter problem. The current trend of living in a midsize city and working in Amsterdam will change to living and working in the same place. This change will increase the quality of life in multiple ways; more time for family and friends, leisure time will gain more importance, less stress related problems, lower impact on the environment, etc.

The existing economic potential of each midsize city will be strengthened in order to give them an identity and create an enhanced economic system. Even though the city of Amsterdam will still play a major role on a national and an international economic level, the polycentric model will be balanced.

Furthermore, the environment and more precisely the protection of the nature, is a moral question on which sometimes not enough attention is paid to. To avoid scenarios where there is no available space for nature (green areas) anymore, as it can be currently noticed in the city of Amsterdam, nature protecting policies have to be introduced. The preservation of nature is not only necessary to maintain a good quality of life, but it is also the habitat of many animal and plant

species. Nature reservoirs, parks and urban spaces serve also as recreational areas for the residents.

Not only the protection of the nature calls for urgent improvement, but also the depletion of the natural resources requires us to rethink our present consumption patterns. Facing a complete depletion in the near future, natural resources will have to be replaced by environmentally friendly alternatives. In order to reach a change in the current systems, people's moral responsibility and their awareness of the current problematic have to be raised. By improving the system and by creating a more equal distribution, a higher level of sustainability may be reached.

With the help of our project, 'Growing the Dutch mountains', we aim to bring the interaction back to a proper equilibrium. We aspire to reach a balanced model on the economic, environmental and social level. By tackling the issues on different levels, going from local to global, a better functioning on all scales can be guaranteed. The well-being of the residents and the protection of the environment being our main focusing points, we try to offer maximal quality of life for the residents and enhance the qualities of the environment they live in at the same time.

In this process of equilibrating the interaction the role of the urbanist has to be defined. In such complex projects a clear task division is important in order to make the project succeed. In general, the urbanist will be working on both policy planning and spatial design. The involvement is defined more precisely for every research topic (midsize cities, circular economy, sustainability and functional polycentric model) and can therefore be found in the Theoretical Framework chapter.

In order to develop our project, we elaborated on a new combination of existing theories: the concept of midsized cities, circular economy, the sustainability triangle and the functional polycentric model. We made use of existing theories that are all related to our vision: reinforce the existing polycentric model in the AMA by making it more sustainable and efficient.

By combining existing theories and involving our proper understanding of the topics in question, we developed a methodology that makes possible to evaluate the qualities and potentials of a Dutch midsized city.

Besides the methodology, we also show a proposal for intervention typologies. Depending on a city's structure, its location and its needs, a typology of intervention is proposed. The typology already gives information about the future role of the city within the polycentric system and indicates the level of impact that the intervention will have.

As already mentioned before, this methodology is applicable to all dutch midsized cities and contributes to a better understanding of the role and importance of the midsized city within the polycentric model.

RECOMMENDATIONS

Influence

At the moment, the city of Amsterdam is the main pole of attraction and influence. Being the dominant mountain in the economic landscape of the AMA, the Dutch capital is not only offering an important number of jobs, but it is also the place where the most important decisions are made.

Playing an important role on national and international level, the city of Amsterdam has a huge influence on the functioning of the AMA and the surrounding midsize cities.

By reinforcing the functionally polycentric model of the AMA, the current monopoly of influence will turn into a network of influence. Even though Amsterdam and its performance will still have the greatest influence on the region, the midsize cities will play a more important role in this system in the upcoming years.

