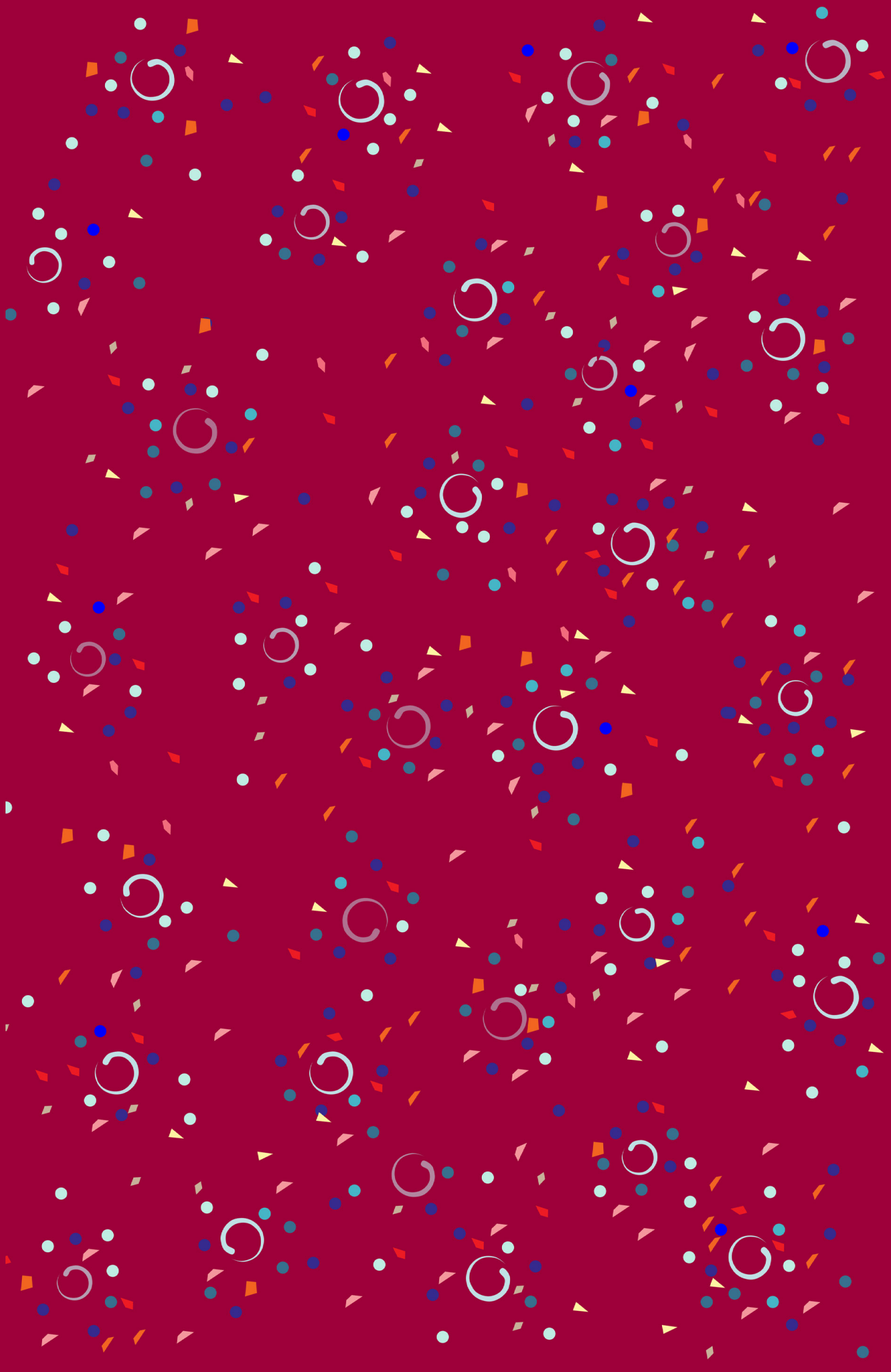


FLOAT TO CIRCULARITY

CONNECTING HUMAN NEEDS
WITH THE MATERIAL FLOW
IN THE AMSTERDAM METROPOLITAN AREA

Diego Moya Ortiz | Mae-Ling Stuyt | Qiyao Hu
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MSc Urbanism

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Spatial Strategies for the Global Metropolis

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Abstract

The Metropolitan Region of Amsterdam (AMA) has proposed a transition from its current linear economic model to a circular one (Sustainable Amsterdam, 2015). However, the proposed strategy is based mainly on the participation of actors from the world of business and industry, relegating social actors to a peripheral level of its implementation. Additionally, the region is experiencing an important process of floating population in which we can identify different groups: students, expats, tourists and commuters. This process is influencing trends of gentrification, ethnic segregation, and suburbanization and is expected going to increase in the future. The project that we propose seeks to connect communities and material chains from an integrated approach, social and economical. The project is based on the incorporation of the students through the region as a pioneer group for sustainable, economic and social development. Students represent a social capital that is necessary for the development of the region. However, at the same time they are a group that currently is experiencing vulnerability and lack of integration. In this way, through a multi-scale study and an urban acupuncture strategy, the location of this group is projected into strategic areas in order to encourage social sustainability and inclusive economic development.

Key words

Amsterdam Metropolitan Region, Circular Economy, Social Sustainability, Social Participation, Floating Population.

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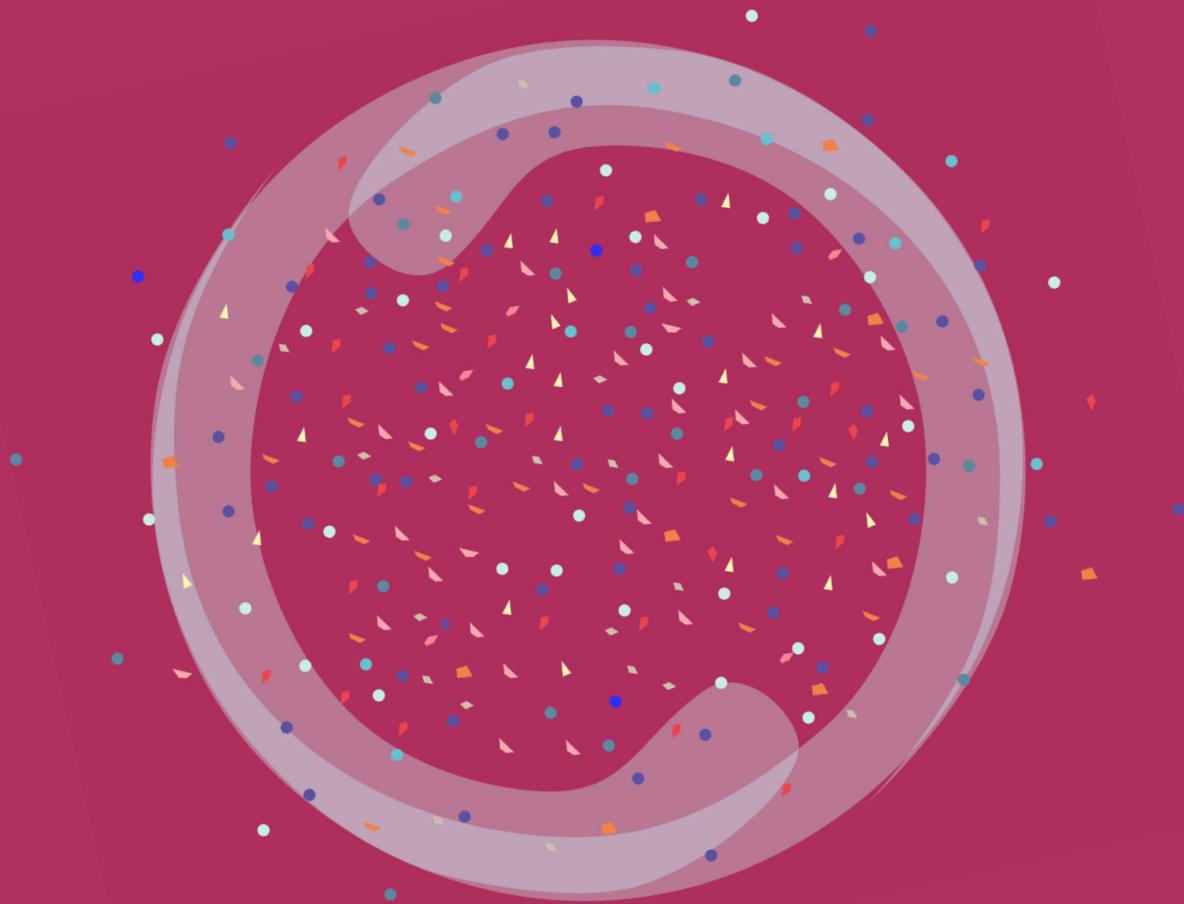
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0. The wider circle



Current context of Amsterdam Metropolitan Area

The Amsterdam Metropolitan area (AMA) is the most important economic pole of the Netherlands and part of a larger metropolitan network, called Delta Metropolis (fig 1). This structure gives the AMA a particular character due to the agglomeration of several small and medium sized cities, connected by different transport lines.

The city of Amsterdam, located in the North-West part of the region, is the capital of the Netherlands and configures the AMA city region as the core of Delta Metropolis. The entire region consists of urban, peri-urban and rural areas including 36 Municipalities and a population of 2.4 million people (MRA agenda, 2016). Additionally, the AMA is structured within two provinces - North Holland and Flevoland.

Currently, considering the official figures there are 1.1 million homes, 1.5 million jobs and 230,000 businesses established in the region. Tourists account for 14.1 million overnight stays in hotels per annum (MRA agenda, 2016).

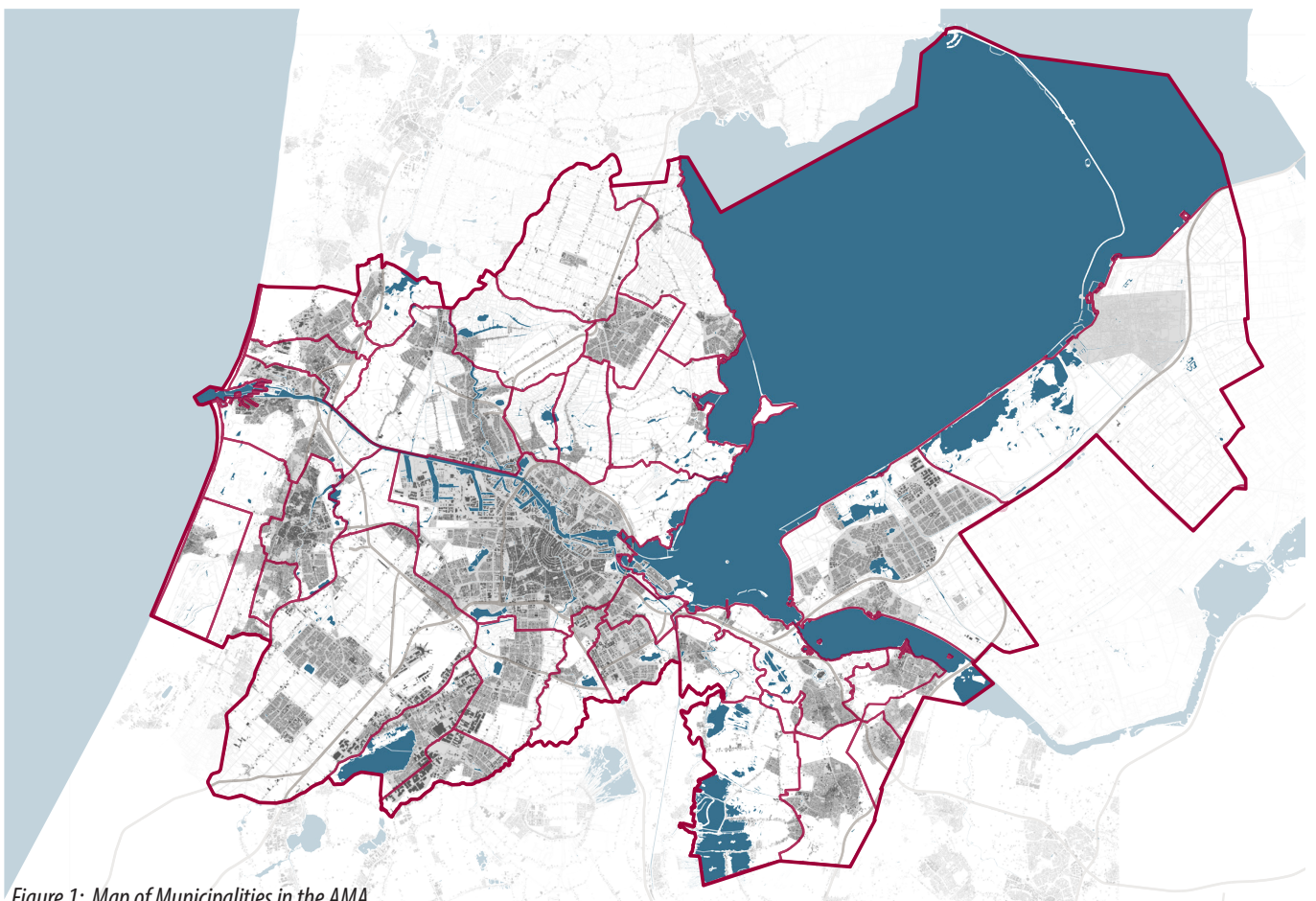


Figure 1: Map of Municipalities in the AMA.

In addition, the AMA is the core of the Randstad, a conurbation of cities formed by The Hague, the political centre, Rotterdam, the business harbour, and Utrecht, the University Area. Together these Cities accommodate more than 6.5 million inhabitants. This nucleus is one of the largest conurbations in Europe.



Figure 2: Map of Netherlands showing Randstad location.

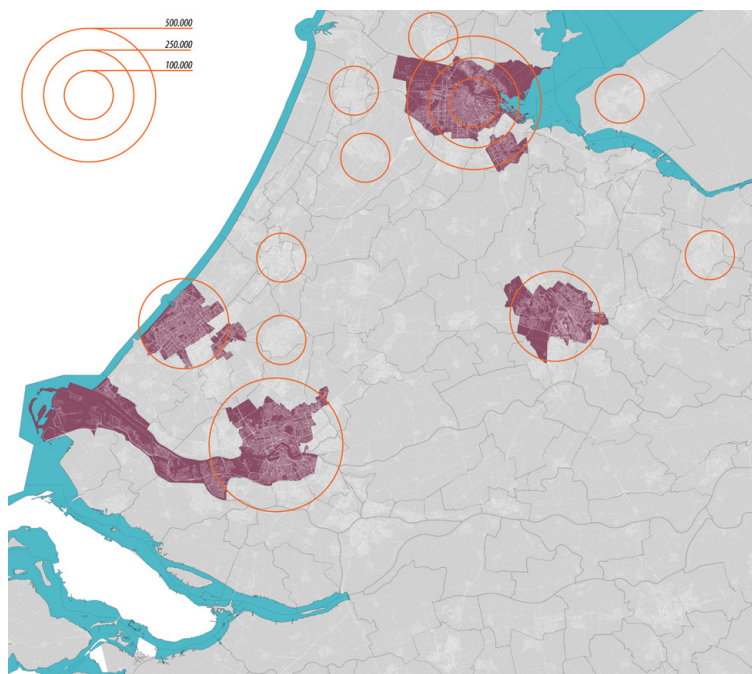


Figure 3: Map of The Randstad showing its population.

On the other hand, the city of Amsterdam is a culturally rich historic center in Europe. The city is internationally best known for its flat polder landscape, windmills and small villages. Its international port, the Schipol Airport and the presence of universities and shipping/trading traditions are an important basis for business, tourism and economic opportunities. In fact, these conditions have encouraged a ¹floating population phenomenon, that is an increasingly relevant trend in the region due to its influence in other socio-spatial processes in the region (Sauvé, Bernard, Sloan, 2015). This national phenomenon is related with the creative industry in the AMA, which represents 75 percent of the Netherlands.

¹ Floating Population: is a terminology used to describe a group of people who reside in a given population for a certain amount of time and for various reasons, but are not generally considered part of the official census count. (Jwournal of Industrial Ecology).



Legend:

- | | |
|------------------|------------------|
| • Fewer than 50 | • Fewer than 50 |
| • 50 to 99 | • 50 to 99 |
| • 100 to 499 | • 100 to 499 |
| • 500 to 999 | • 500 to 999 |
| • 1,000 and more | • 1,000 and more |

Figure 4: Map of domestic migration to and from Amsterdam: balance of settlement and departure 2012 -2016
 Retrieved from: <https://www.cbs.nl/en-gb/news/2017/45/amsterdam-is-expanding-mainly-due-to-immigration>

Circular Economy for the AMA

During the last decade, the AMA authorities have set a common and multisectoral challenge of shifting its economic model from a linear one to a circular one (De Circulaire Metropool Amsterdam 2014 - 2018, 2015). In order to make the region more competitive, while at the same time respond to the global pressures such as climate change, resource depletion, and (fossil fuel) energy dependence. This objective has also been framed by the European Union (Action Plan for Circular Economy). Within the national framework the ambitions focus on a 50% reduction in the use of primary raw materials (minerals, fossil and metals) by 2030.

The AMA responds to these requirements with 4 priorities for the transition to a clean economy (A Circular Economy in the Netherlands by 2050, 2016):

1. *The circular and 'bio-based' economy;*
2. *Preserving the built environment;*
3. *Expansion and interconnection of thermal networks;*
4. *Scaling up of 'smart grids.'*

Another principal purpose is working towards accelerating the transition to a circular economy by stimulating the collaboration between businesses, public authorities and knowledge institutes at the regional level; with a focal point on raw materials, energy transition in the built environment, heating as circular resource, CO² as building material and circular entrepreneurship.

The social gap

Nevertheless, one of the criticisms the circular economy approach has received, is its lack of integration with the social dimension, which is fundamental to support an economic transition in terms of ²*social sustainability* (Moreau et al., 2017). This approach is also particular clear in the documents looking at the AMA, focussing mainly on construction material flow and organic material flow. In addition, by analysing more specifically the principles proposed for the region (Sustainable Amsterdam Agenda, 2015) there is a vague connection between its social needs and the Circular Economy goals.

**Principles for Circular Economy in the AMA
(Sustainable Amsterdam Agenda, 2015).**

1. There is no waste in a circular economy. All materials will end up in an infinite technological or organic cycle.
2. All energy will be derived from renewable sources.
3. Natural resources will be used to generate new financial or non-financial gains.
4. Modular and flexible product design and supply chains will increase the adaptability of systems.
5. Transition from possession to use of services; this will require new business models for production, distribution and consumption.
6. Different logistics; more region-oriented services and return logistics.
7. Human activities contribute to eco-systems and eco-system services, and to the rebuilding of “natural capital”.



Figure 5: Scheme of Construction chain for the AMA.
Circular Amsterdam 2016



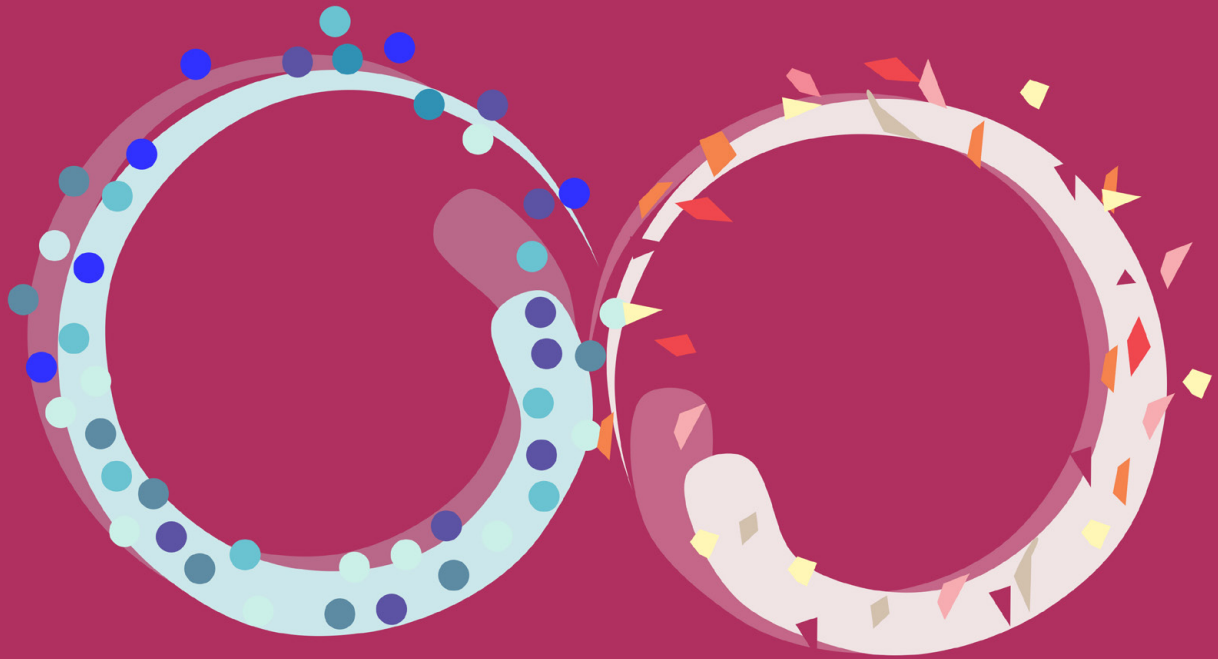
Figure 6: Scheme of Vision of organic residual streams for the AMA.
Circular Amsterdam 2016

In this sense, integrating the activities of societal groups (human flows) with the circular economy, which now focuses mainly on material flows, could not only strengthen economic growth but also strengthen resilience and social sustainability. This critic becomes important when we analyse the current pressures existing in the AMA, particularly if we put attention to current trends like the suburbanization, gentrification and segregation within the region; seen as a chain where the urban phenomena and floating population influence each other.

²“Social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life.”
(Western Australia Council of Social Services)

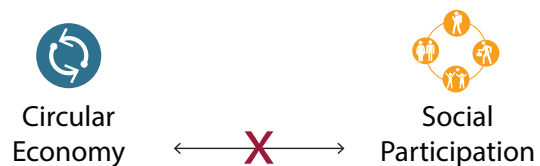
“A process for creating sustainable, successful places that promote wellbeing, by understanding what people need from the places they live and work. Social sustainability combines design of the physical realm with design of the social world – infrastructure to support social and cultural life, social amenities, systems for citizen engagement and space for people and places to evolve. (S.Woodcraft et al (2011) Design for Social Sustainability, Social Life, London)

1. Social sustainability in the AMA



1.1. Problem statement

Currently, the AMA is the most important area of economic activity in Netherlands. In order to promote innovation and economic growth, the AMA has proposed a relevant change to its economic model towards 2050. The region seeks to incorporate a circular economy model in order to reduce the environmental pressure, resource depletion, carbon emissions and at the same time improve efficiency and promote innovation. A multisectorial strategy has been proposed incorporating different stakeholders from the local governments, business and industry fields.



However, the introduced model lacks social inclusion in its proposal. Yet, including the social aspect in the circular economy could both benefit environmental sustainable developments and social participation. By introducing these factors, inherent to sustainable development, sustainable business models could also address social problems and the ethical dimension of the economic process (Murray, Skene, Haynes, 2015). In this regard, this economic transition could be addressed conjointly with the increasing phenomenon of Floating population in the Region.

Moreover, these phenomena present a double facet. On the one hand, they influence permanent *socio-spatial transformations* having an impact on the social cohesion of the different communities within the region directly. But at the same time, these phenomena *reinforce the linear economy* due to the lack of integration among the needs of different social groups and the chain of material flows. Therefore, opportunities lay in shared chains of activities, production and services through the region.

1.2. Research question

In this regard, our research question entails 'How can we create a synergy (intended product) between circular economy and social participation (method) in order to achieve economic growth and a healthy and socially sustainable AMA (goal)?

Sub Research Questions:

- What involves the Circular Economy concept?
- Which are the basic conditions to generate social participation and Social Sustainability?
- What are possible strategies to connect social sustainability with Circular Economy?

1.3. Theoretical framework Social circular economy.

In order to support the hypothesis that guides our proposal, in this theoretical framework we will discuss the concepts of circular economy and social sustainability briefly. From these discussion concepts we will derive possible integration and opportunities to combine these two concepts for our proposal for the Amsterdam Metropolitan Area. Circular economy is discussed in the European context as a novel initiative that recently has gained momentum in governance and business fields.

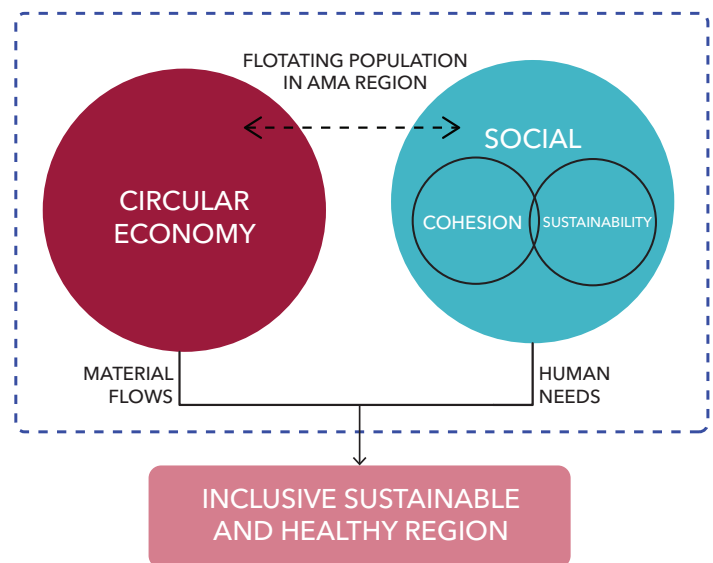


Figure 7: Theoretical framework scheme. Own elaboration.

The introduction of the Circular Economy (CE) approach

“Each Neighborhood, each town, would have public workshops equipped with a complete range of tools, machine, raw materials, where the citizens produce for themselves, outside of the market economy, the non-essentials according to their tastes and desires. As they would not work more than twenty hours a week (and possibly less) to produce the necessities of life, the adults would have time to learn what the children would learning in primary school: not only reading and writing but also handicrafts of all kinds, sewing, leather-working, cabinet-making, masonry, metal-working, mechanics, pottery, agriculture-in short, all of the skills which are now commercially torn from us and replaced with buying and selling”.

Ecology as Politics, Andre Gorz.

Circular economy concept comes from different schools of thought (cradle-to-cradle, industrial ecology), therefore the term cannot be linked back to one single movement. A common definition describes the concept as a regenerative system in which resource or input and waste, emission, and energy leakage are minimised by reducing, closing, and narrowing material and energy loops. These processes can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling (Geissdoerfer et al. 2016).

However, investigating the concept a little bit further we can identify two different meanings. On the one hand, the economic term describes an antonym of a linear economy. Linear economy is defined as a way of production where natural capital is removed from the environment through mining or unsustainable harvesting. Moreover by the reduction of the value of natural capital caused by pollution from waste (Ghisellini et al., 2015). In other words, it is based on a basic linear process: extract, produce, consume and dispose, without paying attention to the pollution created at each step (Sauvé et al. 2015). This understanding assumes that natural resources are available, abundant, easy and cheap to dispose of. Nevertheless, as we know now this is not sustainable, as the world is moving towards and is challenging the carrying capacity of the planet (Steffen et al., 2015). In this regard, the term circular is related with the concept of the cycle, where the impact of the environment is reduced by incorporating biogeochemical cycles through the process of recycling.

On the one hand, the biogeochemical cycle is able to restore natural flows by reducing depletion of materials from natural cycles and excessive release of materials into new cycles. As the natural cycles of the planet have different cycles and develop slowly through time, circular economy is concerned with slowing or managing these flows in order to reduce the industrial or productive impact in them.

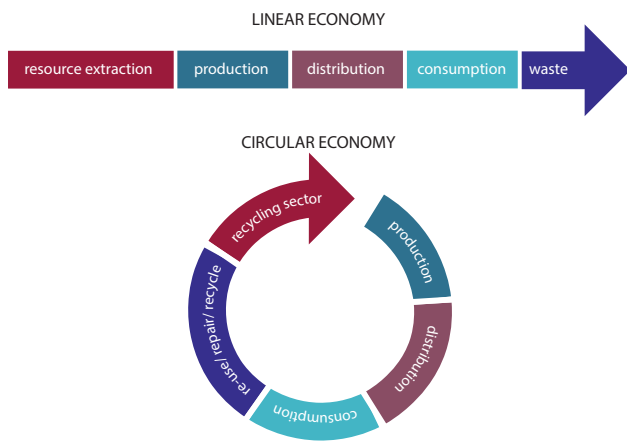


Figure 8: Linear Economy Vs. Circular Economy concept scheme.
Retrieved from: <http://sustainablebrandsmadrid.com/blog/circular-economy-closing-the-loop/>

On the other hand, the recycling cycle refers to the idea of resource and product cycling. The major concern is how to increase the durability and quality of man-made products while at the same time, taking advantage of the different cascade process of waste produced in the life cycle of each process. This way, better manufacturing and maintenance could help to reduce the rate of replacement or consumption and thus also the use of resources. In this regard, we see particularly in this process an opportunity to increase social innovation and participation in relation to consumption and production of material goods.

Relevance of CE for the European Union

Recently, the approach of circular economy has received increased attention in the academic field but also has gained interest in National and International Policies, especially in Europe, Japan and China. In the case of Europe, the European Union (EU) and its sub agencies, have decided to start a project that aims to implement a CE within the EU's economic system, adopting a 'circular economy package to boost competitiveness, create jobs and generate sustainable growth' (European Commission, 2015).

According to Sauv , Bernard and Sloan words:

"The increased attention to the "circular economy" concept is due, in part, to its capacity to provide the basis for reconciling the problem of how to promote productivity while considering the externalities of the production process, the Consumption of the products and the end-of-life impacts" (Sauv , Bernard, Sloan, 2015)

In this sense, the concept is gaining momentum because it is giving a clear angle to address environmental problems and at the same time guarantee innovation and economic growth.

Moreover, the increasing interest in a economic transition in Europe can be understood as a critical reflection of the economic crisis in 2009. As a result of crisis, several European countries suffered socio-economic uncertainty, deterioration of working conditions and burden of debt. Finally, it generated an important pressure on the social economic dimension.

Increased awareness of the economic global dependence of Europe was one of the main learnings from this process (European Commission, 2015). The Ellen Macarthur Foundation (2011) states that taking into account the sharp volatility increases across the global economy and proliferating signs of resource depletion, there is a necessity for a transition towards a circular economy model.

In order to achieve an economic model transition, the package of the EU includes an EU Action Plan for the Circular Economy (2015) that establishes a concrete and ambitious programme of action. It takes measures covering the whole cycle: from production and consumption to waste management and the market for secondary raw materials. This package was updated this year (Circular Economy Package, 2018) including additional measures as a particular strategy for plastics towards 2030. To communicate and address options of chemical, product and waste legislation, a Monitoring Framework on progress towards a circular economy and a Report on Critical Raw Materials and the circular economy.

The social and political critics to the Circular Economy

Since the original announcement in 2015, with strong enthusiasm from several policy makers, governments and intergovernmental agencies have adopted the guidelines for this economic transition at local, regional, national and international level. However, at the same time, the model has also been criticized and revised by scholars and researchers from different fields. Especially regarding to its limitations and relation with the concept of sustainability. In this regard, as Murray, Skene and Haynes argue:

“While the Circular Economy places emphasis on the redesign of processes and cycling of materials, which may contribute to more sustainable business models, it also encapsulates tensions and limitations. These include an absence of the social dimension inherent in sustainable development that limits its ethical dimensions, and some unintended consequences.” (Sauvé, Skene, Haynes, 2015)

On the other hand, when the transition to a Circular Economy will bring socio-economic benefits, in terms of creation of new job opportunities associated with activities of waste management and recycling, other issues may arise. These may concern the quality of such opportunities, the reward levels associated with them, and the geographical distribution of such benefits at different scales and levels (Jones, Comfort, 2017).

Additionally, it is also important to recognize that the transition to a Circular Economy involves and demands major changes in consumer behaviour and consumption patterns. These aspects are related with social and cultural aspects. As Jones and Comfort (2017) recognise, this kind of transition raises the concern of in which way the consumers will approach consumption. It seems likely to challenge the social value that consumers assign to products and services. In this regard, in a globalised western culture, based on the premise "we are what we buy" Circular Economy could face important barriers in its implementation.

From another perspective, Valenzuela and Bohm (2017) consider the Circular Economy as an attempt to legitimise the economic growth without conflicting with the permanence of capitalist economy. Deviating the discussion from the environmental crisis associated with the unsustainability of capitalism. Consequently, Circular Economy is presented as a depoliticised concept in which the main objective is trying to present an alternative narrative that supports growth driven capitalism. In addition, they discuss the concept of Waste. From their perspective, waste and wasting represents no longer the damage that economic growth inflicts over the nature or society. On the contrary, now that would refer to the decay and failures of the waste management value chains. That have been assumed to be perfectly capable of creating an inclusive and circular sustainable growth.

Looking at the economic rationality of Circular Economy, while many adherents of this approach are strong proponents (on environmental and ethical premises, of material

reuse and recycling, in a conventional capitalist economy), recycling will be undertaken only where it is desirable from a private economic viewpoint.

In this sense, decision and policy-makers will need to transform narrow perspectives and institute mechanisms in order to ensure that recycling and reuse takes place where it is socially desirable and efficient. Therefore, it is necessary to analyse carefully from a socio-economic perspective, how circular economy principles can provide net benefits (Andersen, 2007).

	Definition	Core concept	Anthropocentric	Ecological objectives	Economic objectives	Social objectives	Internalization of environmental impacts	The application depends on some authority
<i>Concepts based on the natural environment</i>								
Environment	All the natural components of the Earth (air, water, soils, vegetation, animals, etc.) along with all the processes that occur within and among these components	System essential to and impacted by human activities	No	No	No	No	N/A	N/A
Environmental protection	Search for minimizing or reducing environmental impacts	Societal objective	No	Yes	No	No	Yes	Yes
Environmental sciences	Sciences that study the environment (and, in particular cases, solutions for its protection)	A set of scientific disciplines	No	No (Yes)	No	No	N/A (Yes)	N/A (Yes)
<i>Concepts based on inter-generational sustainability</i>								
Sustainable development	Meeting the needs of the present without compromising the ability of future generations to meet their own needs	Societal objective	Yes	Yes	Yes	Yes	Yes	Yes
<i>Concepts based on the models of economic production and consumption</i>								
Circular economy	Production and consumption of goods through closed loop material flows that internalize environmental externalities linked to virgin resource extraction and the generation of waste (including pollution)	Model of production and consumption	Yes	Yes	Yes	No	Yes	Yes
Linear economy	By opposition to the circular economy, production and consumption of goods that (partially) ignore environmental externalities linked to virgin resource extraction and the generation of waste and pollution	Model of production and exchange	Yes	No (Yes)	Yes	No (Yes)	No (Yes)	No (Yes)

S. Sauvé et al. / Environmental Development 17 (2016) 48–56

Figure 9: Table of comparison between different environmental conceptual models according to different target dimensions. Retrieved from "Environmental sciences, sustainable development and circular Economy: Alternative concepts for trans-disciplinary research" (Sauvé, Bernard, Sloan, 2015).

To summarize, it can be recognized that major part of the critics of Circular Economy, are related with the lack of integration of the social dimension. In this regard, this potential link could help to precise the application of the concept in a more relevant societal level in order to generate synergies between societal needs, socio economic growth and behavioral responsibility. Following the reasoning of Andersen (2007) the future implementation of Circular Economy will require bringing together the broader issues of sustainability in a more comprehensive way.

Geng and Doberstein (2008) recognise that where circular economy can gather societal and stakeholders interests and thus meet with sustainable development. Since the Circular Economy approach is mainly defined at the level of consumption and production, its application can help to drive and bring better results towards sustainability. Especially if we think that sustainable development is a concept acting at a macro societal level (Sauvé, Bernard, Sloan, 2015).

The concept of Sustainability

Since the emerging awareness of society's impact on the environmental degradation in the 1960s, a lot of work has been put into defining the concept of environmental sustainability and how it can be measured. However, nowadays this concept has such a broad multi-focal perspective that 'sustainability' carries so many associations and nuances that it must be defined whenever it is used (McKenzie, 2004). Since the 1980s, the definition of sustainable development by the Brundtland report, Our common future (1987), has spread its influence worldwide.

'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'

This definition captures a much larger vision, that addresses both concrete and less concrete necessities for life. This definition, however is not only used to define sustainable development, but also sustainability in general. Suggesting the necessity of development for sustainability, rather than maintenance of current conditions. Additionally, this vagueness of the definition allows businesses and government supporters to claim that they are in favour of sustainable development, while in practice they are not (McKenzie, 2004).

Recent widespread models of sustainability thinking are the three equally important spheres of influence, the 'overlapping circles' model. Even though many using these models should immediately address the social aspect, equally to the environmental and economic concerns. In practice however, the social aspect is regularly neglected (McKenzie, 2004).

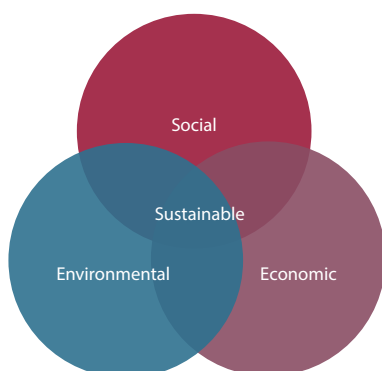


Figure 10: Overlapping circles model of Sustainability. Own elaboration.

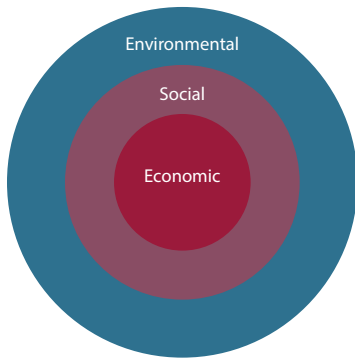


Figure 11: Concentric model of Sustainability.
Own elaboration.

Not long ago, an environmentalist and economist John Elkington has developed the expression 'triple bottom line'. It has become an international way for corporate reporting to include environmental, social and economic concerns. Claiming that it is not possible to achieve any desired level of ecological, social or economic sustainability, without achieving at least a basic level of all three forms of sustainability, simultaneously (McKenzie, 2004).

In Elkington's own words:

'The sustainability agenda, long understood as an attempt to harmonise the traditional financial bottom line with emerging thinking about the environmental bottom line, is turning out to be much more complicated than some early business enthusiasts imagined. Increasingly, we think in terms of a "triple bottom line", focusing on economic prosperity, environmental quality, and—the element which business has tended to overlook—social justice.' (Elkington, 1999).

Even though thinking in 'triple bottom lines' or 'overlapping circle model', where all aspects are of equal importance, often these models are reorganised to a model where the economic concern of the company is the main concern, and social aspects are secondary (McKenzie, 2004). The goals of economic growth and income expansion have long been central to development policy. Using the growth model as a primary indicator of success, Gross Domestic Product (GDP). Yet, growth is a quantitative increase, while development is a qualitative change. Critiques of the growth model stress that it is not interchangeable with development. Contrarily, GDP is a gross count of economic transactions, which are presumed to add to well-being. However it does not discriminate between transactions that result in social or environmental 'bads' and those that contribute to social or economic well-being, 'goods'. This structure has led to the decline of civil society (Magis et al., 2009).

The construction of the concept of Social Sustainability

Nowadays, the success of social sustainable developments is determined firstly by the ability to achieve the highest possible increase in living standards, together with the least possible environmental degradation. Here it is suggested that social development and environmental protection should be balanced. Secondly, many definitions of sustainability, in the environmental and economic context, see social sciences mainly as a useful tool to promote the message of environmental or economic stability. Sometimes, social sustainability is seen as an asset, occurring naturally in different levels of society, allowing people to maintain coherence and overcoming change also referred to as social capital. Only recently, attempts are being made to define social sustainability as the main focus in sustainability research and development, as it needs to have a clear definition distinct from environmental or economic sustainability (McKenzie, 2004).

Vallance et al. (2009) describes three types that address different levels of social sustainability. 'Development sustainability' which addresses poverty and inequity; 'bridge sustainability' which refer to changes in behaviour to achieve biophysical environmental goals; and 'maintenance sustainability' which addresses the preservation of socio-cultural patterns and practices in social and economic change. These differences are often neglected in literature. Implementing ideal visions inevitably challenges what already prevails in a certain time and place. It cannot be assumed that radical measures (in lifestyle or behavior) taken to improve the biophysical environment will be successful, more subtle measures (with technological innovation) might have a more desirable impact. Implementations might not be compatible with social sustainability as they may transform people's relationship with the environment radically (Vallance et al., 2009). Maintenance sustainability addresses the plausibility changes in social terms, it requires a good understanding of people's preferences, practices and values in the particular context. This maintenance occurs through habit, movement and protest, both locally as globally, preferences and places that people would like to see maintained or improved.

Social acceptance is therefore crucial for policies and biophysical environmental developments to work. Neglecting this aspect of social sustainability, might result in to effects of the strategy that are worse than the original problem. Studies have shown that eco-strategies that meddle with perceived quality of life and comfort of people can lead to passive resistance. A sustainable city, is one where people actually want to live (Vallance et al., 2009).

This fits with the common European approach to sustainable communities, that is defined as:

'places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all' (ODPM, 2006).

While Polése and Stren of UNESCO's MOST (Management of Social Transformations) define the social sustainability of a city as:

'Development and/or growth that is compatible with the harmonious evolution of civil society, fostering an environment conducive to the compatible cohabitation of culturally and socially diverse groups while at the same time encouraging social integration, with improvements in the quality of life for all segments of the population.'(McKenzie, 2004).

Another model of social sustainability by WACOSS in 2000 was developed mainly out of concern of the range of housing issues affecting low-income households and to develop a set of criteria for identifying a socially sustainable community.

'Social sustainability occurs when the formal and informal processes, systems, structures and relationships actively support the capacity of current and future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life.'(McKenzie, 2004).

Social sustainability has to be seen as a dynamic concept, which will change over time and place. A number of factors can relate to multiple scales. However, they vary according to the needs and interests of the community in which they are developed. To approach a community with a pre-existing definition and indicator set may disrupt the community's sense of ownership (McKenzie, 2004).

In general, two broad underlying concepts support social sustainability, namely social equity and sustainability of community. While Magis et al. (2009) also stresses human well-being and a democratic government and civil society as central components of social sustainability. Within an urban context, social equity is related to social and environmental exclusion. An equitable society is one where there access to key services and no exclusion, discrimination obstructing individuals from participating economically, socially and politically. Sustainability of community on the other hand relates to a prevailing social order in neighbourhoods and the support of social interaction networks between all residents. It is about the ability of society or local community to sustain and reproduce itself at an acceptable level of functioning (Dempsey et al., 2009). Human well-being is related to social equity, however the accessibility to social and political freedoms is emphasised by Magis et al. (2009). Democracy is valuable in its own right because it is the cornerstone to the advancement of human development. Living sustainably requires access to information, inclusion, participation and collaboration and it depends on government institutions that are open, transparent, accountable and supportive of community action. As well as a democratic civil society provides both a generative and a empowering force in society, creating civic spaces (Magis et al.,2009).

Often the definition of social sustainability already contains indicators by which it could be measured. The reoccurring aspects are: social interaction; participation in collective groups and networks in the community; community stability; pride or sense of place and safety and security. These support the underlying concepts of social equity and sustainability of community.