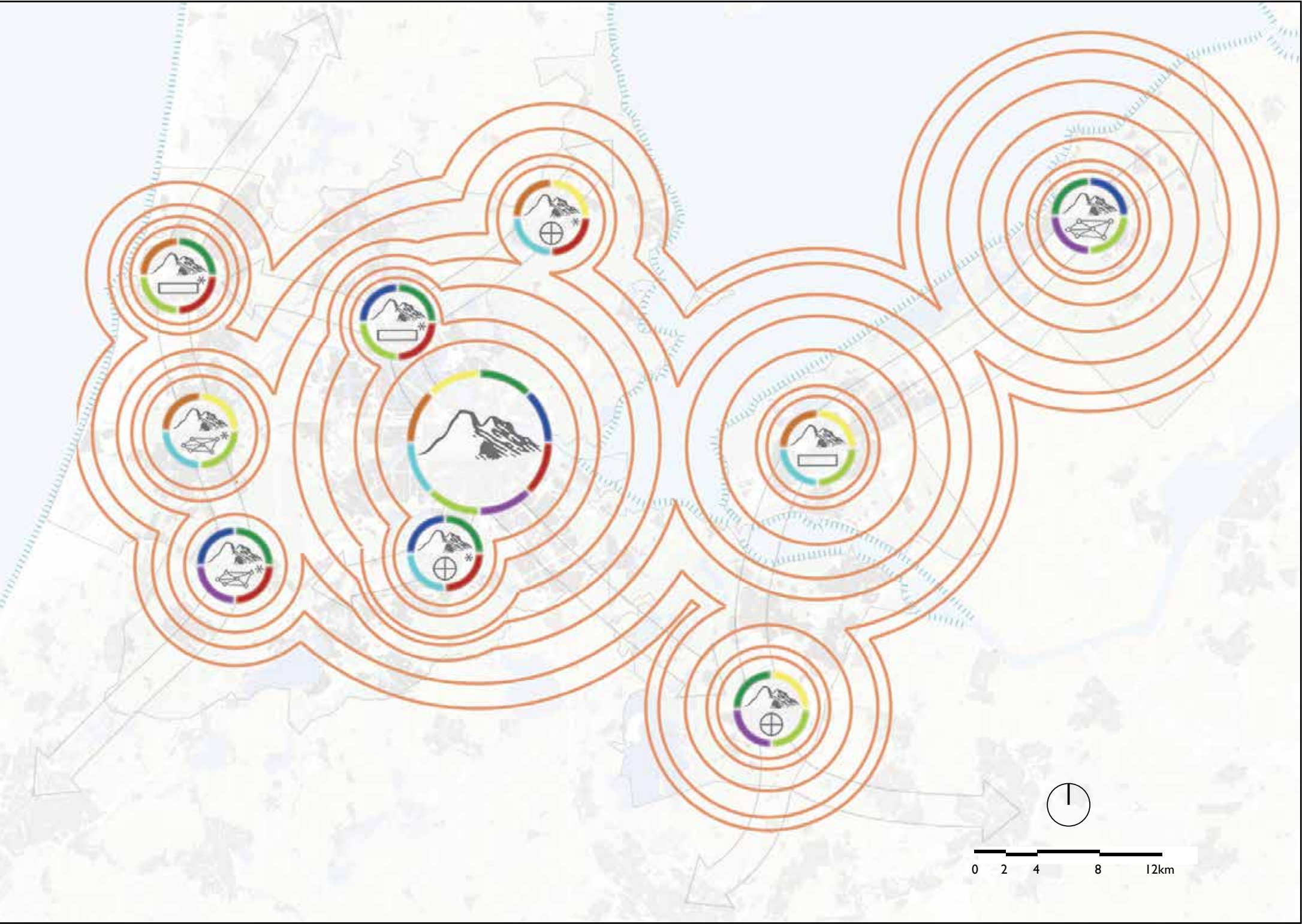
Application of the methodology

The methodology that we have developed for our project is strongly relying on the idea of the Dutch midsize city. Not only that we chose the Dutch midsize cities as intervention areas, we calculate the qualities of the midsize cities in relation to the model example: Haarlem.

Furthermore, the proposed potentials (resource flows and economic activities) are based on the existing conditions of the AMA and the Netherlands in general.

A recommendation for a further step would be to apply this strategy to the other midsize cities of the Netherlands, since the proposed methodology can be applied to any Dutch midsize city. Even though the evaluation of the qualities and potentials is theoretical, due to the variables, the proposed designs are evidence based and rely on the specific conditions of the area.

CHANGED INFLUENCE



On this map you see how the cities of the AMA should relate to each other. They form a systems of cities which are complementary to each other. The economic area of influence, currently Amsterdam, will be supplemented with the midsize cities.

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Appendices

Appendix 1: Personal Reflections

Appendix 2: Data

APPENDIX 1: PERSONAL REFLECTIONS

Vera Nimax, 4631803

Reflective writing helps to gain a better insight of the work by reflecting on the experience. The following paragraphs will cover a critical reflection on our regional design process relating to the gained knowledge from the SDS lectures, as well as a self-reflection on my individual learning journey.

Since the beginning, many aspects of the assignment made me nervous, but also very curiosity. This was not only related to the fact that it was the first time that I worked on a project of regional scale, but also that until then, I had not familiarized myself with the subjects of sustainability and circular economy.

It is known, that in order to be able to develop a regional design proposal, knowledge and guidance is needed. Consequently, a range of lectures and workshops were given on a weekly basis to instruct on the subject. The SDS lecture was part of this coaching.

The lecture revealed different approaches and views on sustainable regional development. By getting a broad knowledge of the possibilities made me increase my focus. At a later stage, through intensive reading, I tried to have these topics flow into our project. Although, I noticed that I concentrated a lot on the topics of my own interests, I was thus able to gain supplementary knowledge of topics that I otherwise might not have dived into. Besides motivating me to expand my knowledge, the lectures also nurtured my critical thinking skills which I believe are imperative.

By contrast, because of the direct involvement of the project in the workshop, the necessity of the treated topic was easy to understand. Starting with an explanation of the subject and then immediately

involving the work groups, made the topic more comprehensive for me. The newly gained knowledge was immediately applied and thereby it was easier for me to understand the connections and benefits.

During the workshops, our group was able to discuss the topic immediately (due to previous research), and each group member was able to defend his/her understanding of the topic. For me, this was a very important characteristic of the workshop, because it gave me the opportunity to phase out any misinterpretation and get a better understanding before applying my knowledge to our project. Furthermore, I played an effective role in the implementation process as I had the opportunity to defend the significance of my ideas since the beginning.

Especially the session about the 'roadmap' from Vincent Nadin was particularly helpful. Before, I had difficulties to phase our project and to define the concerned actors for each of the phases. The biggest challenge was to be aware of all the different kinds of actors and their active roles, which I was able to do in the end.

To conclude this reflective writing, I have to admit that, during the lectures and during the writing of the assignment, I have learned what the regional design process consists of. I was also able to utilise many of the elements I have learned in order to work on something very interesting. The lectures of this course helped me to organize this assignment and to structure my thoughts and actions. They inspired me to think in all directions. But in the end, reflecting on what you did will make you learn and help you for your future.

Wentong Wang, 4618572

The SDS course helps me form a coherent system for spatial design instead of only focusing on one or two characteristics. The main reflections can be summarized into four aspects:

1. Continuous visioning

Firstly, based on a wide range of reveals about location, infrastructure and flows, the vision of a region can be formed, which will be followed by a series of possible scenario. At the same time, the vision could be divided into different goals, from macro to micro, which should be both feasible and continuous. Using these goals, the regional spatial structure can be easily linked with both economic sectors and resources flows. It is precisely because of economy and resources, the metropolitan area can be deeper understood in practical level, which is a response to goals and vision.

The other thing about vision that I learned from SDS course is that a vision should be persuasive. In order to be convincing, the vision still need to be continuous so that the actors of action can understand the planning process consecutively. The vision is setting accorded goals that have actors, systems and actions. The missing of one link within the vision could make it intermittent and even unreasonable.

2. Through the scales

Secondly, in order to reinforce the vision of metropolitan area, it is not enough to just reveal the spatial structure and resources flows in regional scale. After all, understanding the vision on a regional scale may cause general action to achieving the goals. So after setting out the vision and goals, it is essential to make them spatial through the scales.

In the planning processes, we use this method that is from Francisco's lecture and also mentioned by other

lectures to form our methodology and intervention. This makes me realize the importance of scale: not only the vision and goals decide that in which scale we apply our strategy, but also the scale affects the vision and goals about how precise it should be.

3. Layering approach

Thirdly, when reinforcing the spatial structure and resources flows in small scale, the layering approach is easier to reveal that things, especially for projects and programs that are the crucial things to show the intervention for regional design. Moreover, spatial strategies for region are not only related to spatial structure and resources flows, but also to the life quality, spatial quality and potentiality. This big and complex system needs to be revealed through both space and time, also through different layers.

4. Strategy and phasing

Last but not the least, we need a set of strategic action that through time for operating the vision. Meanwhile, the strategy consists of actors and time, which means phasing is important to see how the strategy and actions work. When operating the strategic actions, we need to find the most potential actors and integrate the existing resources and spatial structure for creating trigger projects. Only by clarifying the interests and powers of stakeholders, we can accurately find the target customers, so further we can find the phasing for the strategic actions according to their relation and synergies between different resources.

During the whole course, I gradually form a new system for regional planning and design that is different from what I have learned in China because of the different context. And notably, I get a basic framework of the regional planning process and circular economy.

Reza Arlianda, 4624394

The limited availability of the resources is the background issue in the commission to envisage the functionality of Amsterdam metropolitan area. The scarce resources, that claimed as the common property of the society and should be envisage to recreate the valued common for the future, tend to be fragile and easily privatized by the short-termed interest of some stakeholders. In “Rebel City”, David Harvey give the example that the natural biodiversity and indigenous people culture which inherently a common goods should be protected by a higher authority, that therefore the enclosure of the resources can be justified (Harvey,2012; p70).

As it is normatively agreeable that producing the common goods should be the goal in the fabrication of the common property, the quantitative parameter of the design is defined by the higher authority that elected by the greater democratic scheme (which also include the academic legitimation for the solution). Given this situation, then the roles as an urbanist are arbitrarily moving into the spectrum of the strategic planner, in which we are no longer needs to exercise the value and start to reshape the spatiality of the region into a friendly place that can attract the competent actor in resources management and the feasible investor to realize it.

To attract the feasible actor and investor, the economical perspective in supply and demand encourage the “place-neutral” approach to ensure the reinforcement of intervention without any local disturbance (socially and technically). The approach is illustrated in the world bank’s arguments that the policies should be emphasized in the people (in which can be argued as the euphemisms of market) rather than the place (World Bank, 2009). Within this framework of the strategic planner, we are more focused in the efficient potential exploitation in the perspective of circular economy, and using the midsize city theory only as spatial justification of the resource potential revelation.

This way of working as a strategic planner generates the positive and optimistic advertising claim towards the possibilities with all the general idea. But when it comes to the specification of the space, the conflicting personal value arise as it turned out that we only focused on the maximizing the collective functionality based on the circularity of resource flows and economic sectors perspective, but lack the intimate understanding of the image of the city. In respond to the late realization of the role, only after we shift our role into communicative planner that focused more on the contextual knowledge we can continue to generate a mixed idea of circular economy and the identity of the city.

It is about exercising the role as a designer. As a strategic planner, even though we are more focused and convincing, we tend to arbitrarily force our simplification perspective ideas (which intentionally to be altruistic) into a complex society that often wander outside our own comprehension and theoretical framework. Even though the hierarchical and greater scheme democratic decision have been established by the elected political figure, the advocative design insight that can ensure the recreation of its common properties can only be generated by the one who continuously communicate with the city in the intimate scale.

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Marieke Oosterom, 4283759

Complex. That’s how I would describe this third quarter. Conduct a regional design, which consists out of a spatial vision and an associated development strategy, for a region of nearly 2600 km2. Oh and please include the concept of ‘circular economy’. I felt completely lost during the introduction, but then, the first SDS lecture took place. Steffen Nijhuis told about landscape-based strategies for regional planning and design. Inspiring examples were shown, like the Room for the River project and Emscher Park. An important key message for me: “*Look at the landscape as a living system. The structural elements remain the same, but details change.*” This ever changing aspect of landscape is beautiful, and could be a nice starting point of the project. Starting point, because, according to Steffen, one should always consider different perspectives on regional design, to foresee mistakes.

In the week that followed, teams were created. Reza, Vera, Wentong and I started to make great plans for the dynamic and interesting region, of which we now had to map all the resource flows and activities. But how do you actually show moving systems in a map? This turned out to be a hard job. Fortunately, the organisation of the course had been thinking about this, and the workshop of Alex Wandl and the REPAiR team came exactly at the right moment. They explained us ways to map flows and gave us useful tips. You should always consider your system boundaries wisely, in order to be able to compare different systems, for example. At this morning, we found synergies between systems, which still form the basis of our plan.