Social interaction networks and participation in local community activities are frequently described as integral aspects of social capital. The nature of social capital, has a direct influence on social cohesion. As increasing density may provide residents with a greater variety of activities to participate, it is also linked with social equity and accessibility (Dempsey et al., 2009).

Connecting Social Sustainability and Circular Economy

As we reviewed in this theoretical discussion the most important critics to Circular Economy concept are related with the absence of social objectives. To refer back to the Brundtland report, it describes that the distribution of power and influence within society lies at the heart of most development challenges. Together with the 'triple base line' concept' it suggests that basic development issues need to have been addressed before the focus can shift to so called 'higher order needs'. It may be questioned whether only when people's basic needs are met that they begin to address biophysical environmental concerns, however it is unrealistic to expect the contrary. Consequently, poverty and under-development act as barriers to biophysical environmental sustainable developments (Vallance et al., 2009). Therefore the future implementation of Circular Economy will require to bring together the broader issues of sustainability, to create social acceptance and to address maintenance sustainability.

Moreover, it is clear that many interpretations of both 'community' and 'neighbourhood' are closely linked and often interchanged because of the social and spatial characteristics inherent to both. This reflects the difficulty of separating social activity from the physical environment in which it takes place (Dempsey et al., 2009). Since the Circular Economy approach is mainly defined at the level of consumption and production, its application can take place conjointly with social developments. The Circular Economy approach focuses essentially on strategies to increase resource efficiency, it overlooks questions about the current economic rationality and loses relation with the concept of sustainable development. However, sustainable development is generally defined at the macro level of society, losing traction with the local scale. In this regard, the introduction of the social field offers a more practical framework to identify societal needs at the local level, as community is closely related to neighbourhood scale. On the other hand, the circular economy approach is mainly defined at the micro level, where consumption and production take place. In this sense, we see an opportunity in these missing links.

Social sustainability focuses on sustainable communities and equity, in terms of creating social capital, interaction and participation. Sharing, exchanging and learning are substantial elements to create social capital. Finally, there is a great opportunity in encouraging social participation through Circular Economy and with that extending its network towards other social chains of value.

1.4. Methodology

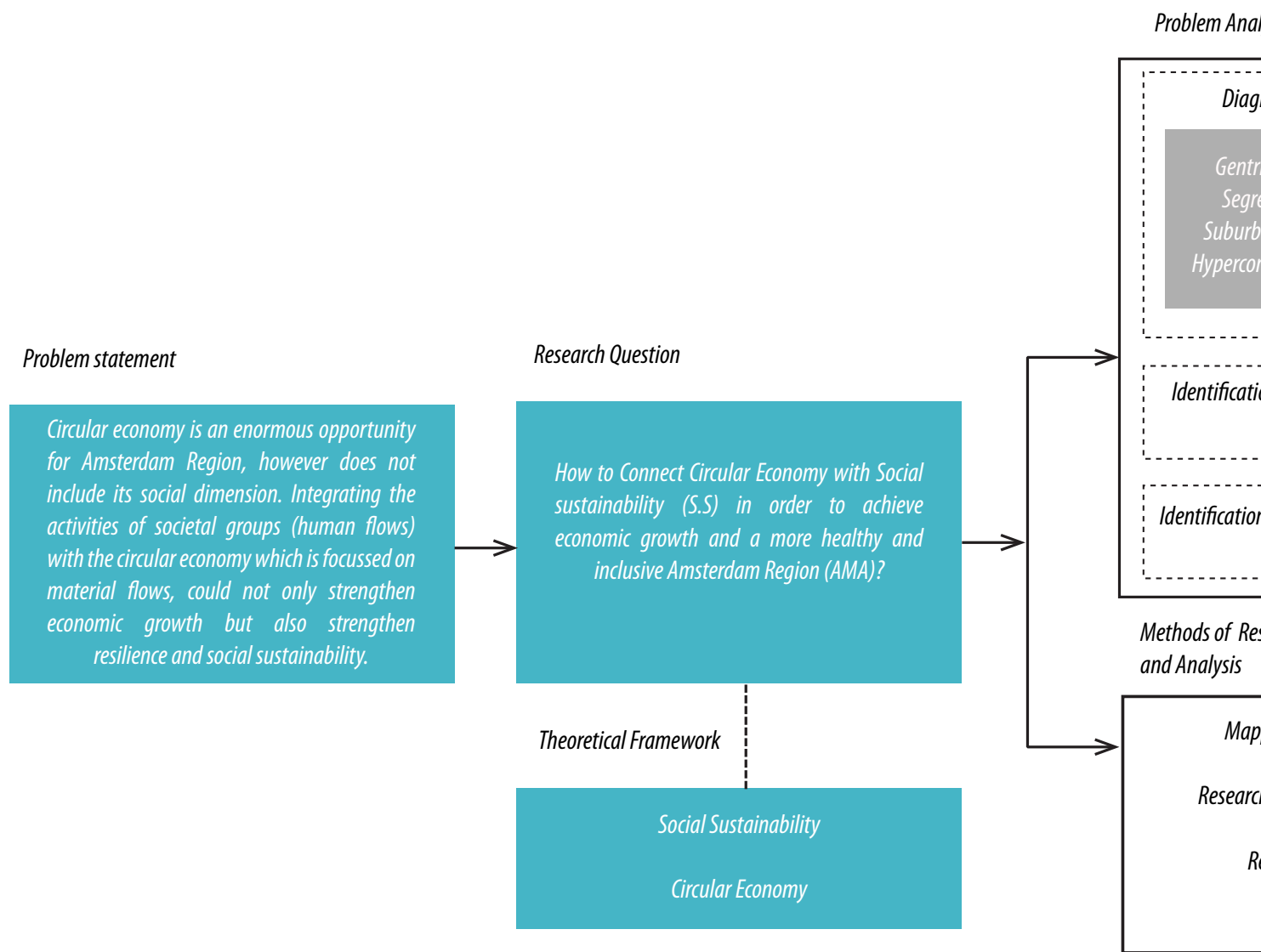
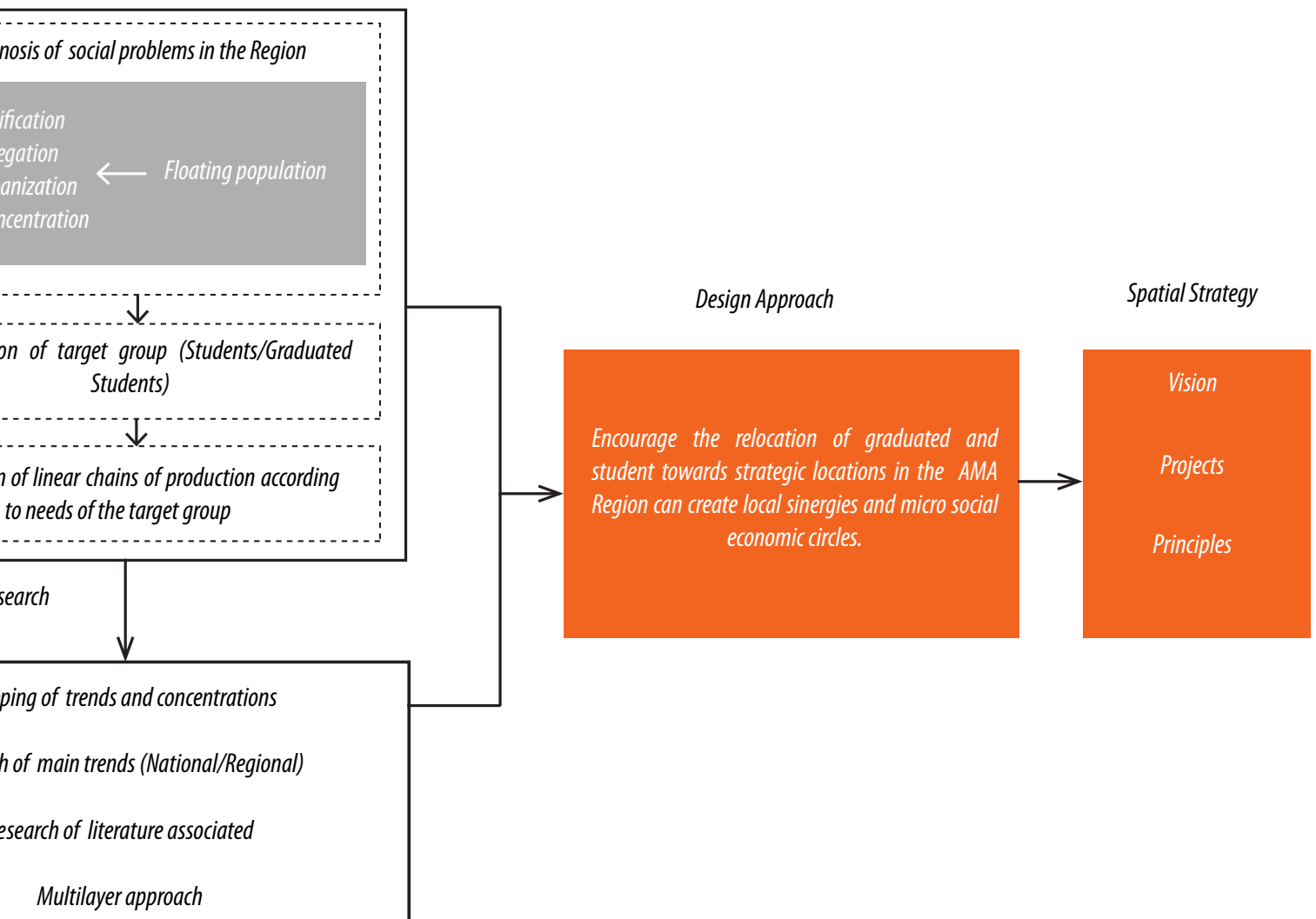


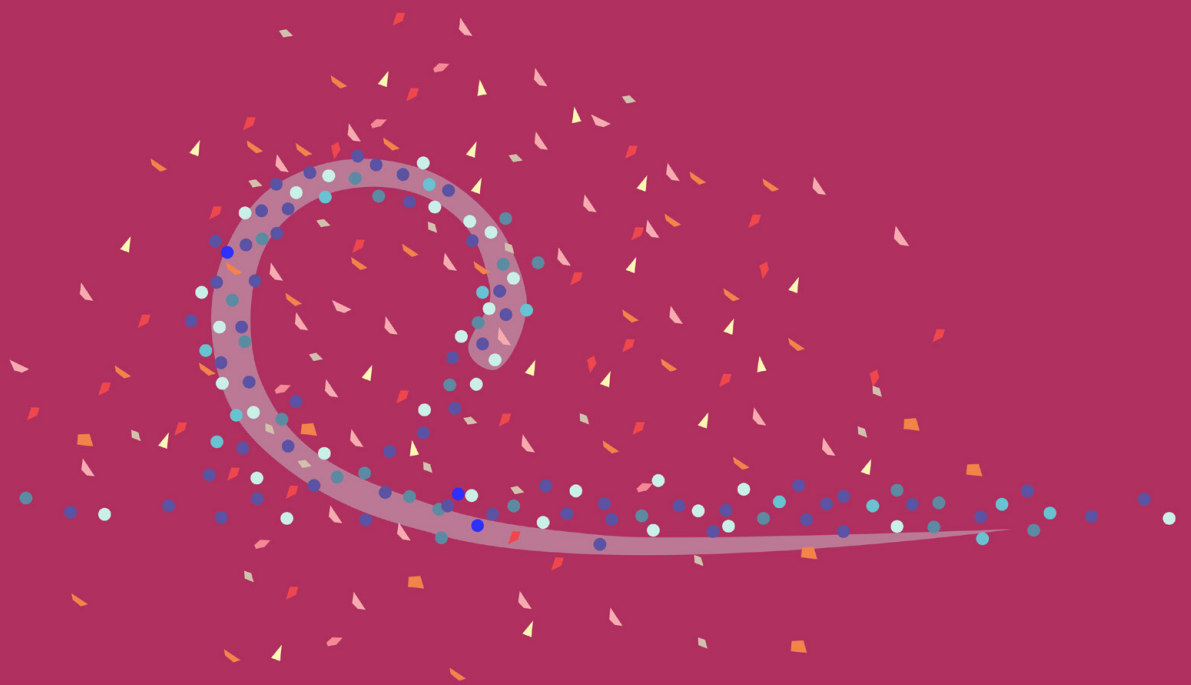
Figure 12: Theoretical framework scheme.

The theoretical framework forms the rationale for directing and achieving our project. We connected both theoretical approaches “Circular Economy” and “Sustainability” to achieve our main goal. An initial literature overview defines the critics on each concept to search some possible links between both. Consequently, we defined some guidelines that support our design approach: Taking a pioneer group (students) to mobilise the social participation through the Circular Economy model.

Analysis



2. Circular economy pioneer group



2.1. Target group

In the previous chapter the concept of floating population was introduced in relation to the social spatial processes that are occurring in the AMA. The following chapter will elaborate this concept further. Define the different types of floating population, and argue which type of floating population has the most potential to be representative for our project. This will be substantiated with trends existing in the AMA and an analysis of the target group in the region. Subsequently it will be explained how the chosen target group can act as a frontrunner to create social participation, sustainability by introducing circular economy.

Floating is described as not settled in a definite place; fluctuating or variable. The floating population in that sense, is migrating to the cities (The Oxford Pocket Dictionary of Current English, 2009). Here migration towards cities is described as floating population. A similar description can be found, it is also described as the phenomenon of large scale spontaneous migration or migrating population (Gransow, 2002). This term mainly has been used to describe the large flow of workers moving towards the cities in China, who live in the city without changing their residential status.

In order to address our research question, we consider the 'floating population' as one of the most important social phenomena occurring in the region. Where the biggest flows of people are inside and towards Amsterdam city. This phenomena acts as a cycle of influence and create pressure over the urban and the social structures of the city. A part of this pressure can be seen in the domestic migration in the Netherlands to the AMA.

We have divided the floating population into two major groups: external migration and internal migration . The external migration is associated with a more 'temporary' kind of migration where tourists, expats and students play a significant role in terms of human flows. Currently, they are coming from outside of the region to study, work or even for leisure for a short period of time and then move out again and have a particular influence on urban phenomenons such as gentrification or centralization. Within this group we recognize tourists, expats and students.`

In contrary to the external flow, the internal flows live in the region, but move between neighbourhoods or cities in the AMA depending on for example the supply that meet their needs. Internal migration refers to a more 'permanent' kind of migration flow, with commuters that move within the region on a regular or intermittent basis but 'permanently stay in the area for a considerable amount of time and are part of the official population count'. In this groups we distinguish commuters or families that reside in the region for a long period of time.

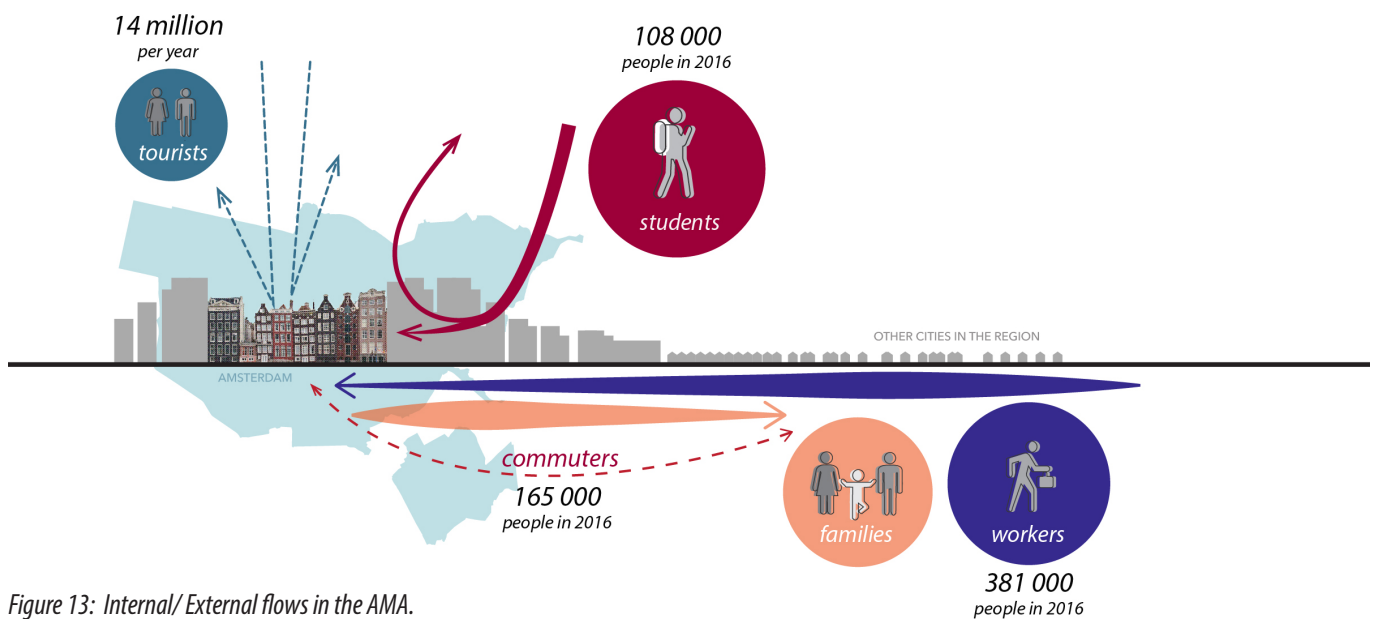


Figure 13: Internal/ External flows in the AMA.

These floating population profiles and their socio spatial relation to the city can help us understand specific dynamics creating impacts that can be repurposed under circular economy principles based on active social - community interactions.

2.2. Trends

Choice of students according to the trends

We believe that structural changes and future development for the region must include actions that address the floating population and the socially related issues. As we see these external and internal flows of floating population, we consider students as the most potential group to implement change in the AMA. We see this group as an evolving profile, with the potential to stay after they graduate, find work and start a family in the region. Therefore being part of both external and internal flows. The following research will elaborate our choice for this group.

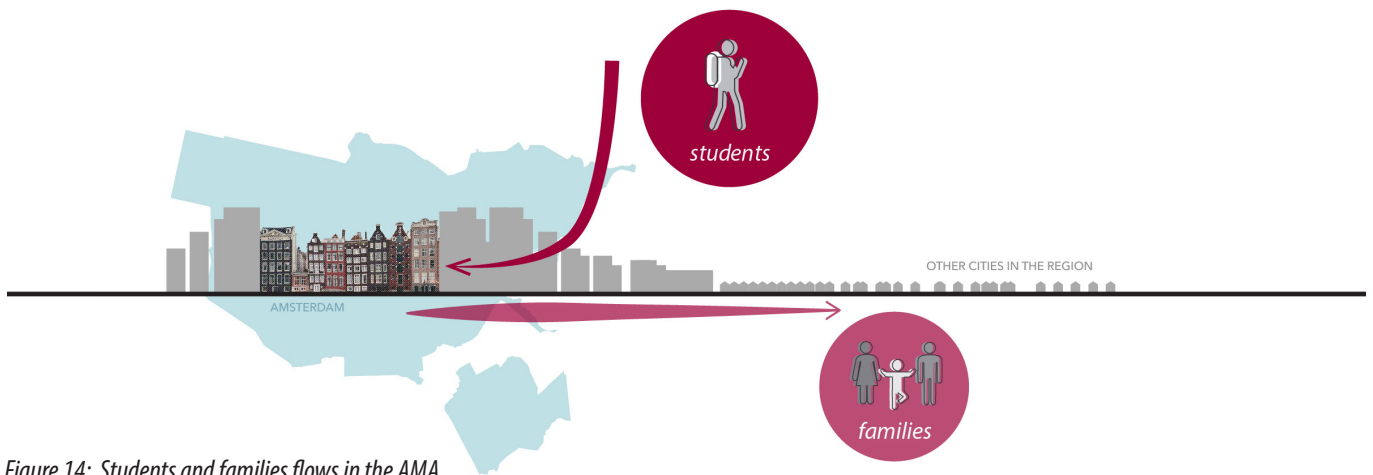


Figure 14: Students and families flows in the AMA.

Students

In general the Dutch population is declining, however due to immigration there is still population growth in the Netherlands. At the same time, some trends in the AMA show the increasing attention to attract (international) students. The amount of international students studying at Universities in the AMA is increasing. Compared to 2007 (7,4%), now 12,7% of all university students are international. This is creating a pressure on housing for students in Amsterdam (Beentjes, 2017).

This tendency can also be found in the data showing how many students are actually living and studying in the same location. Students amount to 11% of the population living in Amsterdam. However they are only 43% of all students that study there. Meaning 57% of the students commute everyday and live outside of this municipality. According to Het Parool, the local newspaper of Amsterdam, the municipality does not take enough action to provide housing for students in the area. Resulting in pressure on housing for students and making it less attractive for international students to study in Amsterdam.

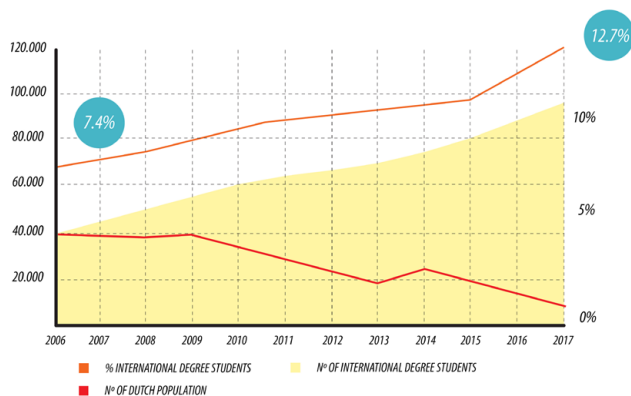


Figure 15: Graph of relation between increasing number of International students vs. decrease of Dutch population.