It became more and more clear how to build up the

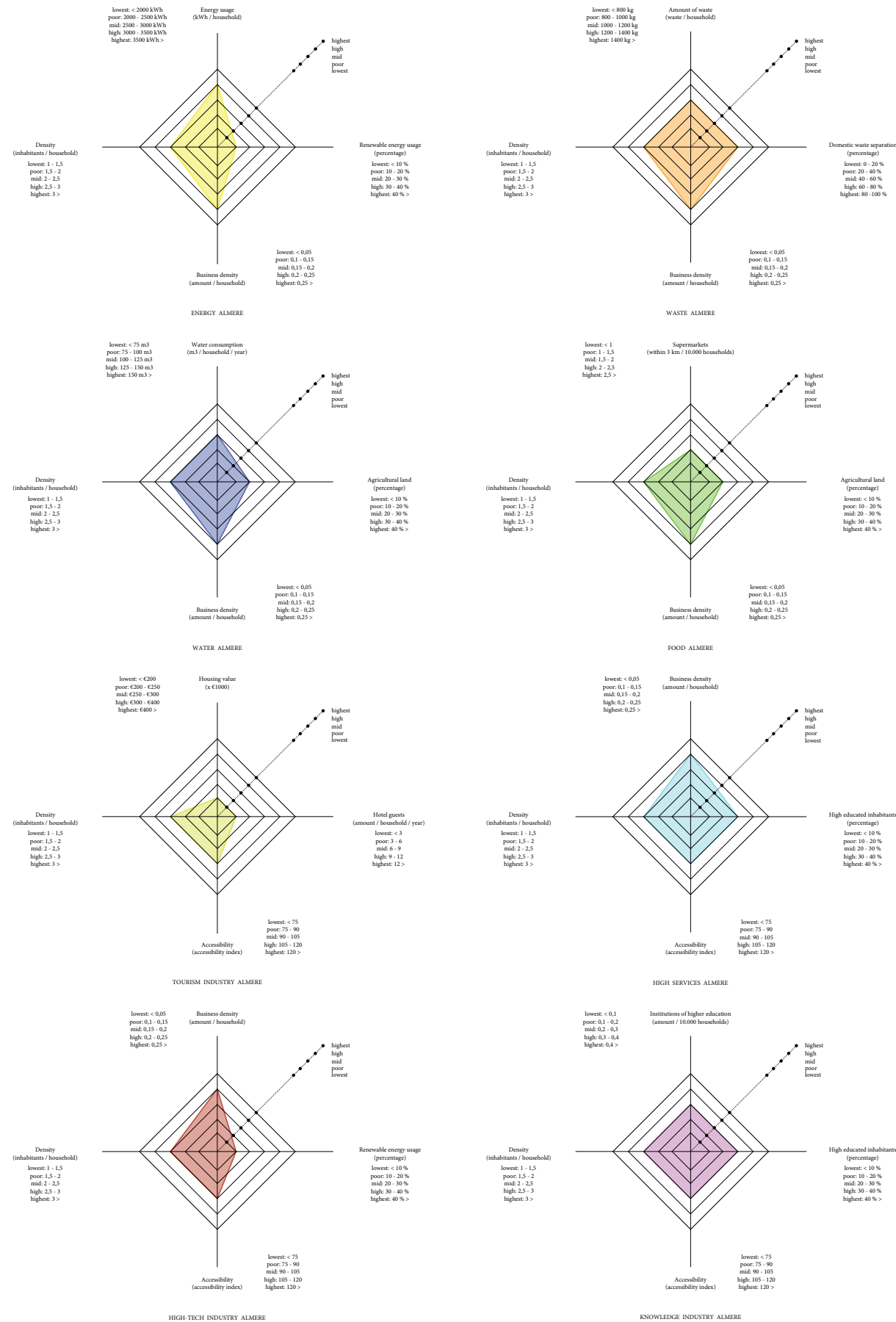
process towards our vision. The methodology lectures were also really useful for this. We defined our own methodology, which really helped us to keep the overview. Just before the midterm presentation we had the lecture of Marcin Dabrowski, who provided us with useful information and schemes about interests, problem perception, goals and power of several actors. The workshop which went together with the lecture was very welcome, just before the midterm presentation. The schemes could immediately be used, and gave insight in the situation, with municipalities, private companies, Schiphol, knowledge institutes, water boards, and so on. This turned out to be more complex than we initially thought.

After the midterm presentation, Nico Tillie gave a very nice lecture about synergetic urban landscape planning. Apart from the content, the attitude and way of presenting of Nico appealed to me. Since I would like to improve my presentation skills, I am always looking for good examples. Apart from nice references he also gave us small but interesting tips. For example how you should always first reduce the energy usage of areas where poor people live, since they need it the most. Or how urban farming relates to much more systems than just food and water. These small facts are actually really nice to hear from someone, since you only get to know this kind of things by experience.

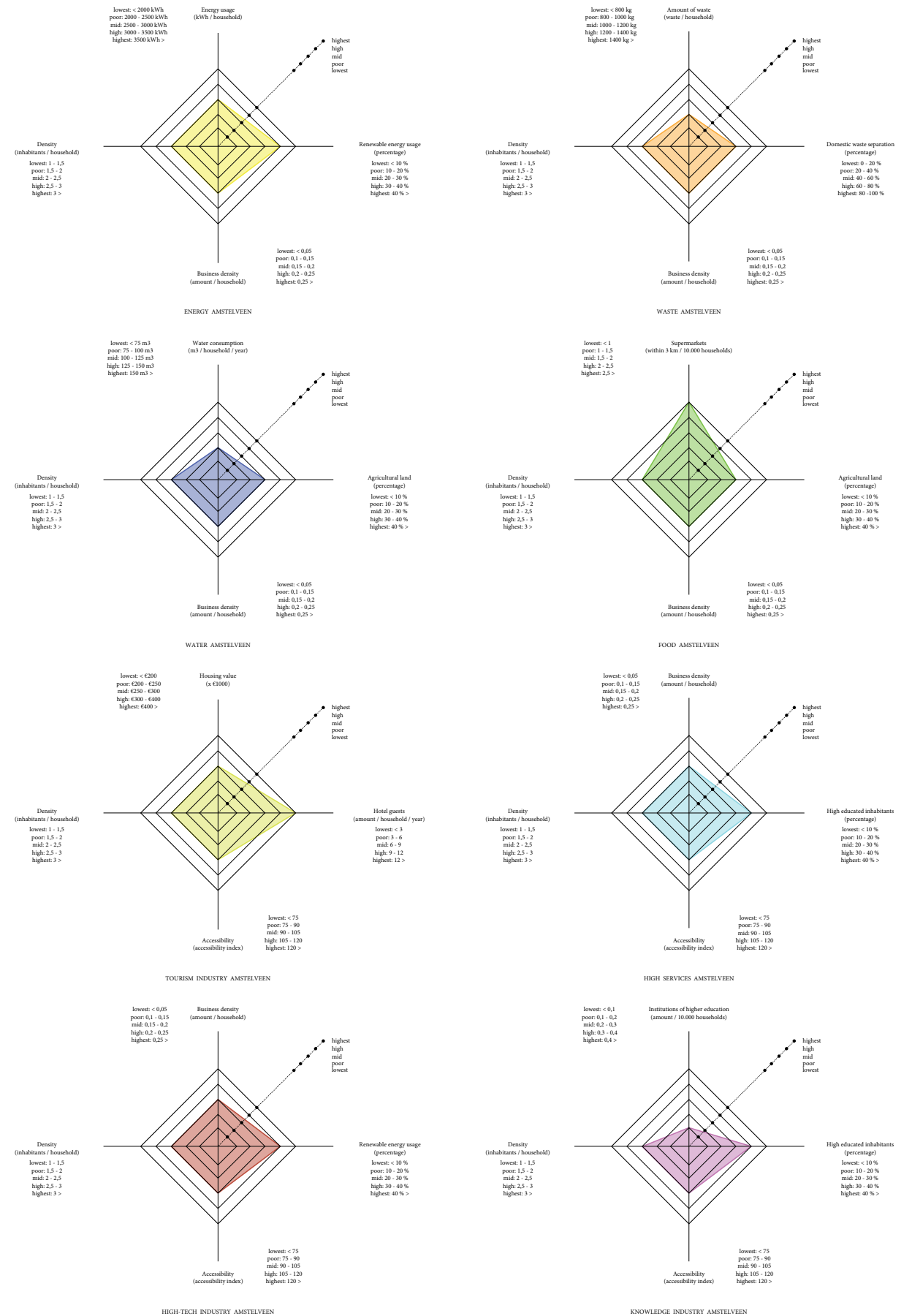
What I think is a very good aspect of the SDS lectures is the variety it offers. From strategies, to actors and from landscape to horticulture, everything has been passed. Keep up the good work, because it is really useful!