'Gemeente doet te weinig aan tekort studentenwoningen'



Amsterdam kampt met een tekort van 12.000 studentenwoningen © ANP



Hogescholen, universiteiten en woningcorporaties in de stad roepen de gemeente op minimaal tweeduizend extra studentenwoningen per jaar bij te bouwen. Ze vrezen dat vooral internationale studenten de stad anders links laten liggen.

GERELATEERD

Waterleiding gesprongen in West
5 APRIL 2018

Groep 8 krijgt uitslag loting middelbare school
5 APRIL 2018

Brandschade bij Turkse supermarkt Unal in Nieuw-West
5 APRIL 2018

MEEST GELEZEN

- 1 Klein geluk in Amsterdam: Een paard en twee pistolen
- 2 Déjà Vu: Prinseneiland in 1965 en in 2018
- 3 Spandoeken in Zuid zeggen: doe je telefoon eens weg
- 4 Restaurants weten het al: echte vanille is chic én kinky
- 5 Zeemijn uit het IJ gehaald en tot ontploffing gebracht

BEKIJK HELE LUST

Figure 16: Newspaper article reporting lack of Municipality actions for student housing (May, 2017). Retrieved from: <https://www.parool.nl/amsterdam/-gemeente-doet-te-weinig-aan-tekort-studentenwoningen~a4497154/>

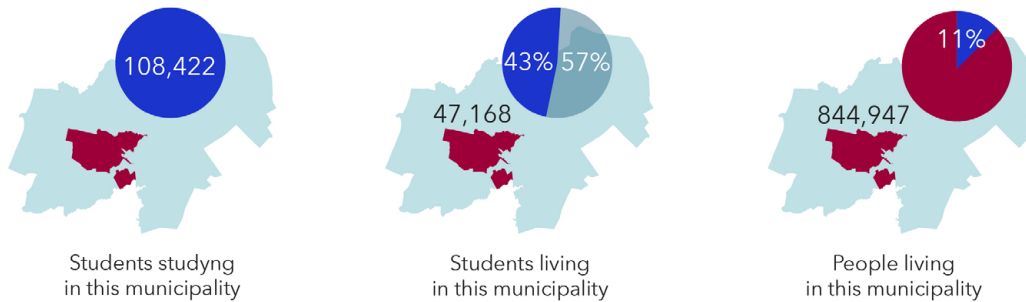


Figure 17: Number of Student living in Amsterdam vs. Region.

This tendency can also be found in the data showing how many students are actually living and studying in the same location. Students amount to 11% of the population living in Amsterdam. However they are only 43% of all students that study there. Meaning 57% of the students commute everyday and live outside of this municipality. According to Het Parool, the local newspaper of Amsterdam, the municipality does not take enough action to provide housing for students in the area. Resulting in pressure on housing for students and making it less attractive for international students to study in Amsterdam.

Graduated/ Workers

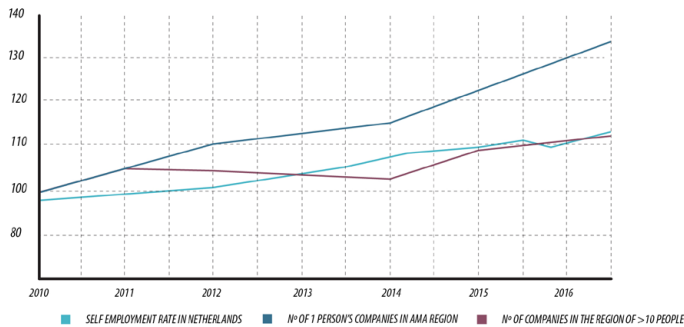


Figure 18: The Graph shows increase number of small companies and startups in the Country during the last years.

There is an increase in self-employed companies and start-up companies. It is a optimistic time for starting businesses. This trend has been occurring for some time, showing steady growth. Since 2014 the amount of companies with 10 or more employees has also shown growth, entrepreneurs are gaining confidence to take more risks by expanding their companies. Small companies are good begin to begin with, however this trend of smaller companies expanding turning into successful and growing companies is just as important as they contribute more to the economy. (VU, 2017).

The AMA is very attractive for recently graduated students looking for work. There are large flows coming from all of the Netherlands, in particular looking for work in the creative industry and knowledge workers (ABF Research, 2016).

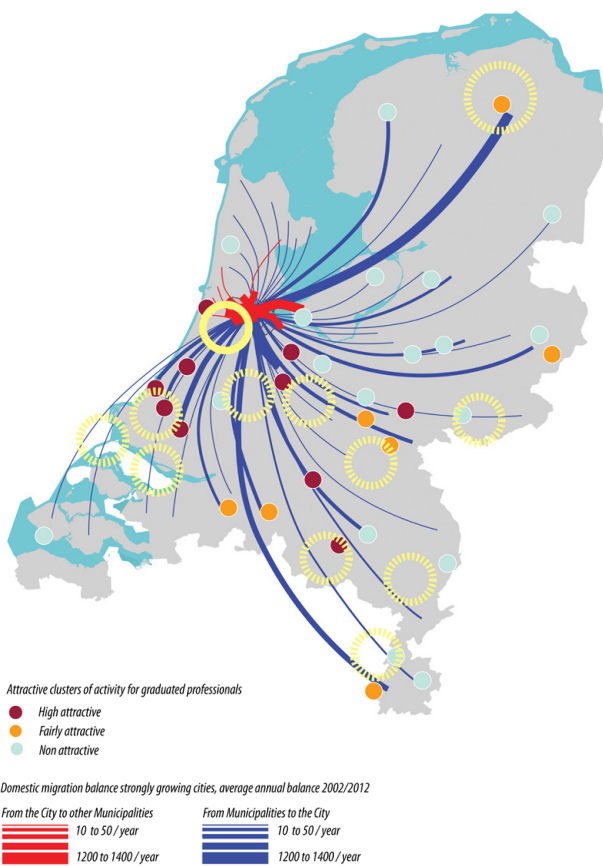


Figure 19: Number of International Students going in and going out to (from) Amsterdam.

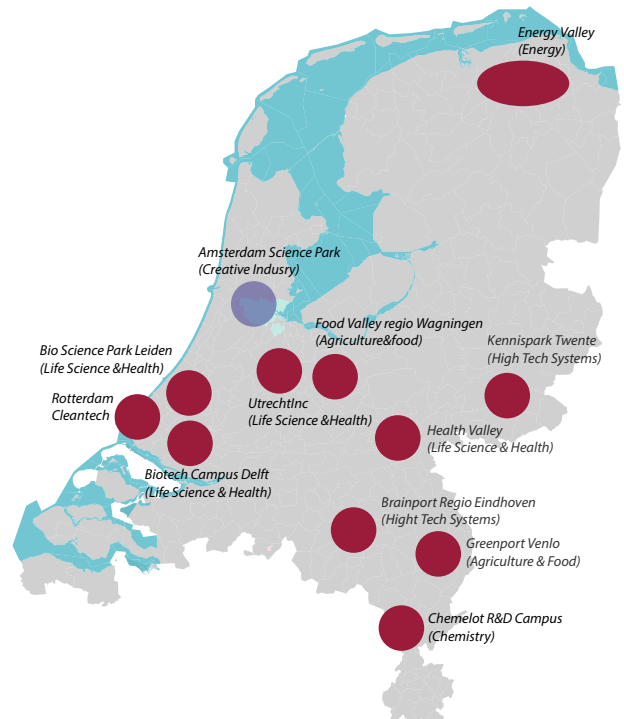
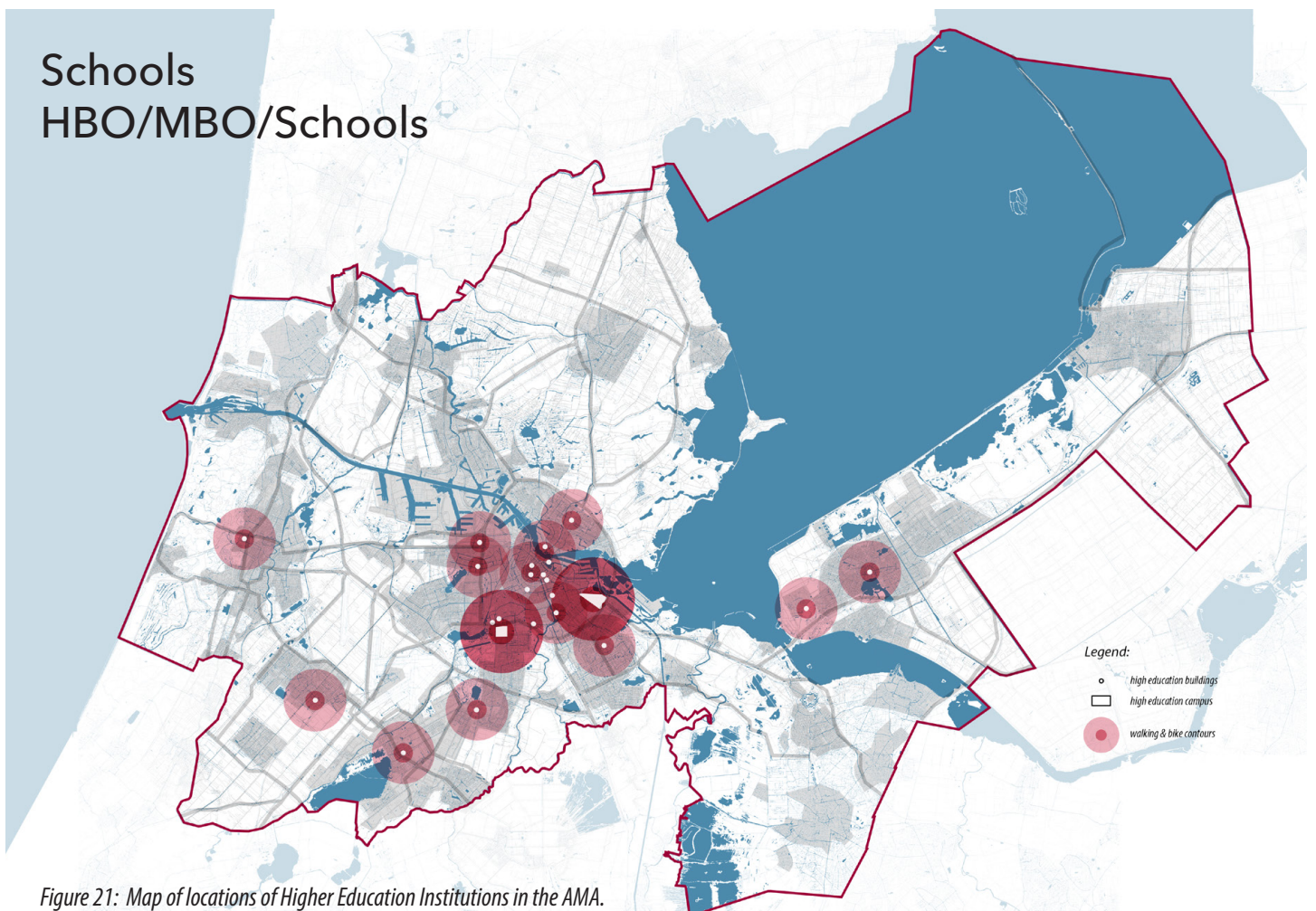


Figure 20: Concentration of main Industries in Netherlands.

2.3. Spatial conditions

When we look more in depth where these students and graduated group are located in the AMA, it can be concluded that the main activities associated with these groups are concentrated in the Amsterdam municipality. Universities, the Higher Vocational Education (HBO) and Intermediate Vocational Education (MBO) are mainly situated in Amsterdam, some in Haarlem, Hoofddorp, Aalsmeer and Almere. The age group 15-25, housing and future housing for these students groups are also concentrated in the area of Amsterdam.

Looking at the business areas, where jobs are located, a strong aggregation can be seen in the harbour area, Amsterdam and Aalsmeer. This can be related to the accessibility of these areas to the A10 ring, the Harbour and Schiphol Airport. From these analyses it may be concluded that living for the student group is concentrated in Amsterdam, while work is concentrated in Amsterdam and around the harbour and airport area.



Students/young housing

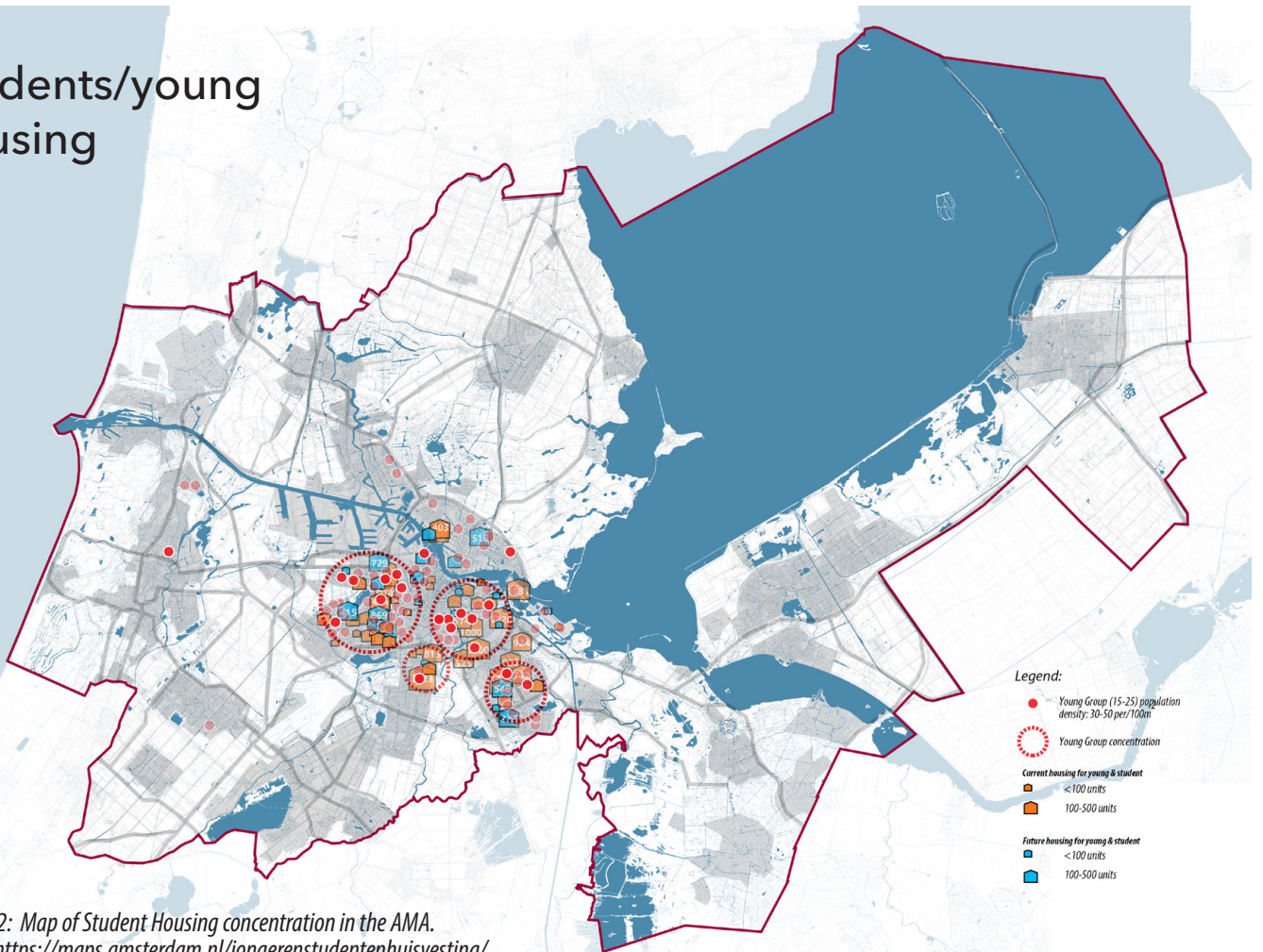


Figure 22: Map of Student Housing concentration in the AMA.
Source: <https://maps.amsterdam.nl/jongerenstudentenhuisvesting/>

Working places

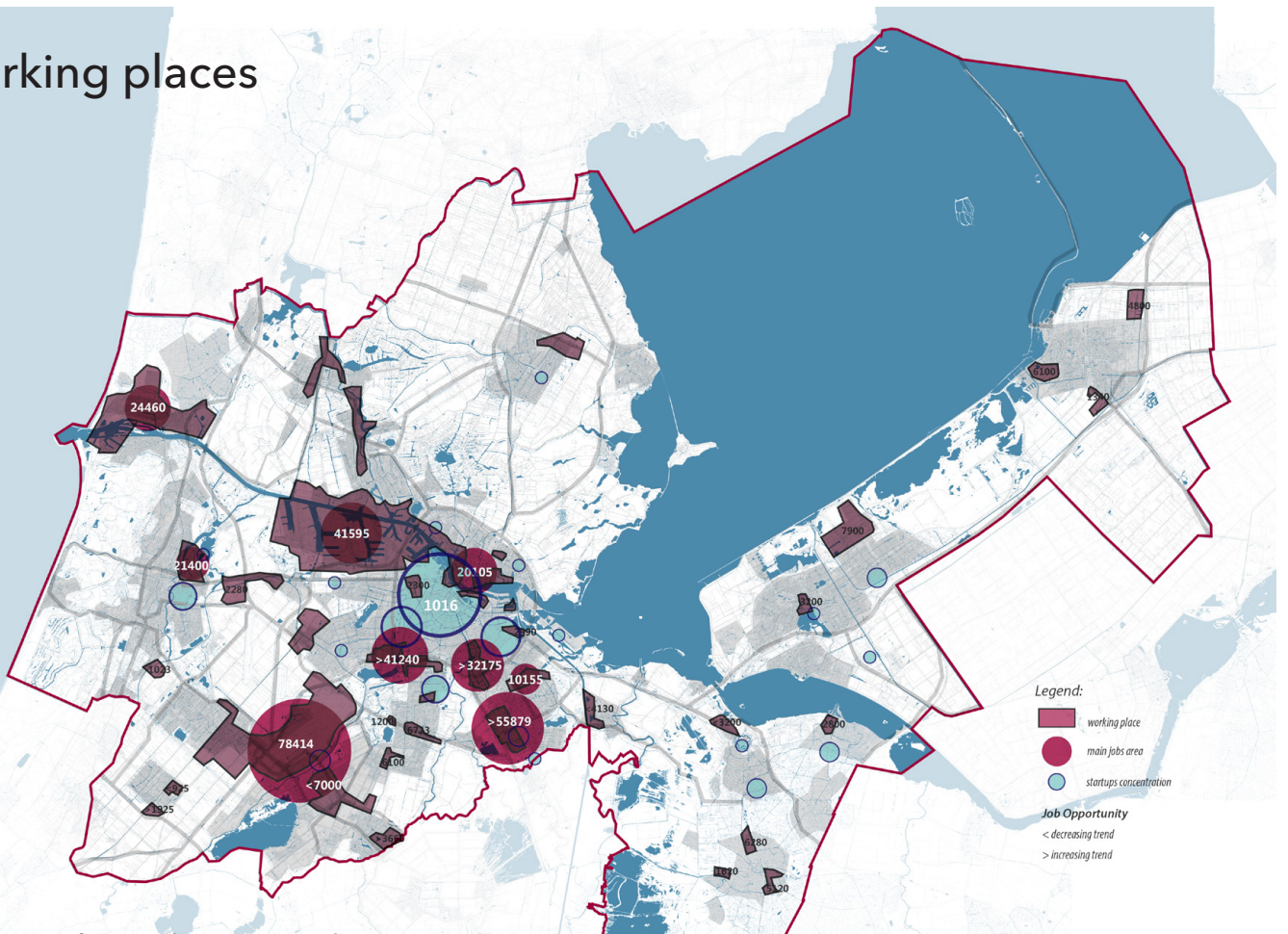


Figure 23: Map of start up job concentration in the AMA.
Source: <https://maps.noord-holland.nl/GeoWeb51HTML5/index.html?viewer=werklocatie>; <https://startupmap.iamsterdam.com/map>