APPENDIX 2: DATA

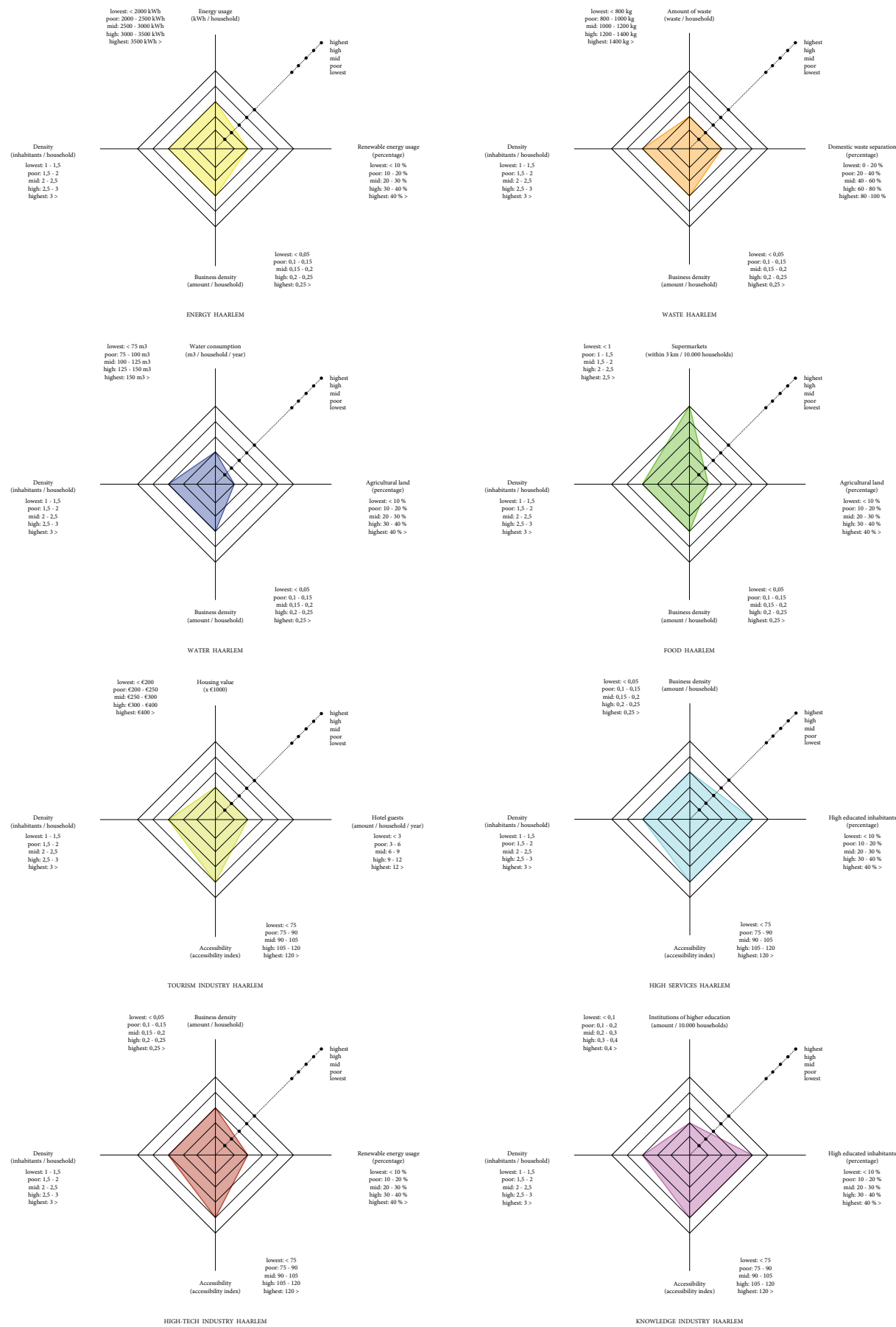
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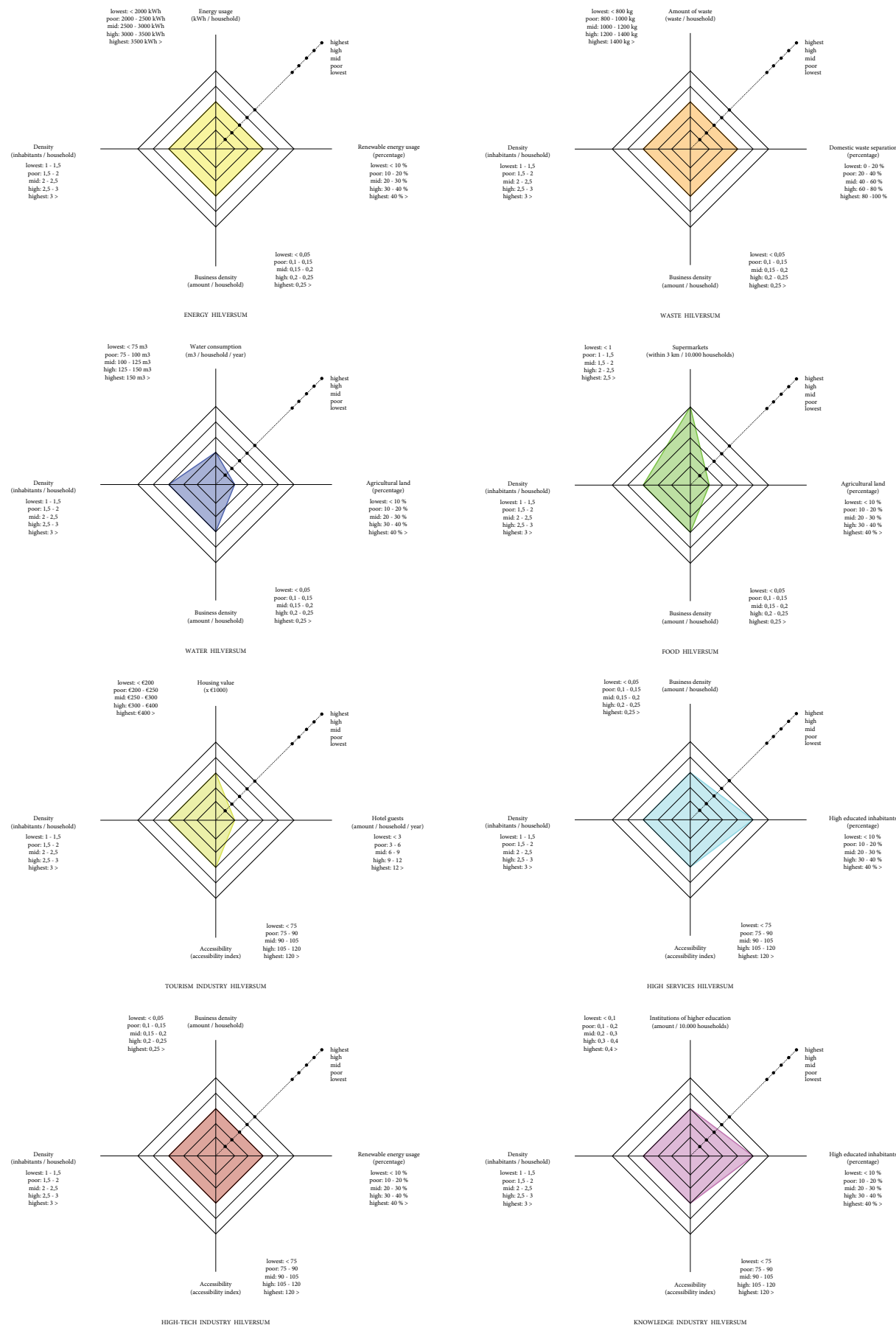
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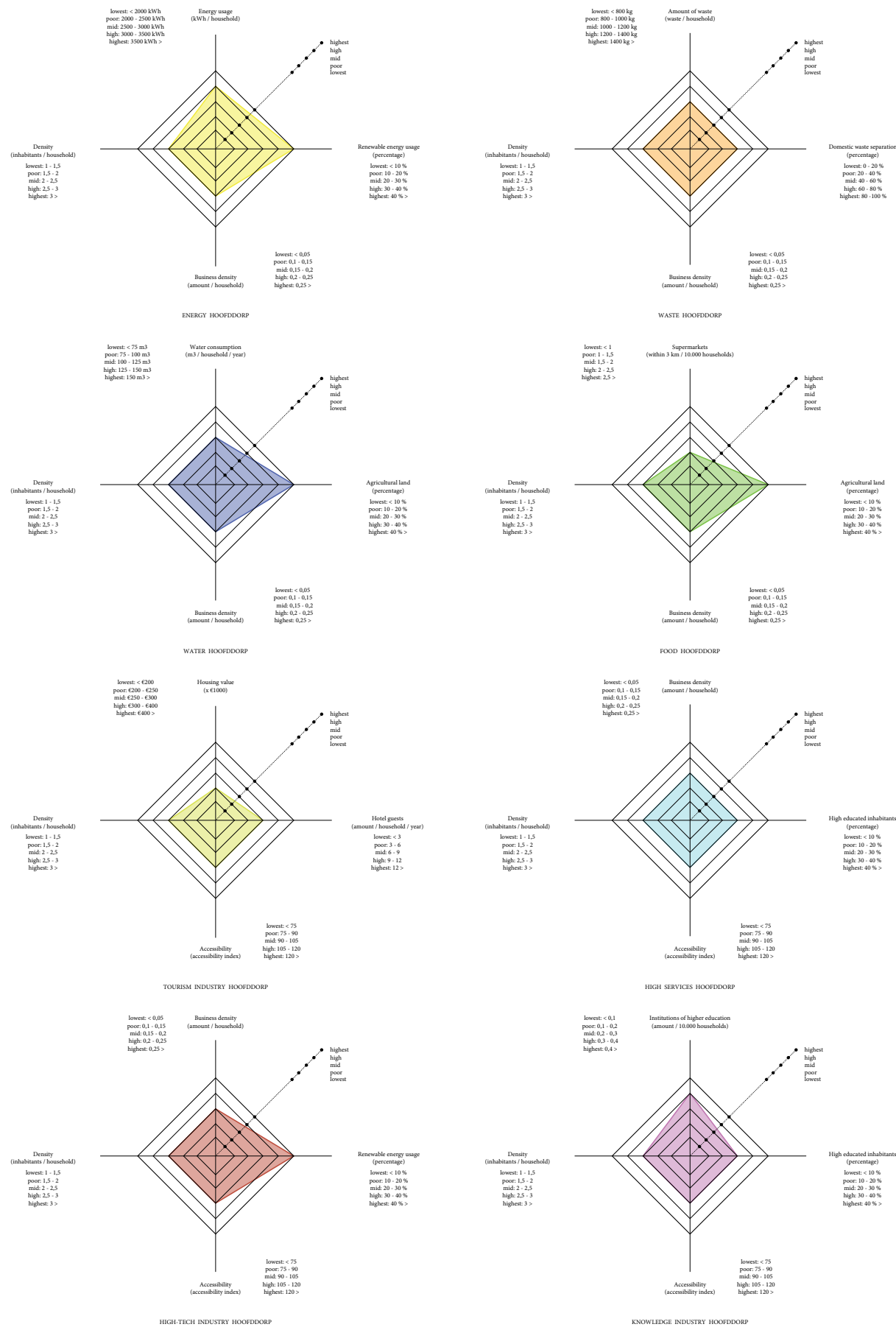