Conclusion map

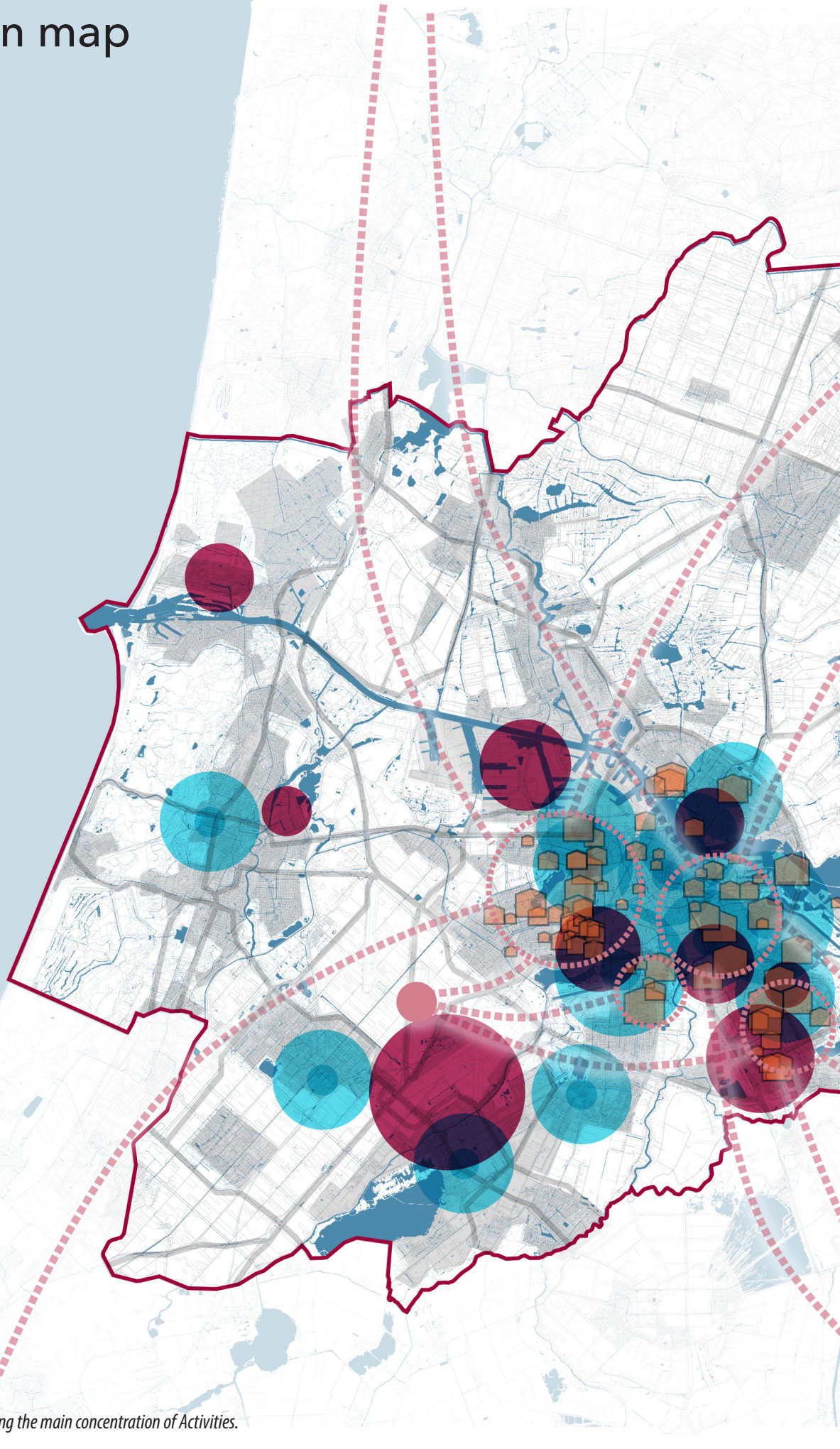
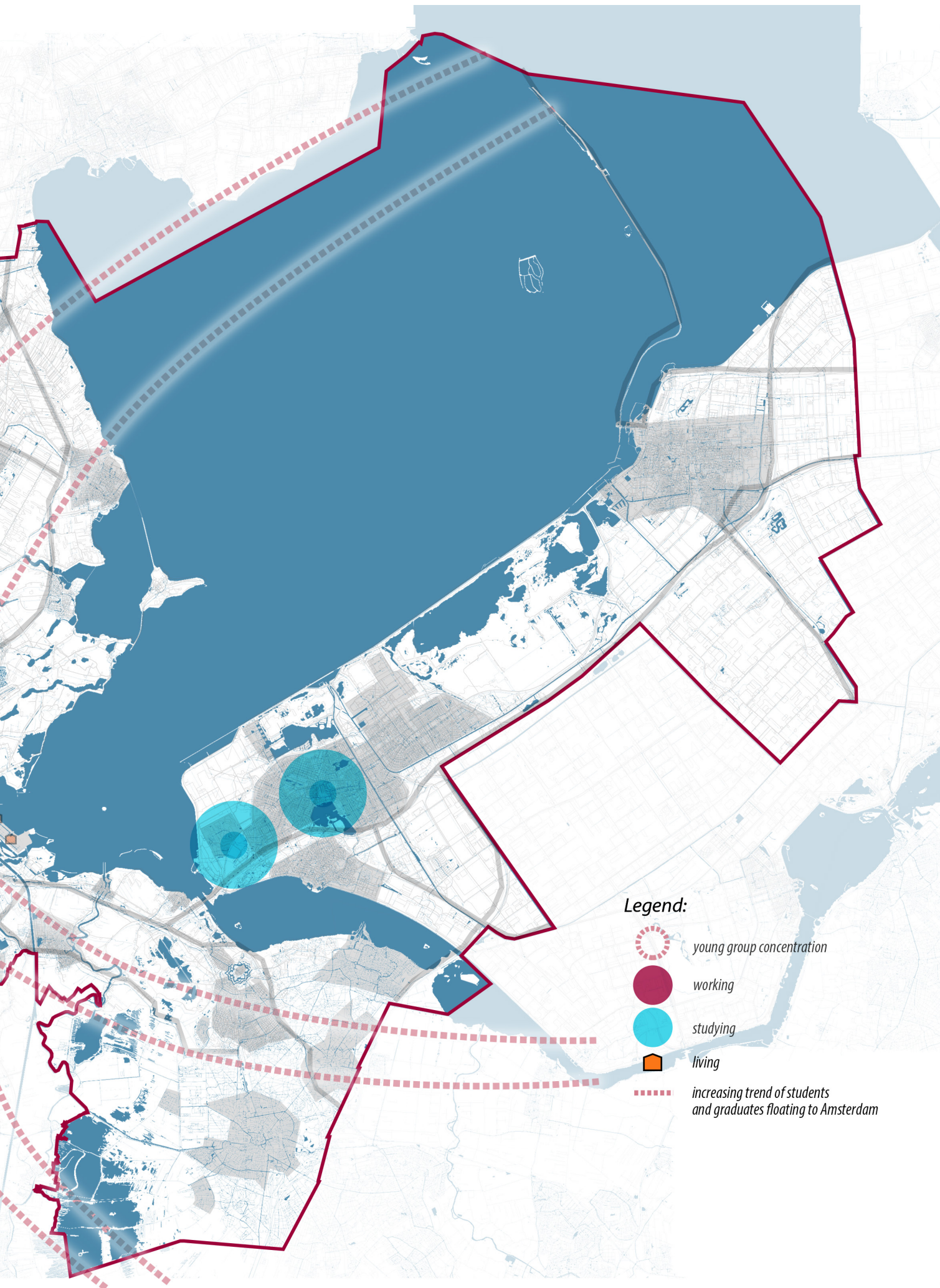







Figure 24: Conclusion Map showing the main concentration of Activities.



- Legend:**
-  young group concentration
 -  working
 -  studying
 -  living
 -  increasing trend of students and graduates floating to Amsterdam

2.4. Pioneers - connection with material chains

Our near future is going to be decided by the impacts of climate change, resource scarcity and changing power balances in the world. Generation Y or millennials (born between 1980 and 2000), who are the students and starters of today, have a different approach to address this societal challenge. Instead of protesting or uniting, this generation likes to express their engagement in this challenge through entrepreneurship, demonstrating change and creating societal value in a practical way. Instead of emphasizing societal problems, young entrepreneurs like to emphasize the opportunities this day and age provides. Living in a fast, anonymous technology dominated time, this generation is looking for purpose and authenticity. They could obtain that by making a sustainable difference. Accommodated to using technology, they could give people access to new services, information, stimulate transparency, enable co-ownership and develop digital networks (Muuse, 2015).

According to Stevenson (2008) a change agent, is as much about identity and character as it is about that such a person must understand people, have a strong ability to self-motivate, be fuelled by passion and have the ability to be patient. To a certain extent, change agents are dissatisfied with what they see around them, but above all, 'A change agent lives in the future, not the present... has a vision of what could or should be and uses that as the governing sense of action'. If we look at the millennial student generation we have now and the students of the future, they may be the most effective change-agents or what we like to call pioneers we have, if we just give them the right tools and opportunities.

The Oberlin Project at the Oberlin College in Ohio is an example of encouraging sustainable developments through students. Its aims were to increase sustainability literacy through student interaction with community stakeholders, participation in real-world situations and informal learning opportunities. The project also saw students as key suppliers of knowledge and sustainability initiatives to external stakeholders.

06 APRIL 2018 16:37



NIEUWS



Studentenpartijen gaan voor woningen en duurzaamheid

Betaalbare woningen voor jongeren en meer aandacht voor duurzaamheid en cultuur: dat zijn de speerpunten van de studentenpartijen die meedoen aan de gemeenteraadsverkiezingen. Op 21 maart mag er weer gestemd worden voor de gemeenteraad. In verschillende steden doen studentenpartijen mee. Sommige komen net kijken, andere hebben al jarenlang een zetel in de raad.

GERELATEERDE BERICHTEN

- 18-02-2014 De Piratenpartij is de beste partij voor vrijheidsliefhebbers
- 08-09-2018 Kunnen Uilensteders de Amstelveense politiek bepalen?
- 24-02-2014 Benjamin Smalhout: 'Ik sta voor een nieuwe generatie liberalen'
- 27-02-2014 Studenten in debat over gemeenteraad
- 09-03-2018 Amsterdam moet maar eens opschieten met die diversiteit
- 27-02-2014 'Famenkoek' Joram Verstoep (CDA): 'Ik ga orde op raken stellen'
- 14-03-2018 Zetelzoekers: 'Ik zou een frisse stem zijn in de vergrijpende gemeenteraad'
- 03-09-2014 Olav Scholten (NAT): 'Gemeente moet zich meer met het hoger onderwijs bemoeien'

1 2 3 volgende > laatste >>

Figure 25: Newspaper article reporting Students in the AMA go for housing and sustainability (February, 2018). Retrieved from: <https://www.advalvas.vu.nl/nieuws/studentenpartijen-gaan-voor-woningen-en-duurzaamheid>

06 APRIL 2018 16:38



NIEUWS



Studenten willen meer aandacht voor duurzaamheid

Besteed meer aandacht aan duurzaamheid. Daartoe roepen studenten alle hogescholen en universiteiten op in een manifest. 'Het manifest van morgen', een initiatief van studentenorganisatie Morgen, bevat tien aanbevelingen waarmee hogescholen en universiteiten hun onderwijs duurzaam kunnen maken.

GERELATEERDE BERICHTEN

- 05-09-2013 De angst voor schallig is wel rationeel
- 24-04-2017 Hoogleraren waarschuwen: Nederland moet groener
- 09-10-2013 'Een braaf meisje dat zich altijd keurig aan de regels houdt'
- 23-05-2017 Nu nog groener met Roos
- 03-09-2013 Zomers filmfestival op het VU-dak
- 29-10-2011 Kersters 'U'-alumnus helpt neushoorns redden met drones
- 23-11-2015 Hoogleraren: stuit alle kolencentrales
- 16-12-2015 Studenten helpen mensen die hun energierekening niet kunnen betalen

1 2 3 volgende > laatste >>

Figure 26: Newspaper article reporting Students in the AMA want more attention for sustainability (April, 2018). Retrieved from: <https://www.advalvas.vu.nl/nieuws/studenten-willen-meer-aandacht-voor-duurzaamheidurzaamheid>

By positioning students as 'doers' or change agents, not just passive learners, the projects aimed to integrate students into the design and implementation of various initiatives. At the same time it saw informal learning from community stakeholders and organisations as meaningful contributions to student knowledge and skills. The project had three main student participation models, called 'Shared Action Learning'. The first, project-based learning or learning by doing, with constant stakeholder involvement it becomes a two-way learning process between students and other parties, creating valuable contributions to developments. It emphasises practical knowledge and encourages design, implementation and teamwork, allowing students to apply theoretical knowledge to real-world problems. The second model, internships, focuses more on the obtaining skills for individual professional development or research. Similarly the third model, trans academic research is more concerned with formal knowledge production to inform stakeholder projects, rather than project implementation (Rosenberg, 2015). The impact of the Oberlin project is unmistakable. As before the introduction of the 'Shared Action Learning' model, the community and city of Oberlin did not have sufficient resources to address such challenges as sustainable development.

Pioneers in the AMA

In the AMA, we see sufficient trends that would support this kind of student participation in sustainable developments. During the recent municipal elections, the student municipal parties main concerns were providing affordable housing for students and starters and supporting sustainable developments (Kolkman, 2018). Meanwhile, a movement appeared from students appealing to universities and higher vocational schools with a manifest to become more sustainable (Hop, 2018). Moreover, according to Klerx (2018), sustainability gains importance with consumers. Consumers tend to choose for the more sustainable option when provided. At the same time, we identified in the analysis that students and the recently graduated or starters are in a quite vulnerable position at the moment. As there is lack of affordable and suitable housing for these groups where they are needed. These entrepreneurial and flexible group interested in creating change and address societal challenges such as sustainability, should be given spaces and opportunities in the area. This way, protecting the social capital, to ensure knowledge exchange, participation, connect stakeholders, ensure sustainable and innovative developments in the area and ultimately to make the transition to a sustainable city and community.

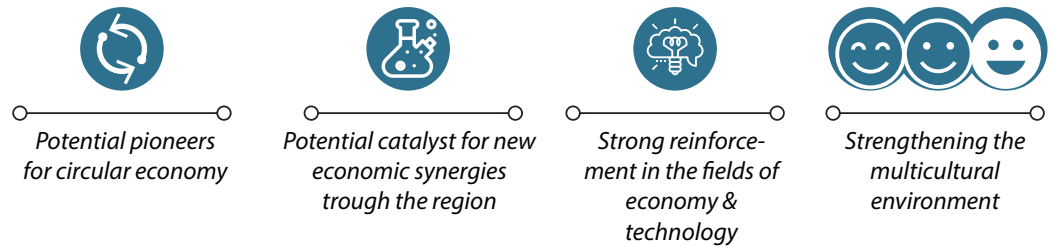
Potentials and Threats

From these trends and analysis, some potentials and threats may be deduced:



Potentials

For integration




Threats

In not planned integration

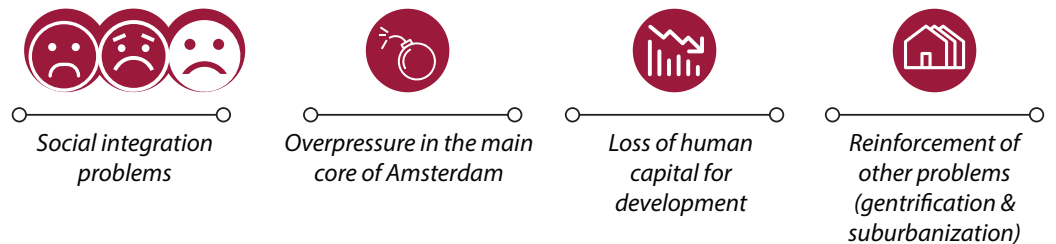
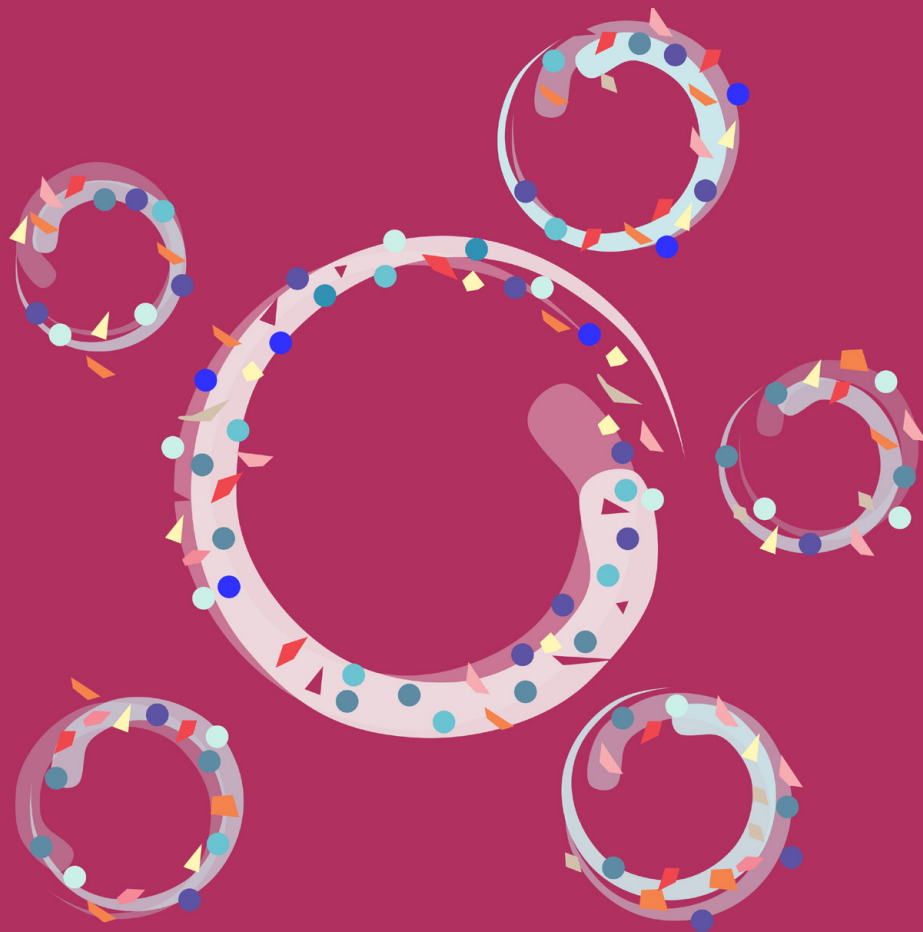


Figure 27 : Scheme of Potentials and Threats for Students in the AMA.

As there is a lot of job opportunity in the AMA, this group could present a great potential to diversify certain areas socially and implement sustainable projects, for example circular economy related, as this group is in general relatively flexible and open for innovative ideas. While on the other hand, they can contribute to the creation of 'new cycles' linked to the circular economy, involving local communities throughout participative processes.

However the students profile also represents some challenges, that may encourage the negative effects of gentrification and suburbanization. These negative effects should be avoided by implementing coherent strategies/policies to promote diversification and integration. While the new social and economic structures should complement the existing ones, aiming for social cohesion and building local collaborative communities.

3. Accommodate the students



3.1. Towards a social-driven Circular Economy

Our proposal consists of the integration between material flows and human needs. As we see that the circular economy does not integrate social participation, we believe that to achieve a circular economy social inclusion is indispensable. In this sense, we consider the 'floating population' as one of the most important social phenomena occurring in the region. Where the biggest flows of people are inside and towards Amsterdam city. This phenomena acts as a cycle of influence and create pressure over the urban and the social structures of the city.

In this sense, we believe that structural changes and future development for the region must include actions that address the floating population and the socially related issues. Hereby aiming to create a sustainable urban environment where policies and regulations are designed to **reduce inequalities** and **favour decent work and economic growth** in a sustainable way. Moreover using the most valuable social resources available. In order to achieve this, we strive for a good synergy between **sustainable communities** with dynamics of **responsible consumption and production**. As we are urban designers we lay the foundation to achieve these goals through **designing sustainable cities, sustainable infrastructure, sustainable industry and systems** and seek **innovative solutions**.

In our vision we address these sustainability goals through the group of students. We see them as an evolving profile who graduate, become workers and start families. This group will function as frontrunners for innovation, to inspire and spark society to participate and develop towards a socially and environmentally sustainable environment. At the same time ensuring a place for this vulnerable group in the city, to preserve talent in the region. Although we design for a particular profile, we keep in mind that our aim is social diversity.



Figure 28: Sustainable development goals settled by UN-HABITAT that are considered as targets of the proposal.

Source: United Nations. Sustainable Development Goals. Retrieved from, <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

To combine material flows with human needs we need to define the needs. Subsequently combine them with principles for intervention to come to a spatial implementation of those needs. From our research we categorised the needs of the chosen group. The need of housing we see from increased number students, increased internal migration and high demand in the housing stock (CBS, 2016). The need of jobs and space for these companies, we see an increase in start-ups and self-employed companies (VU, 2017), proximity to services, facilities, jobs etc., attractive landscapes or otherwise suitable environment and social interaction (Raadsinformatie Den Haag, 2011).

Needs and principles

To make our Vision more concrete we have defined several principles that guide our strategy for the project in the AMA. These principles for intervention are based on the needs of the target group, students and graduates. As we see them as an evolving profile we also discuss the needs of the profile starting families. According to research done by the Raadsinformatie Den Haag (2011), students, graduates and families have a particular preferences in an urban environment. Students prefer a independent studio as they need a certain privacy, but at the same time they want some level of communal living and proximity of other students. This is in particular the case for international students, as they arrive usually without a social network. Notably, the acceptance of physical discomfort of this group is becoming lower. This group wants a good location in the city, suitable housing and proximity to the university and social contacts.

Young professionals, or recently graduated students have a preference for a highly urban, dense and dynamic environment with a strong identity. They favor qualitative housing and quality of life, with proximity to services and work. This group likes to live with people who are alike, where interaction and community is important. Families living in an urban environment find proximity to work, social networks and services the most important. Furthermore, the quality of the housing is of importance. This group favours family friendly apartments, in a spacious, not too busy or unsafe environment. Moreover they prefer proximity to services, like schools, playgrounds and parks, more importantly proximity to other people for creating a social network.

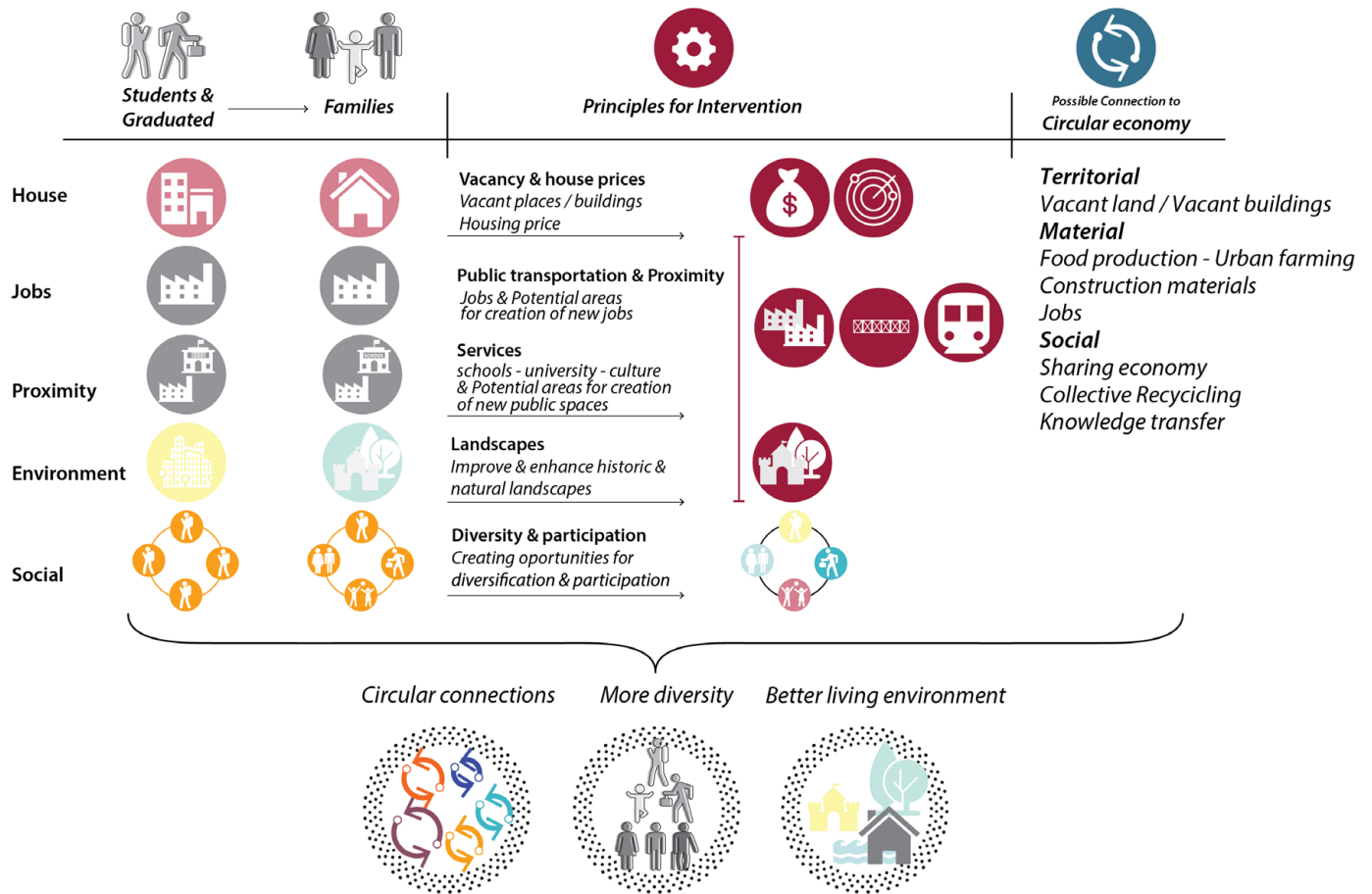


Figure 29 : Matrix of principles for intervention according to the Students needs and Circular Economy objectives.

In this regard, we have deduced from the preferences several themes of principles for intervention. Namely, the more territorial, according to vacancy and housing prices, quality and suitability of housing and environment, public transportation and proximity to services and jobs. The more social, addressing the need for diverse social communities and possibility to create social networks. Lastly, the material, according to the aspects of Circular Economy, focussing on construction material flows, organic material flows and in particular the creation of jobs and the flow of knowledge and opportunity.

With these principles for intervention we aim to create guidelines for achieving circular connections, social diversity and ultimately a sustainable and healthy living environment.

The following pages will analyse these principles for intervention in the AMA. Aiming to find potential locations for achieving our goal through the group of students, graduates and starting families.

principles

Vacant spaces and Housing price

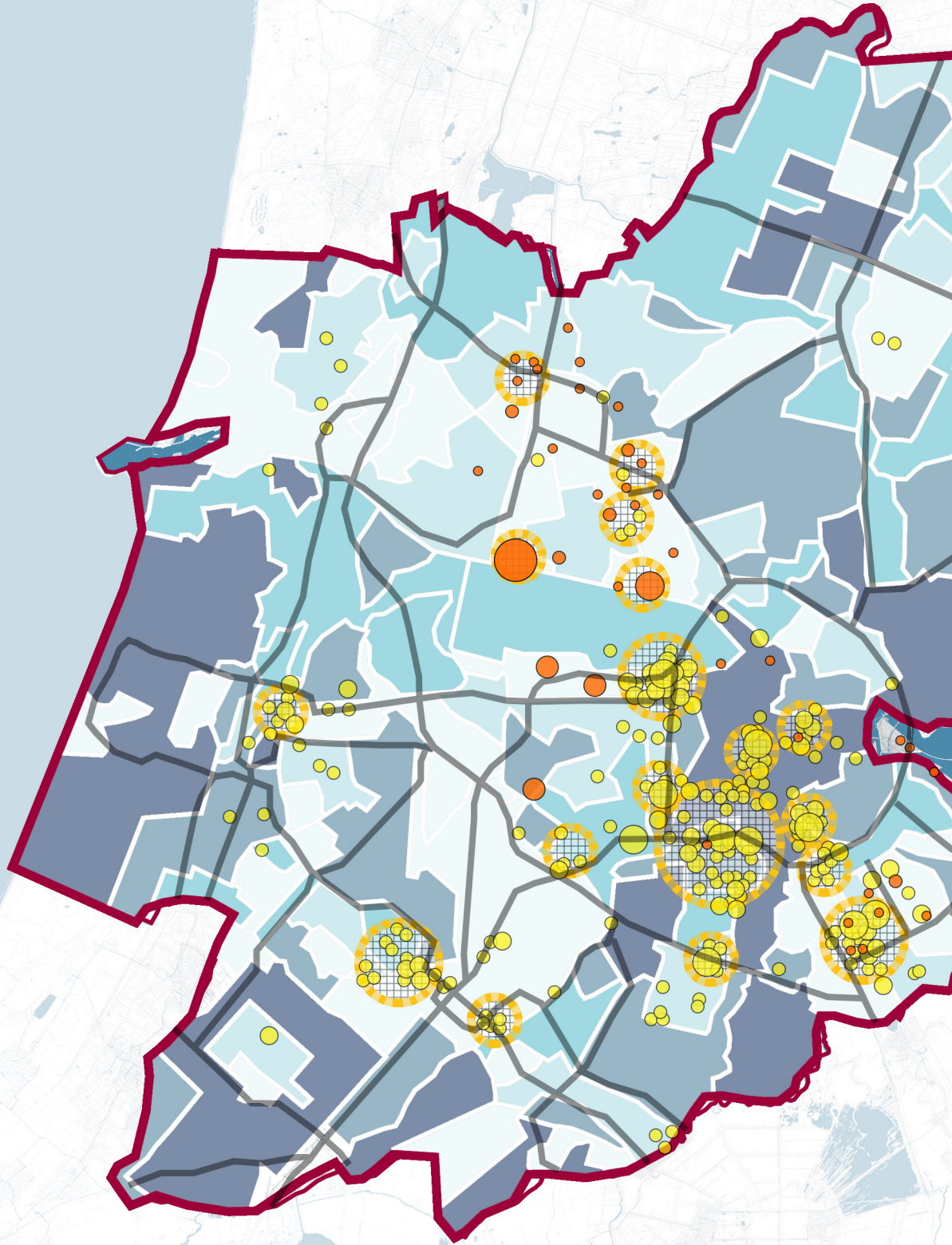
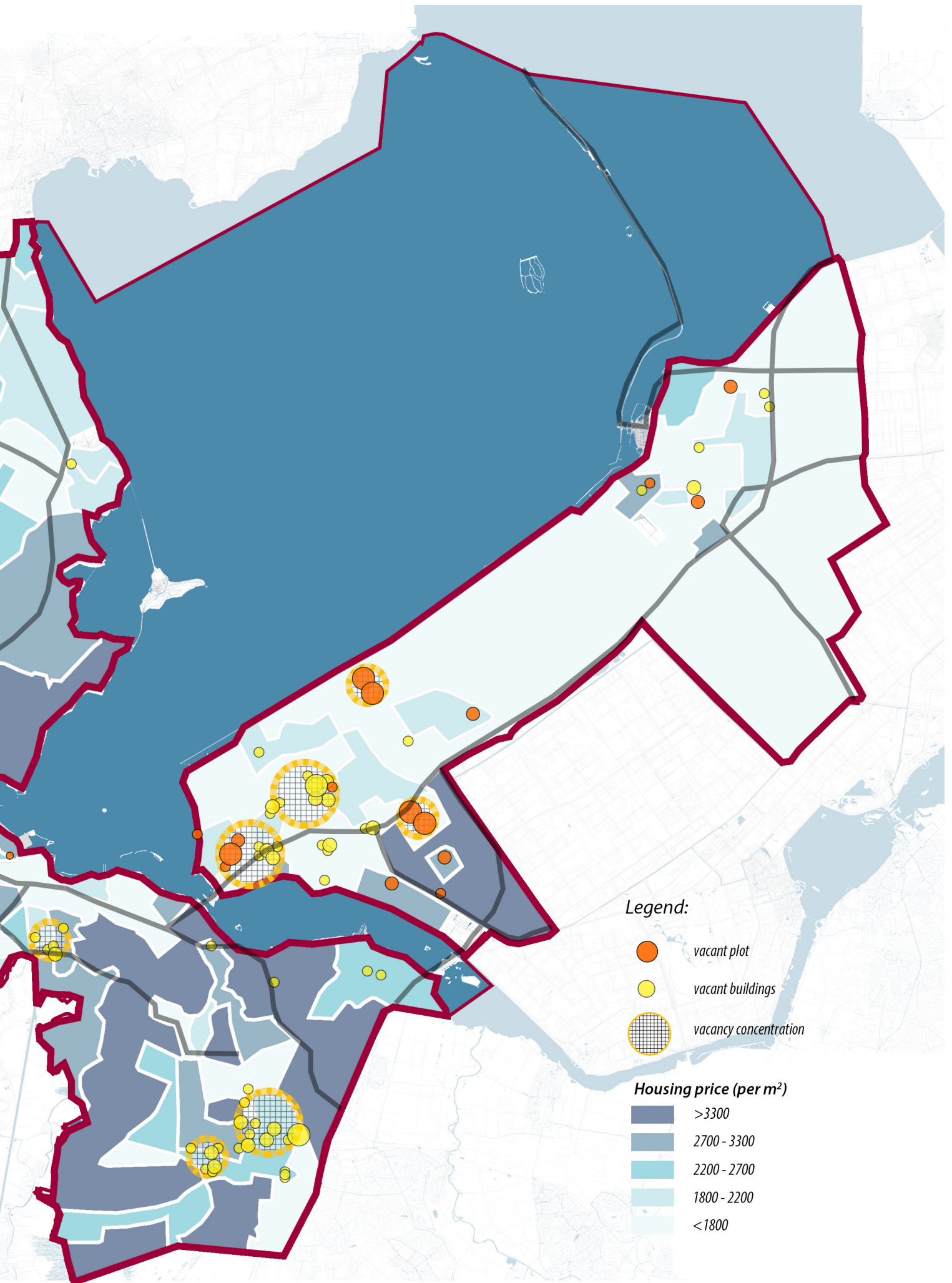


Figure 30: Map of principles: Vacant spaces and housing prices.
Source: https://maps.amsterdam.nl/leegstand_transformatie/?LANG=zh
<http://www.cbsinuwbuurt.nl>



principles

Public transport & service

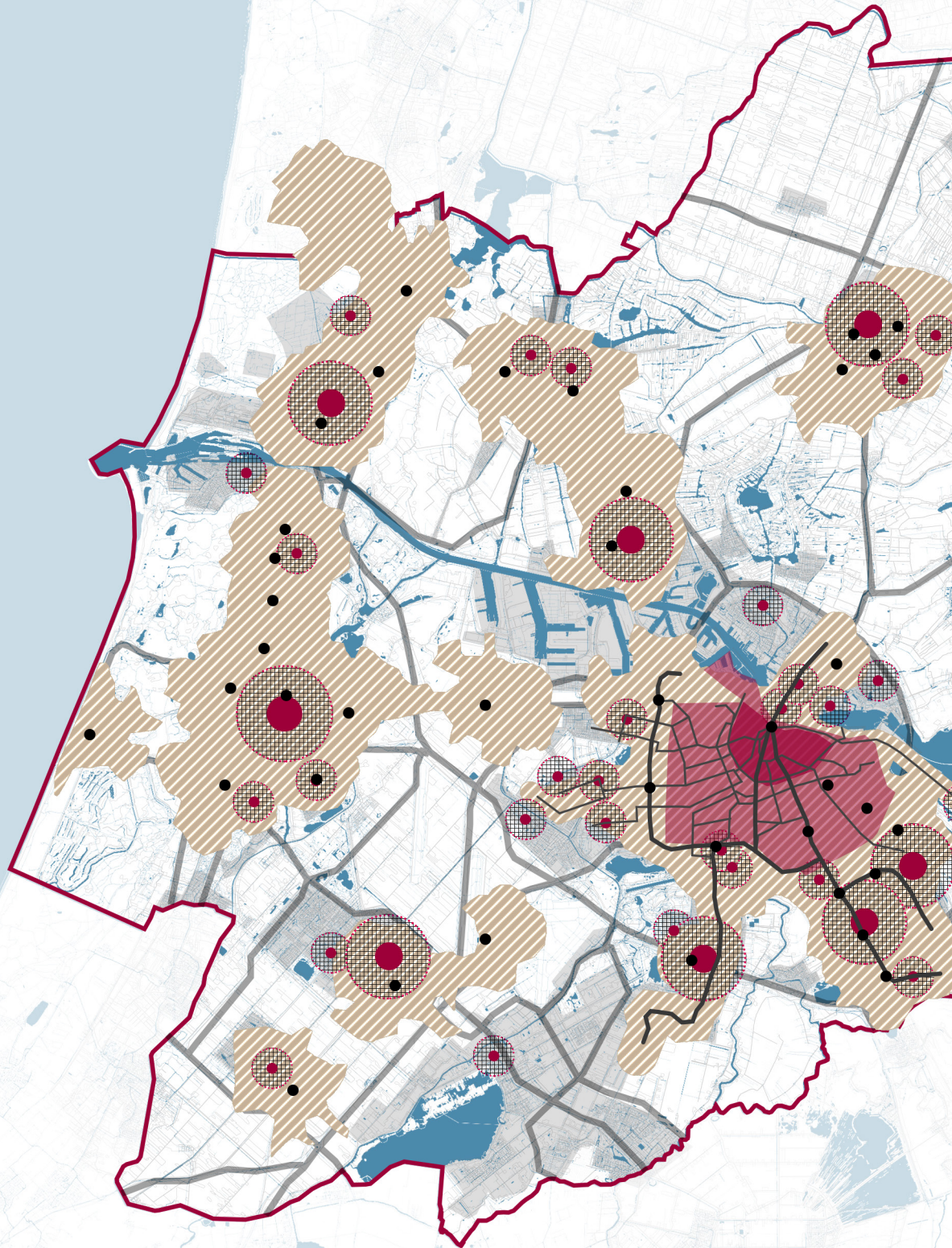
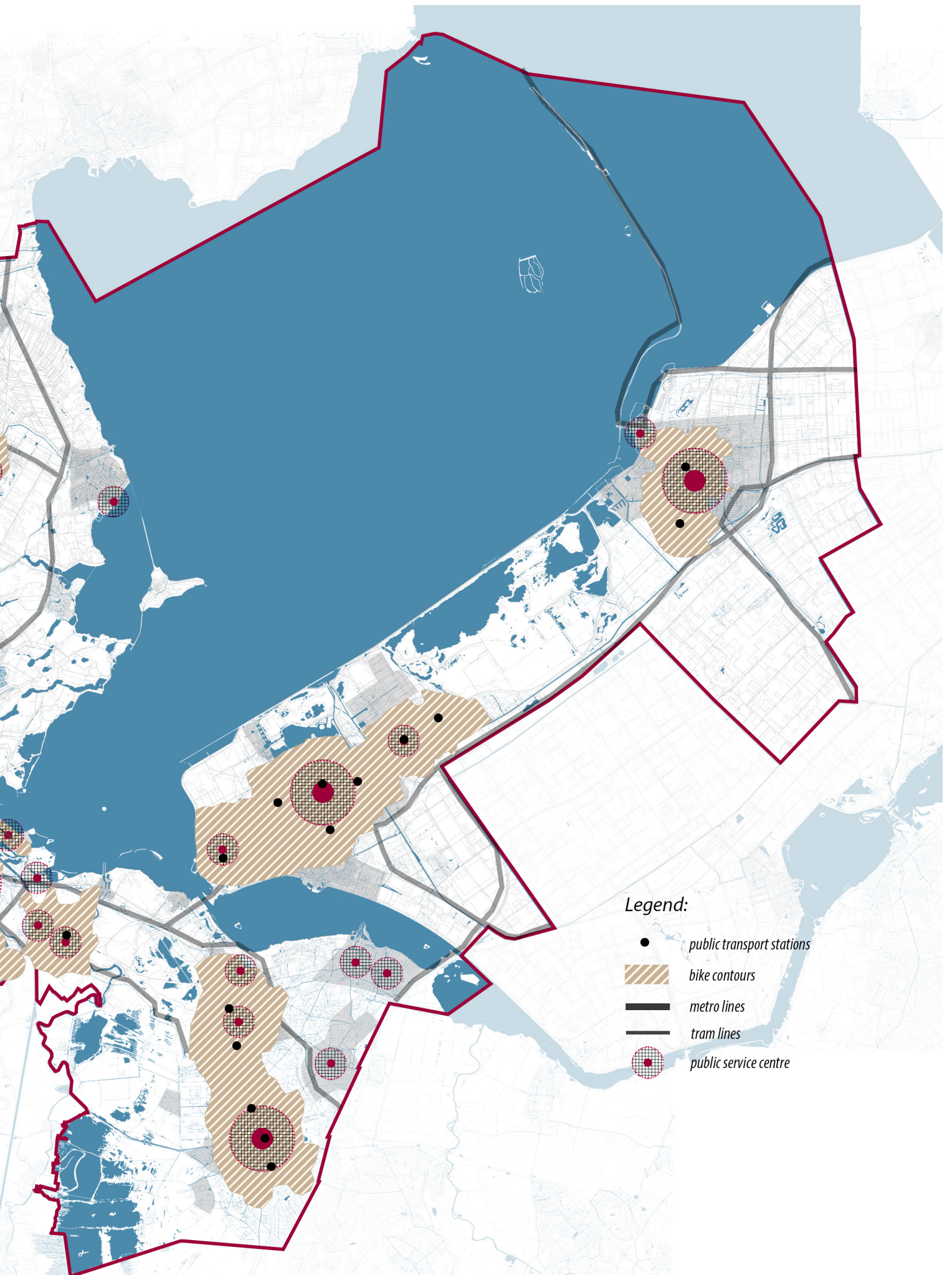
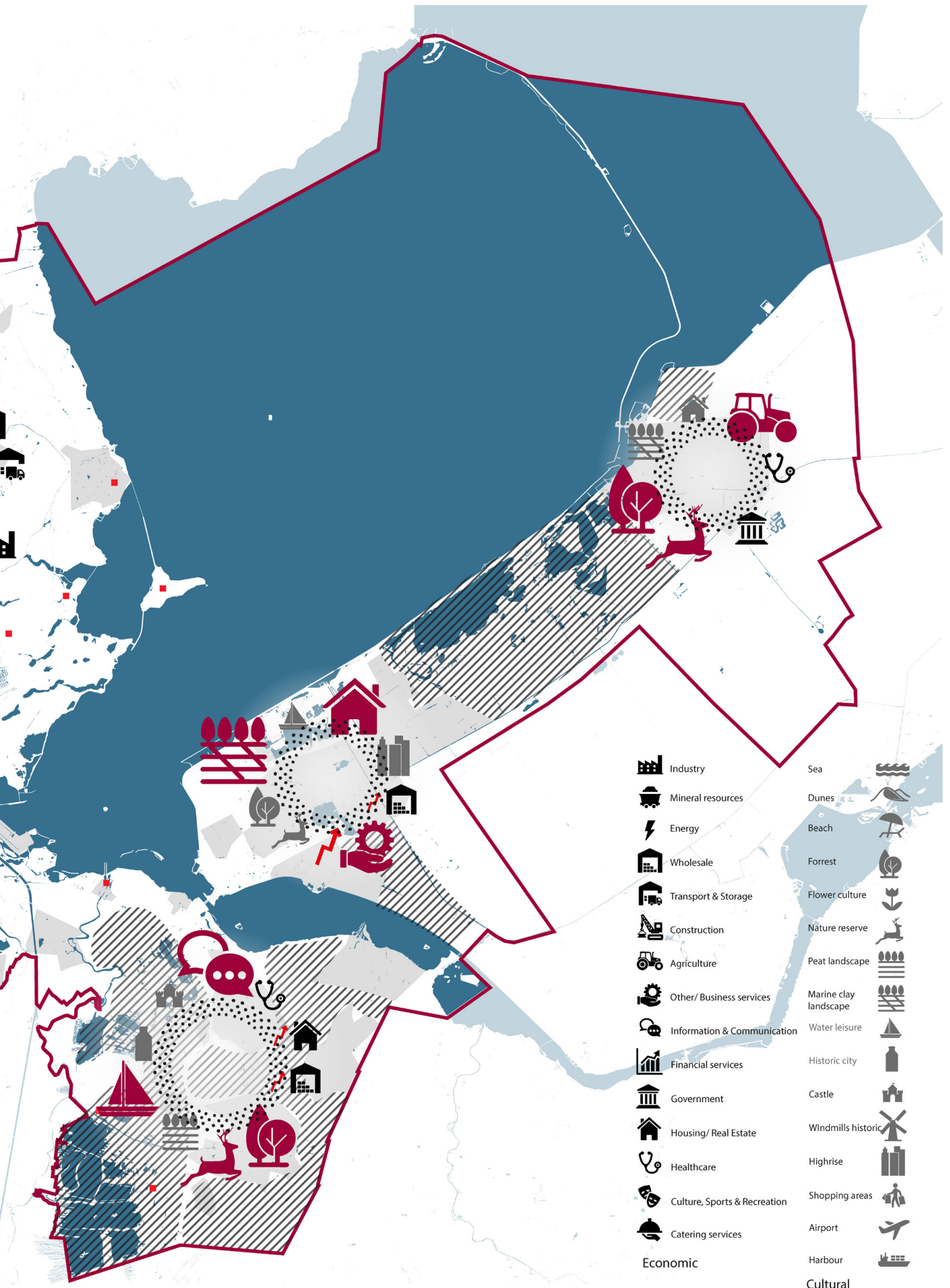


Figure 31: Map of principles: Public transport & services.