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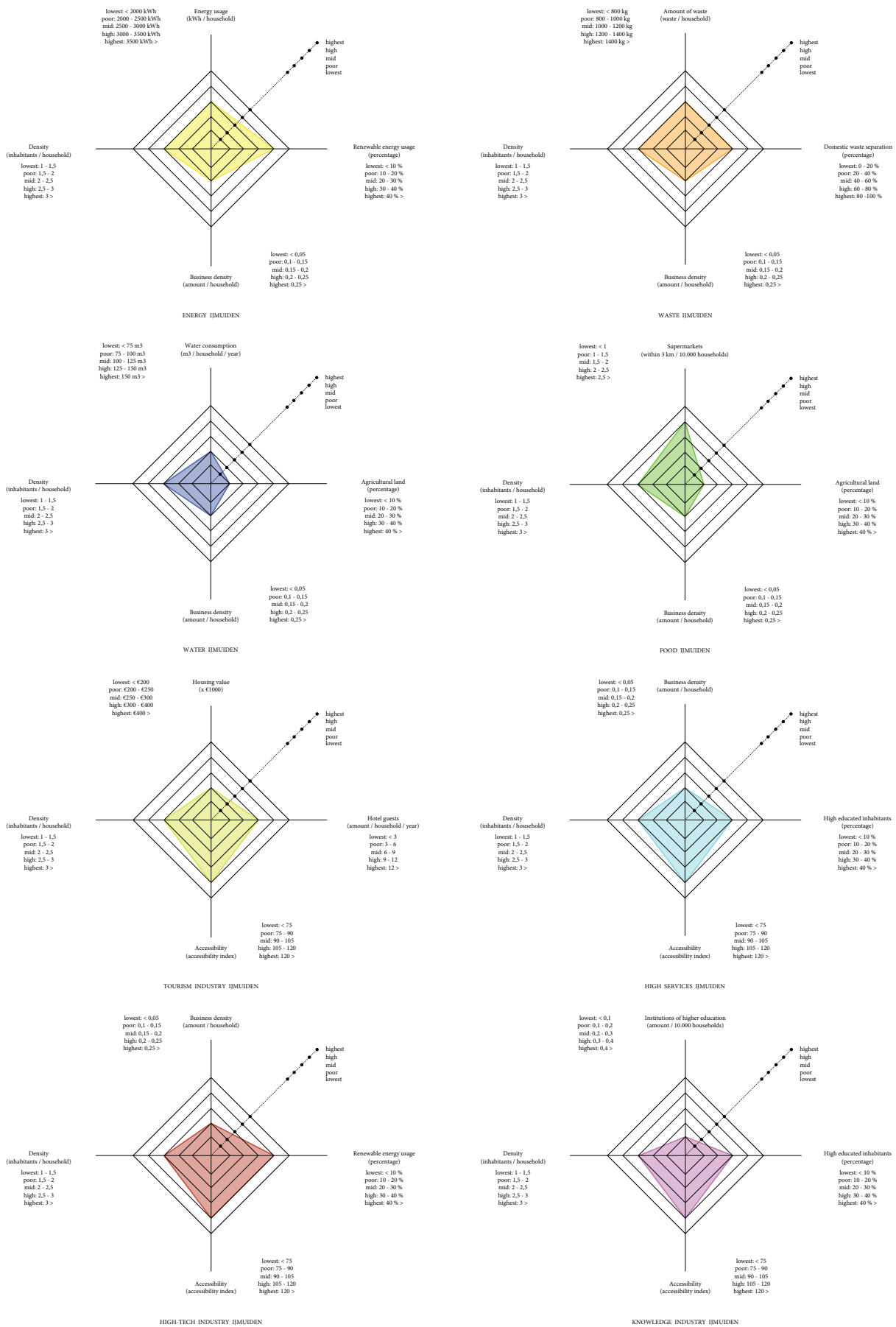
Diagrams Potentials of Hilversum