Source: <https://maps.noord-holland.nl/GeoWeb51HTML5/Index.html?viewer=OV-knooppunten>





- | | |
|------------------------------|-----------------------|
| Industry | Sea |
| Mineral resources | Dunes |
| Energy | Beach |
| Wholesale | Forrest |
| Transport & Storage | Flower culture |
| Construction | Nature reserve |
| Agriculture | Peat landscape |
| Other/ Business services | Marine clay landscape |
| Information & Communication | Water leisure |
| Financial services | Historic city |
| Government | Castle |
| Housing/ Real Estate | Windmills historic |
| Healthcare | Highrise |
| Culture, Sports & Recreation | Shopping areas |
| Catering services | Airport |
| Economic | Harbour |
| | Cultural |

principles

Construction chain

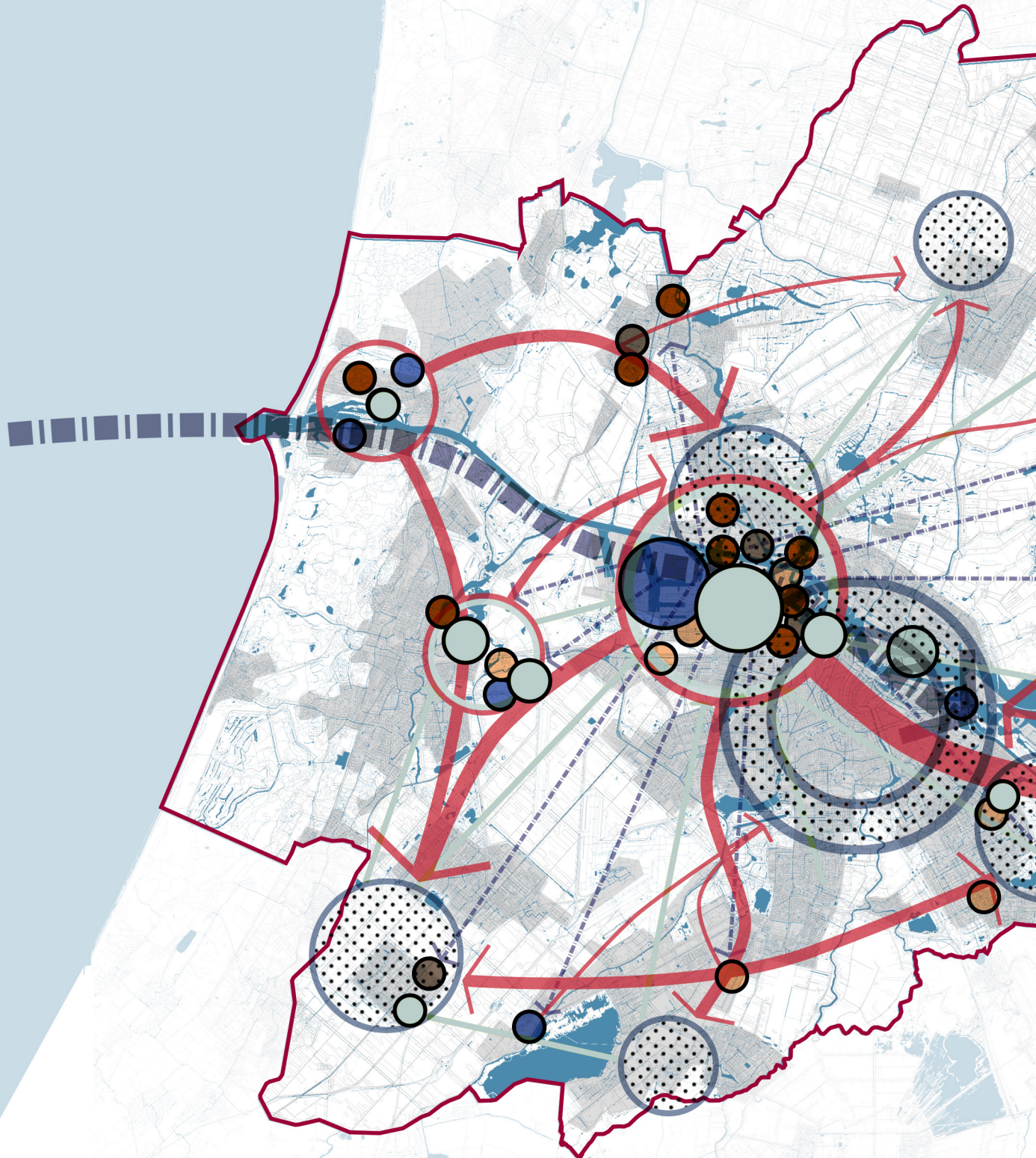
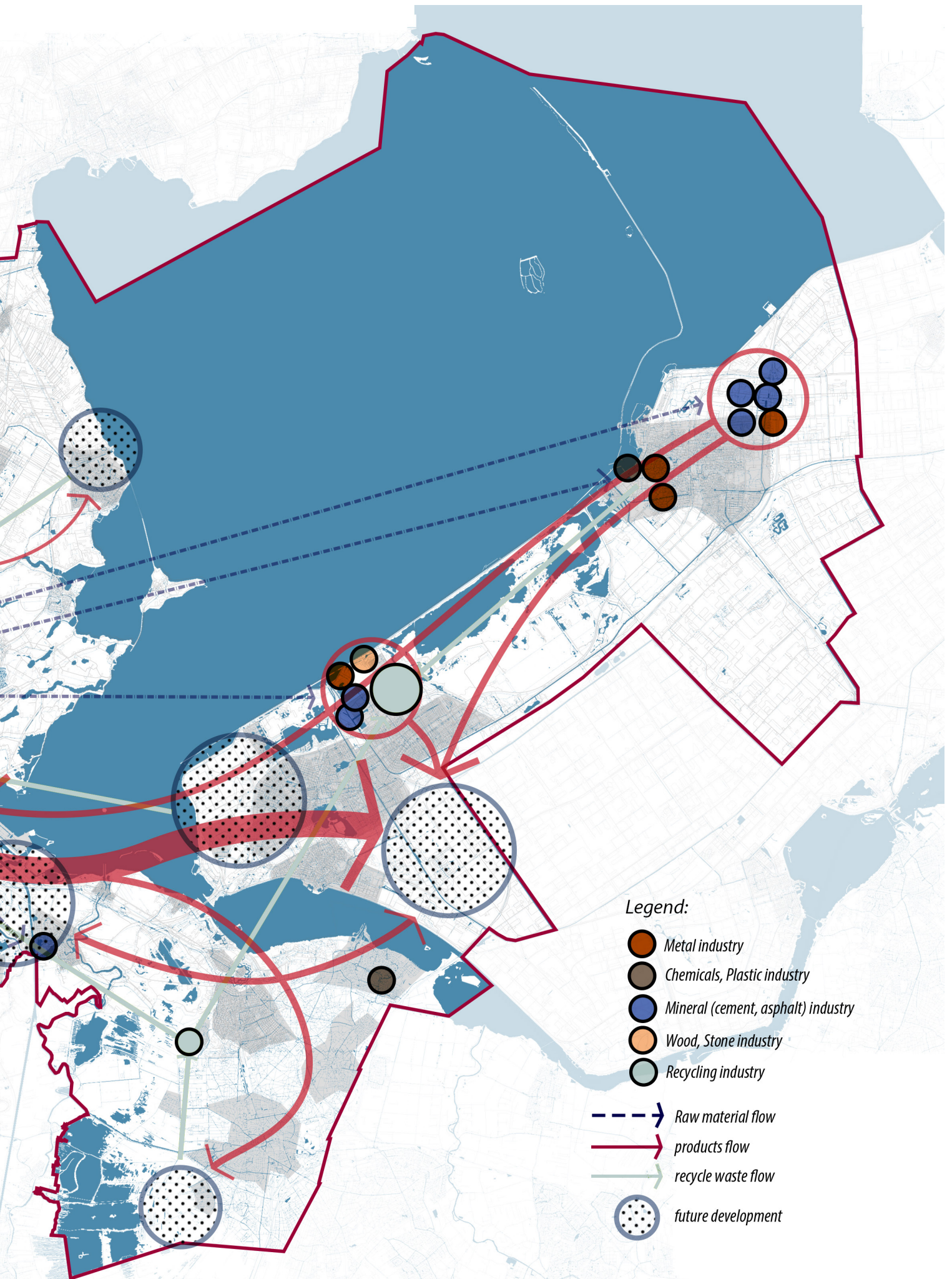


Figure 33: Map of principles: Construction chain.

Source: <https://maps.noord-holland.nl/GeoWeb51HTML5/Index.html?viewer=OV-knooppunten>



principles
Food chain

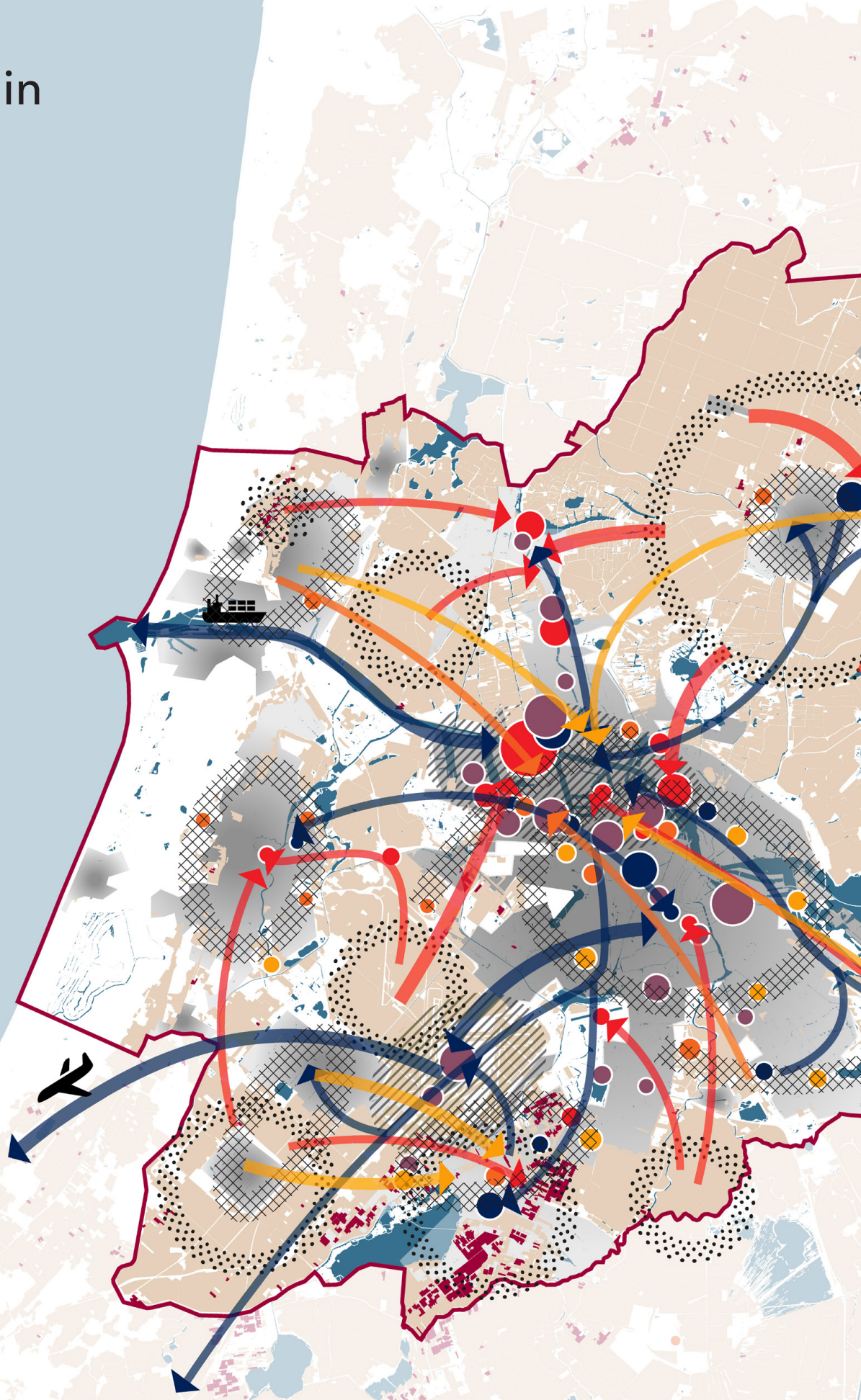
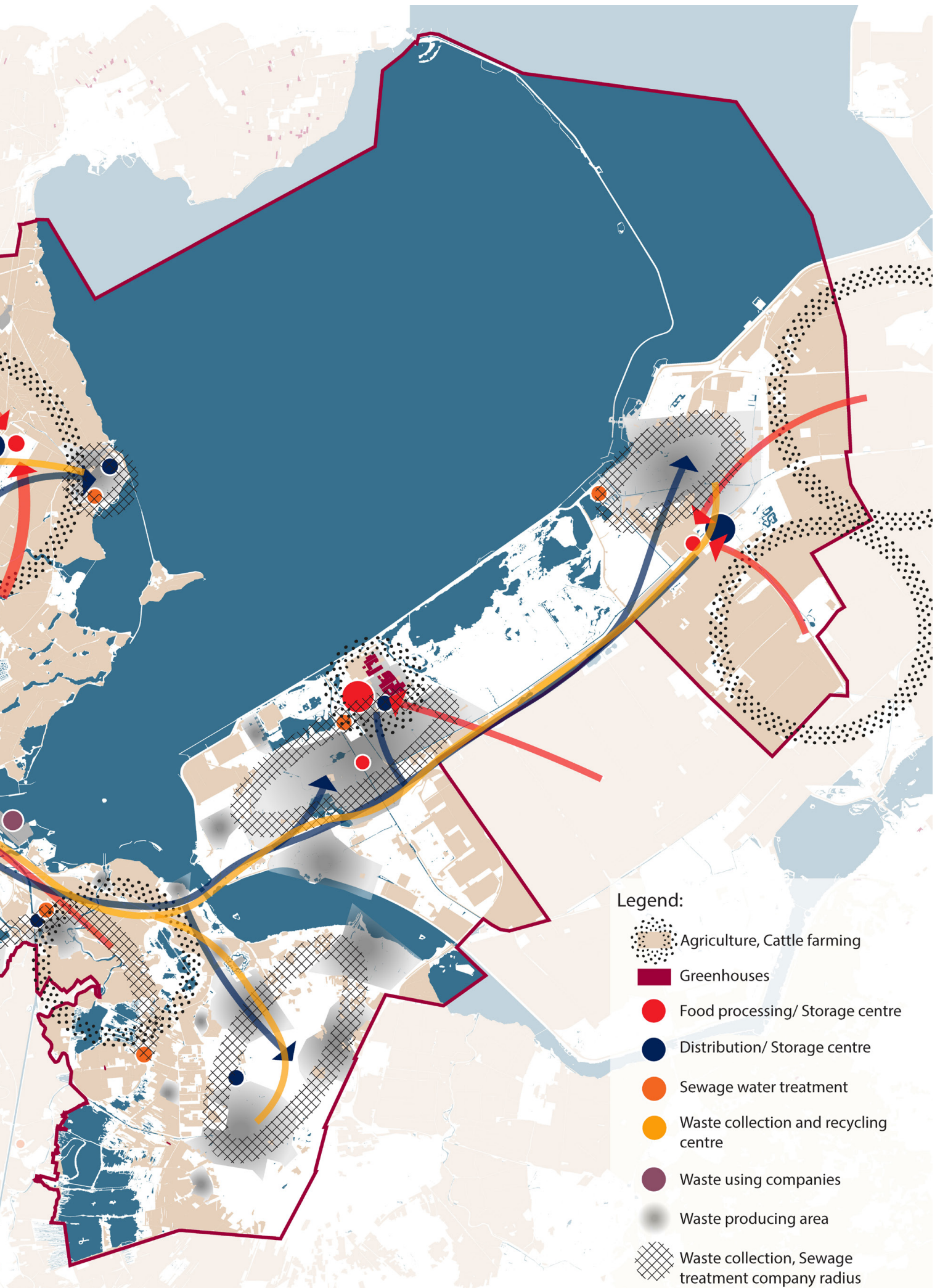


Figure 34: Map of principles: Food chain.
Source: Gemeente Amsterdam. (2016). Circular Amsterdam; A vision and action agenda for the city and metropolitan area. Amsterdam, The Netherlands.
<https://www.europages.nl/ondernemingen/Nederland/voedingsmiddelenindustrie.html> https://maps.amsterdam.nl/open_geodata/



Legend:

-  Agriculture, Cattle farming
-  Greenhouses
-  Food processing/ Storage centre
-  Distribution/ Storage centre
-  Sewage water treatment
-  Waste collection and recycling centre
-  Waste using companies
-  Waste producing area
-  Waste collection, Sewage treatment company radius

principles

Waste chain

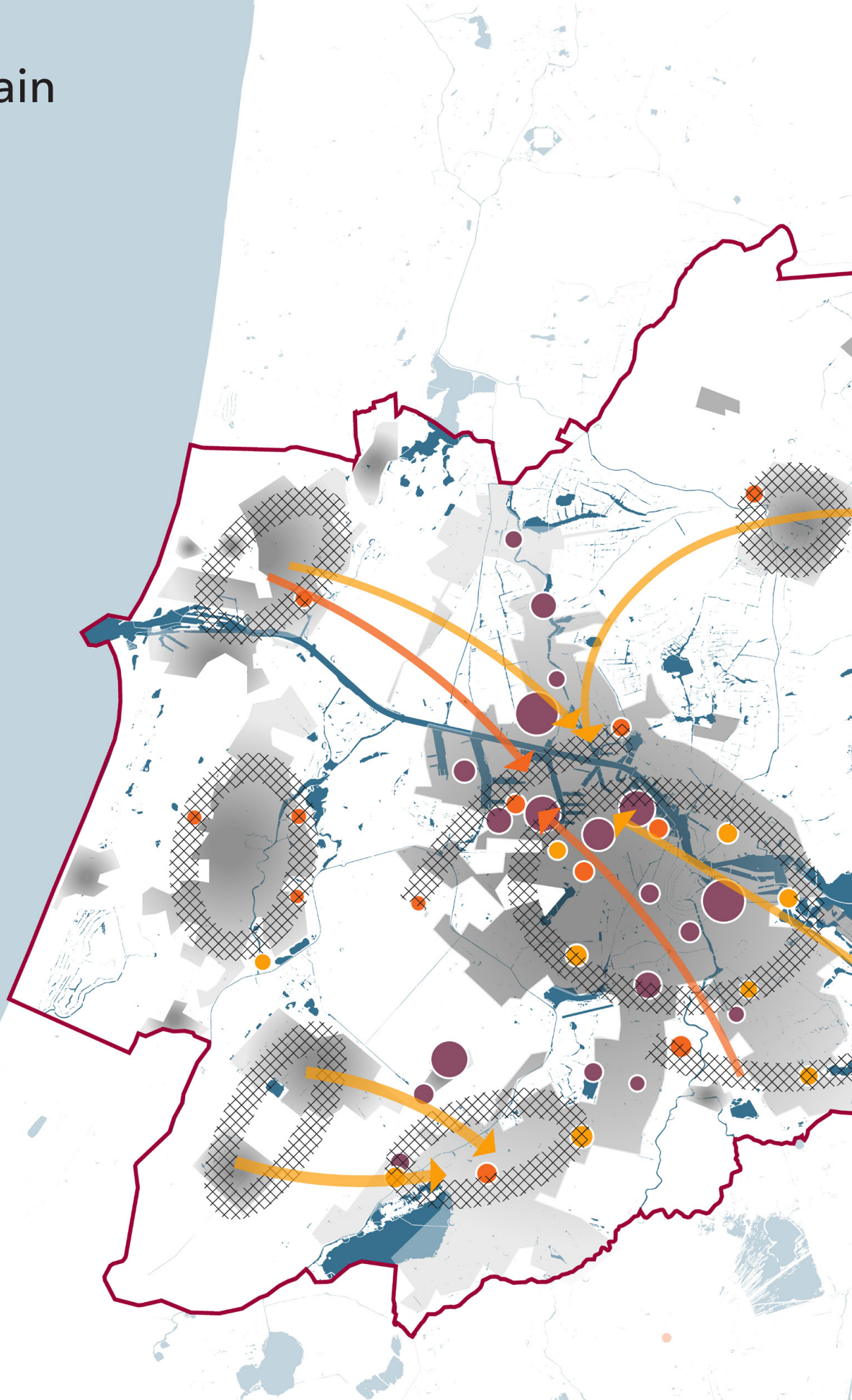
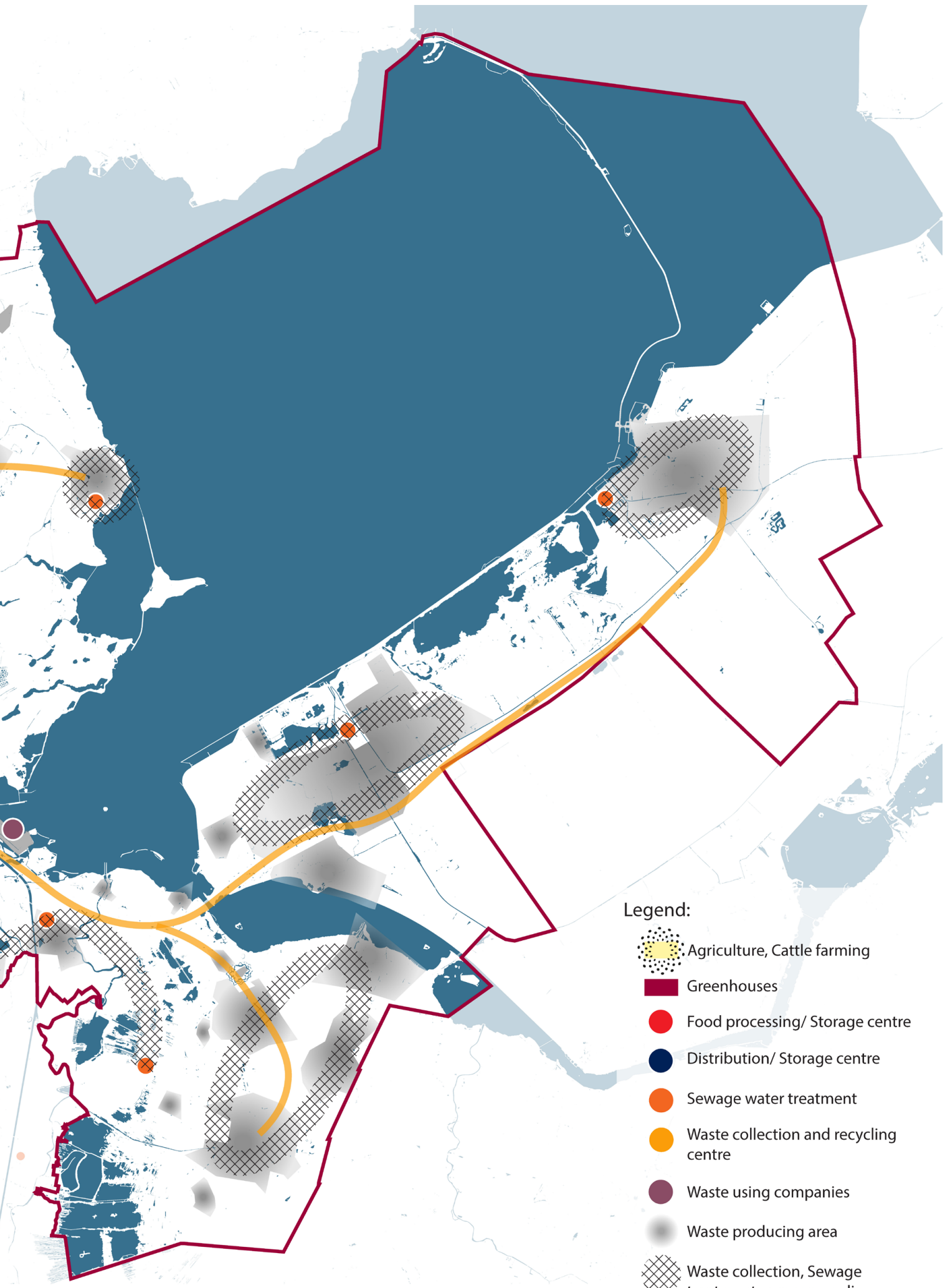


Figure 35: Map of principles: Waste chain.