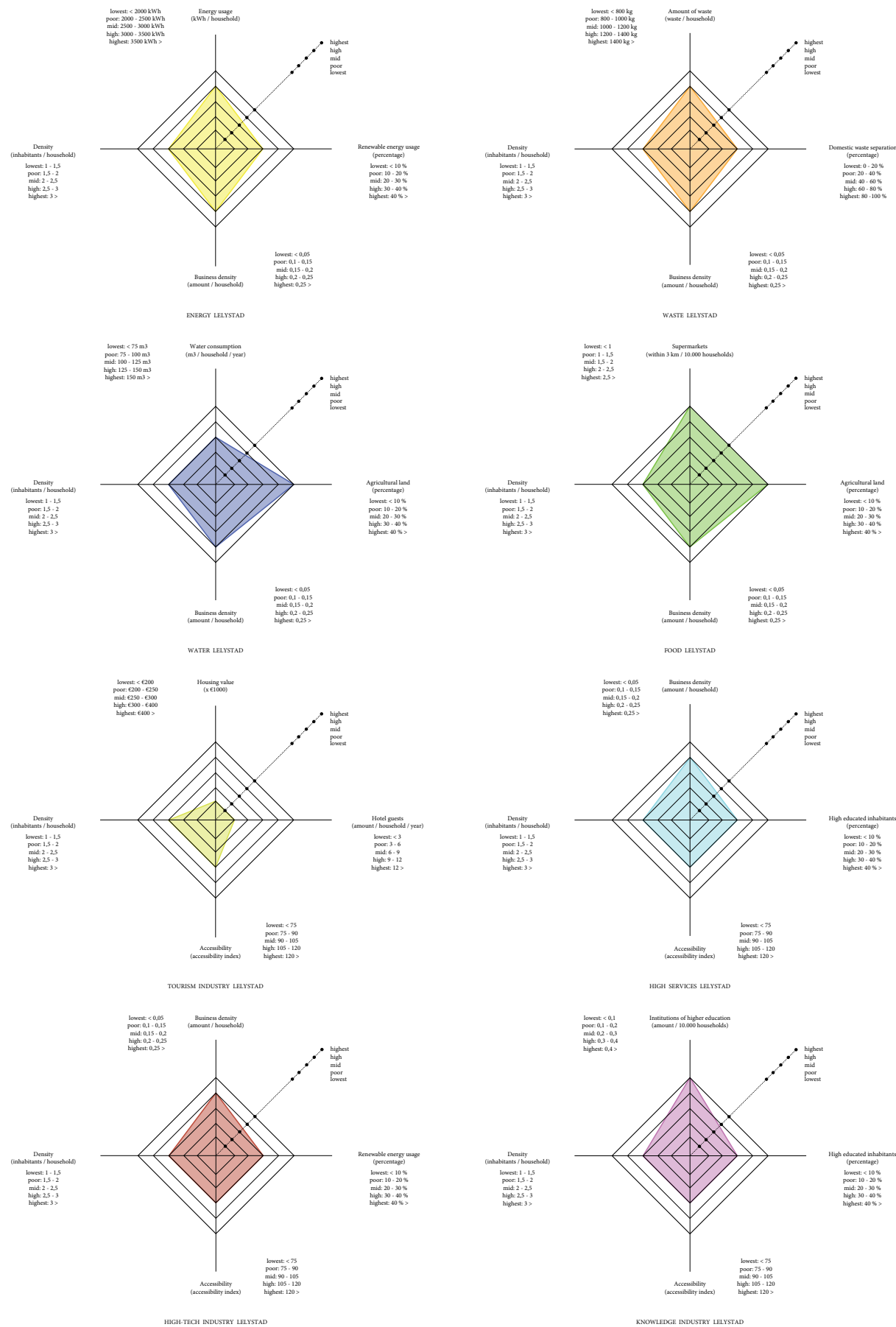
Diagrams Potentials of Hoofddorp



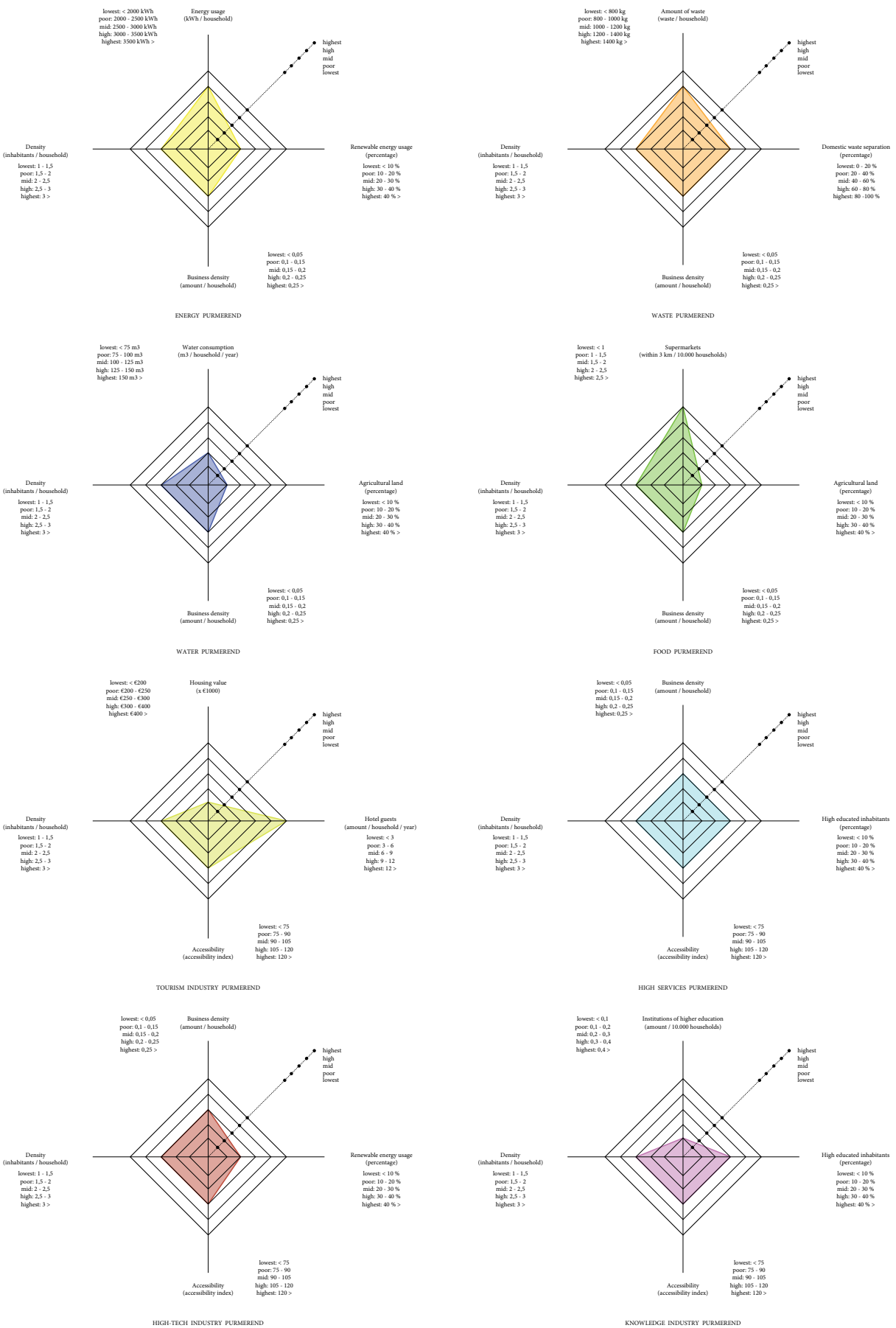
Diagrams Potentials of IJmuiden



Diagrams Potentials of Lelystad



Diagrams Potentials of Purmerend



Diagrams Potentials of Zaandam