Source: Gemeente Amsterdam. (2016). *Circular Amsterdam; A vision and action agenda for the city and metropolitan area*. Amsterdam, The Netherlands.
Gemeente Amsterdam. (2015). *Afvalketen in Beeld: Grondstoffen uit Amsterdam*. Amsterdam, The Netherlands.



3.2. Vision

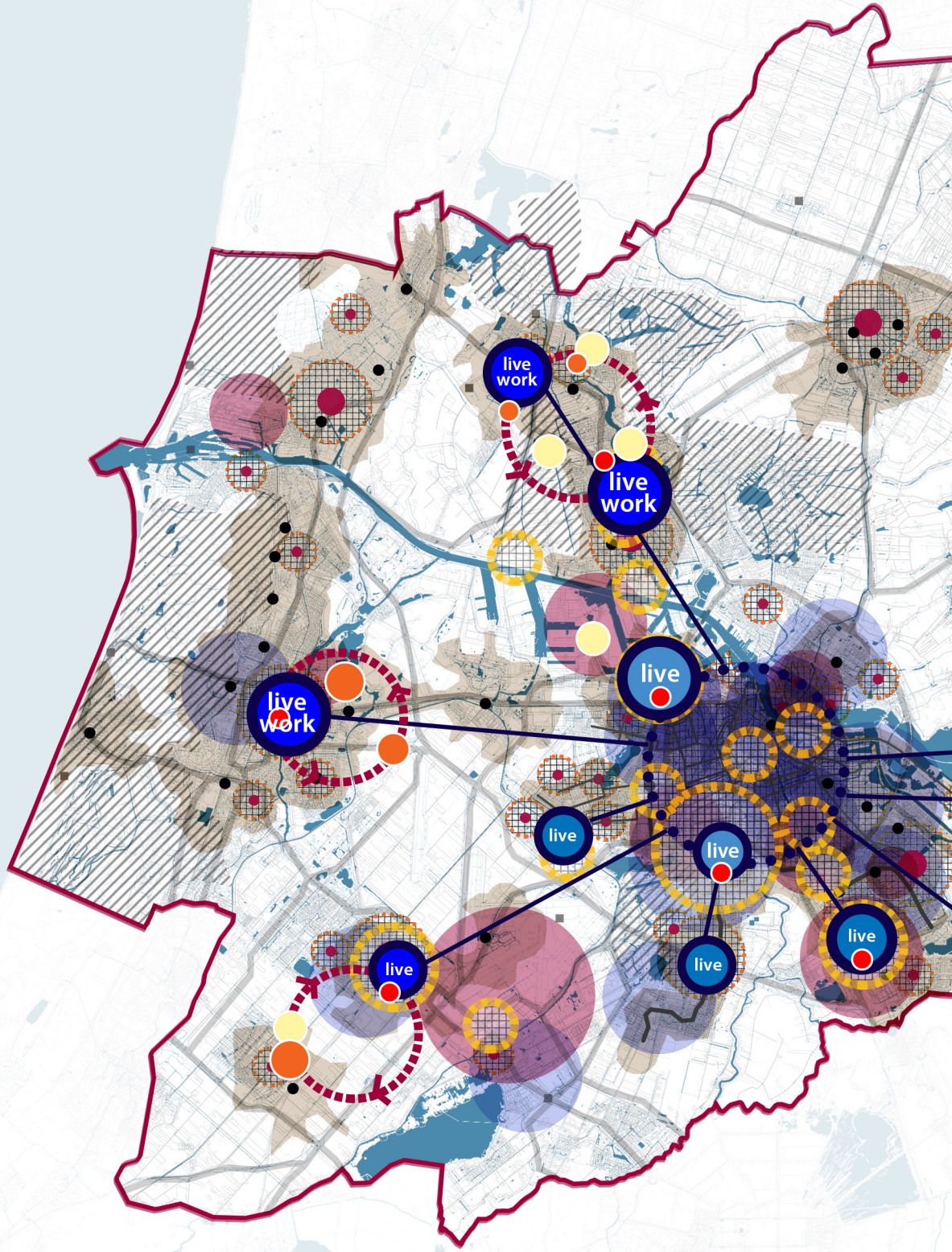
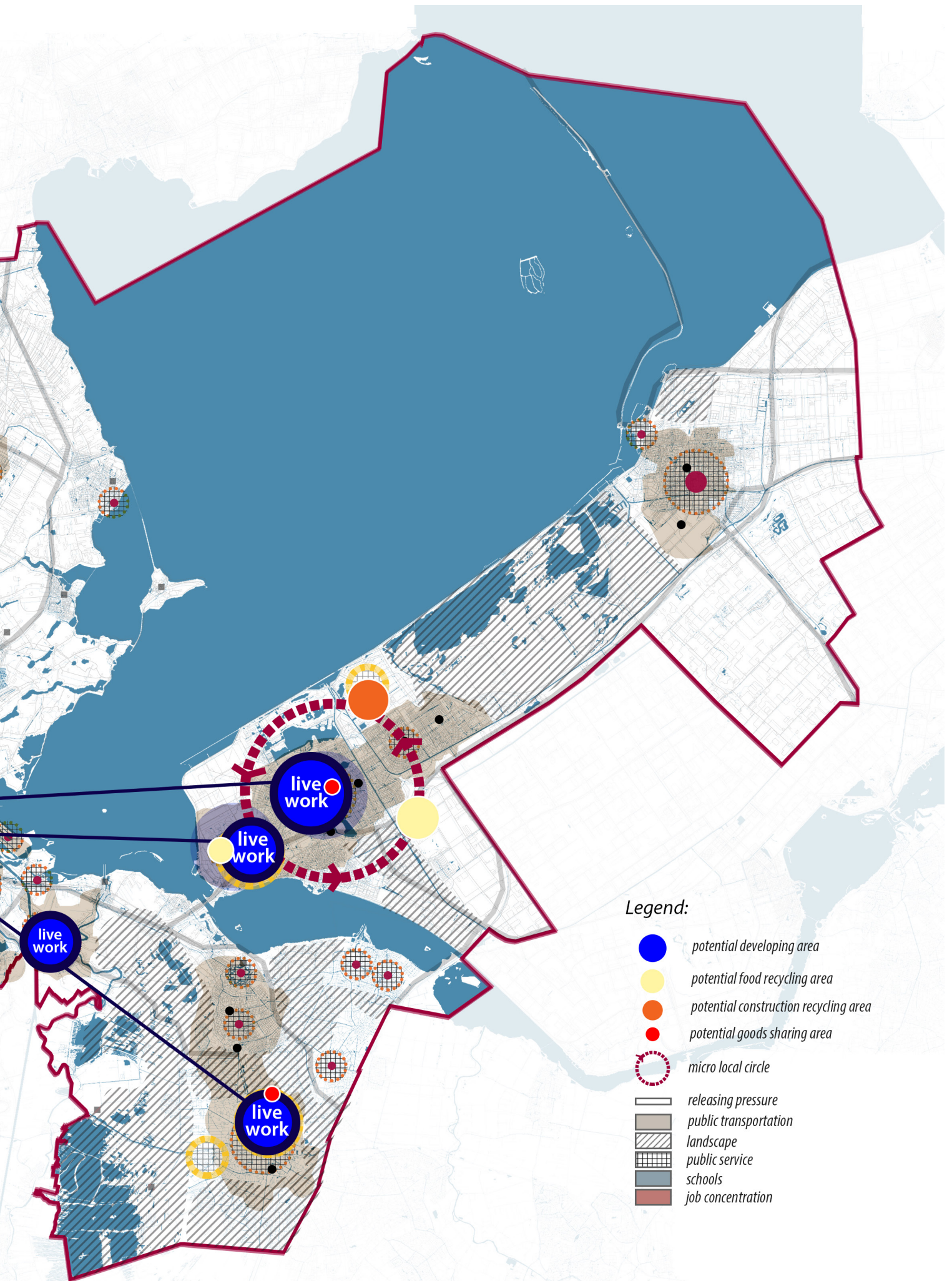


Figure 36: Map of Vision for the AMA.



Legend:

- potential developing area
- potential food recycling area
- potential construction recycling area
- potential goods sharing area
- micro local circle
- releasing pressure
- public transportation
- landscape
- public service
- schools
- job concentration

How to read the maps?

From these analyses we can conclude that vacancy can be found in most of the surrounding cities of Amsterdam, but more concentrated around the A10 ring of Amsterdam. The whole region has sufficient proximity to public transportation services, however the connection from Zaandam, Haarlem and Hoofddorp to Amsterdam has a particularly good connection. Moreover, three main characters in the region can be recognised: the more recreational character in Almere, Lelystad, Hilversum and surrounding areas; the more economic character in Amsterdam, Haarlemmermeer and Aalsmeer area; the more agricultural character in Zaanstreek and Wormerland.

When looking at the construction chain and organic flows it can be concluded that the main stakeholders in these chains are located in the harbour and airport area. Only the agricultural lands provide resources outside of this area. At the same time, companies involved are scattered through the region, creating large distribution distances. Each place in the region has multiple elements in these material chains and therefore the potential to create new chains with the companies involved in these material flows.

Overlaying these qualities, elements and opportunities. Some potential locations can be chosen, where all these factors come together and may create new connections in material and human flows. Additionally, locations that have the potential to become suitable locations to live and work for students, graduates and starting families.

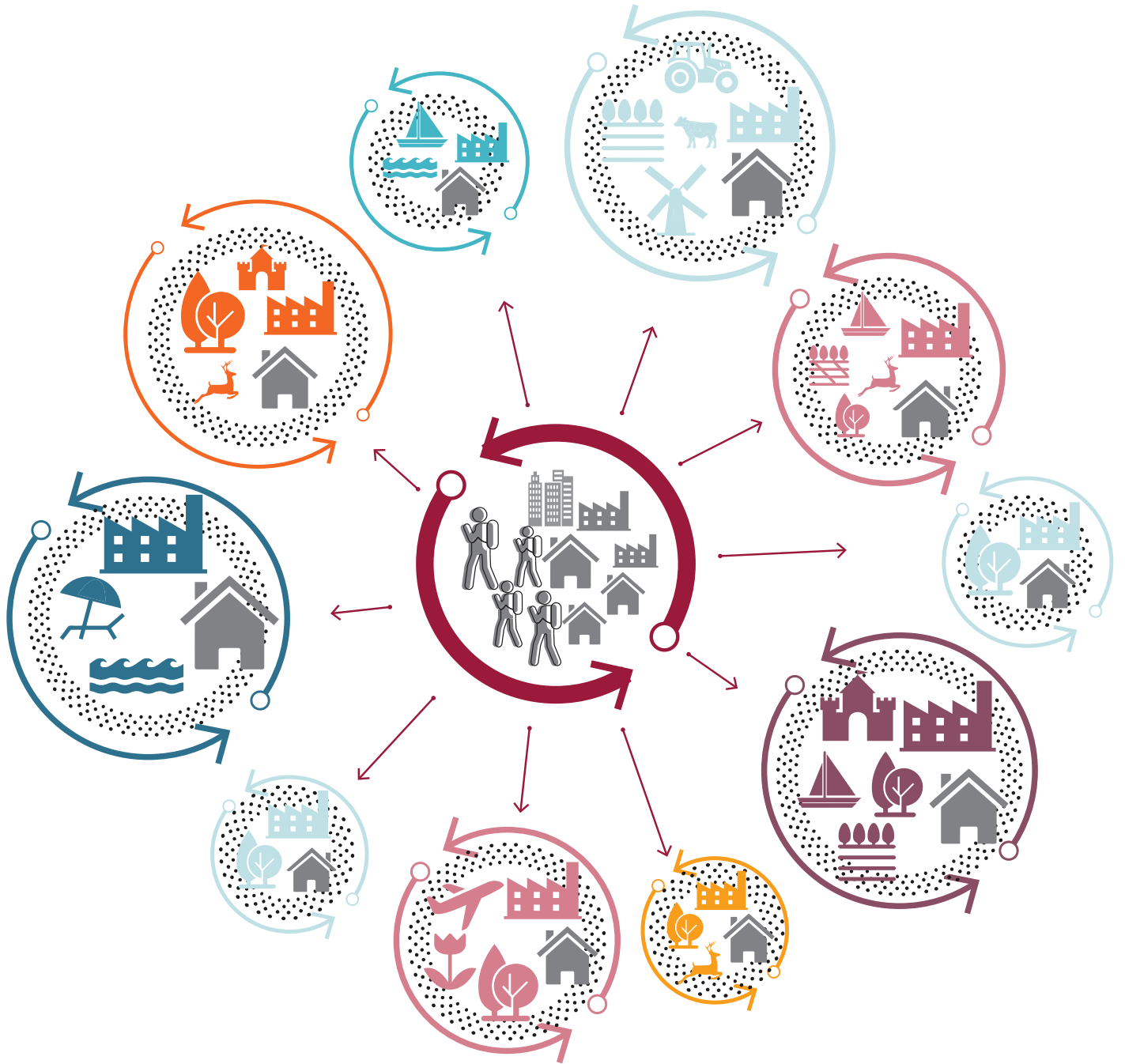


Figure 37: Scheme of Vision Strategy, toward the smaller circles in the AMA.

4. Acupuncture locations



4.1. The methaphore

Basic principles that we defined in the Vision chapter helped us make determine that accommodation of students would be possible in places that we chose. *What kind of specific conditions would encourage students to live further from the centre of Amsterdam? What specific social conditions occur in locations that we have chosen? Do communities in those spots need more students or rather active graduated? How can we introduce social sustainability, while at the same time safeguarding social diversity in those spots? How can we introduce Circular Economy through accommodating our profile and at the same time not use them but offer them something in exchange?* **All of these questions will be answered in the strategy we developed based on a simple metaphor of acupuncture points.**

Acupuncture (curing trough punctual interventions) helped us explain our concept of creating 'smaller circles' around Amsterdam City. By working on a smaller scale we have the possibility to truly and potentially successfully introduce Circular Economy to the AMA citizens by including social factors. Each intervention is made based on carefully chosen location, with the aim to activate local communities. With the idea of 'smaller circles' we understand circles of material flows on neighbourhood scale, where potential of participation is the highest, thus the possibility of learning and changing habits is the highest. This way, a new model of economy can be made understandable on tangible scale.

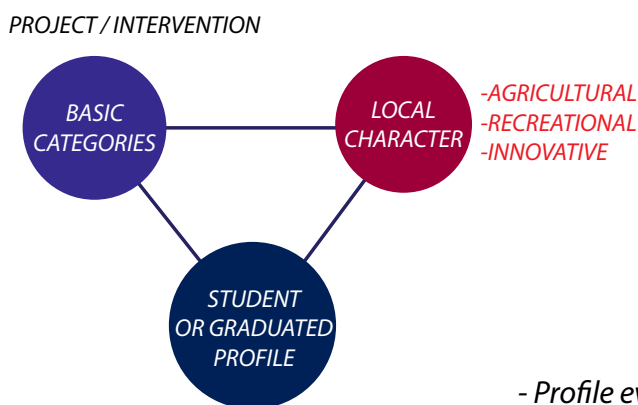
Social diversity

In addition this neighbourhood scale of intervention allows us to create social diversity and increase participation. Punctual interventions leave space for social adaptation but also change local social conditions in a non-violent way. Keeping in mind the concept of maintenance sustainability. However to implement changes properly we first need to define what kind of diversity we would like to implement.

Diversity can be simply explained as range of differences and characteristics within a group. In our theoretical framework we elaborate what kind of problems we notice in the AMA (segregation, gentrification and suburbanization).

We decided to work on three aspects strictly connected with those negative processes: distribution of age, income and ethnicity. Establishing diversity on those factors would allow us to face the social challenges occurring in the area and implement positive changes.

We cannot stop the flows of floating population, however we can make sure, that by controlled accommodation we can improve local conditions to create synergies. At the same time, smaller punctual intervention allows us to connect social sustainability with circular economy. By means of this strategy we believe that we may also relief the housing pressure on the inner core of Amsterdam.



Therefore, the acupuncture needles metaphor would connect all the issues explained above by comprehensively connecting three factors:

- Profile evolution (to make sure that our target group they would stay at the locations)
- Basic categories (defining changes that we want to implement)
- Local character & suitable environment (to make sure that implemented changes would work)

Figure 38 : Criteria for Projects.

We decided to work through all those factors at ones. We analyze each factor always referring it to others. We firstly define our target groups. Students as our target group become our profile, because of their accomodation we took closer look into conditions of the evolution of this profile. Stakeholders indications become after that strictly connected issue. After that we take closer look into each location analysing its social and spatial conditions. On the next pages we present summary of our analysis transform into spatial strategy.

4.2. Profile evolution



Figure 39: Scheme of Student profile evolution.

4.3. Stakeholders

As we mentioned in the Chapter 2, students compose an evolving people profile in the AMA. Therefore, this group can not be encapsulated in a static category. They create social and creative capital that is constantly growing and renovating. For instance, once they finish their studies, students become graduated professionals able to stimulate the knowledge, innovation and economy. However, while students represent an attractive societal group in the case of AMA, as a floating population, they also are subject of vulnerability and precarity conditions. Since the AMA is facing challenges related economic growth, migration and social stability, students can be part of the solution or part of the problem. By not including them in the social objectives of the region, the AMA can lose an enormous opportunity to create new synergies at economic and social level. These entrepreneurial and flexible group interested in creating change and address societal challenges such as sustainability, should be given spaces and opportunities in the area. This way, protecting the social capital, to ensure knowledge exchange and ensure sustainable and innovative developments in the area.

Nevertheless, the integration of students needs to be thought beyond an abstract level. Students can be part of a gentrification process or can be integrated into the community to encourage place making and innovation. In this regard, thinking in terms of their integration must be done considering societal needs from different local groups. In this regard, our project has defined both spectrum of needs in order to define the better possibilities for the group and the AMA.

We consider the integration of different stakeholders during the process of implementation of our strategy. This involvement is something fundamental for accomplishing our goal.

Firstly, we recognize students and graduated workers as part of one of the weaker groups in terms of power in the region. At the same time, this group is one of the more interesting group in their potential to integrate into society.

We also identify the social, environmental and community organizations as groups that have more influence and also interest in local and regional improvements. These groups eventually could be integrated through a participative process.

Secondly, we have market driven organizations, as housing associations and companies. These groups currently have a strong influence in policy making and are quite well aligned with government authorities. The Circular Economy model has been well received by both these groups.

Thirdly, we recognize the governmental local authorities (local municipalities) that have influence but with a more peripheral interest. In this regard, with our intervention strategies, we aim to move students and local communities towards a more decisive level to become players. We think that can be achieved through creating interaction and participation in the different projects that we propose. Moreover by creating incentives and principles for these stakeholders to make this transition. At the same time we also expect a positive approach of the local governments by including their objectives in our development goals for the Region.

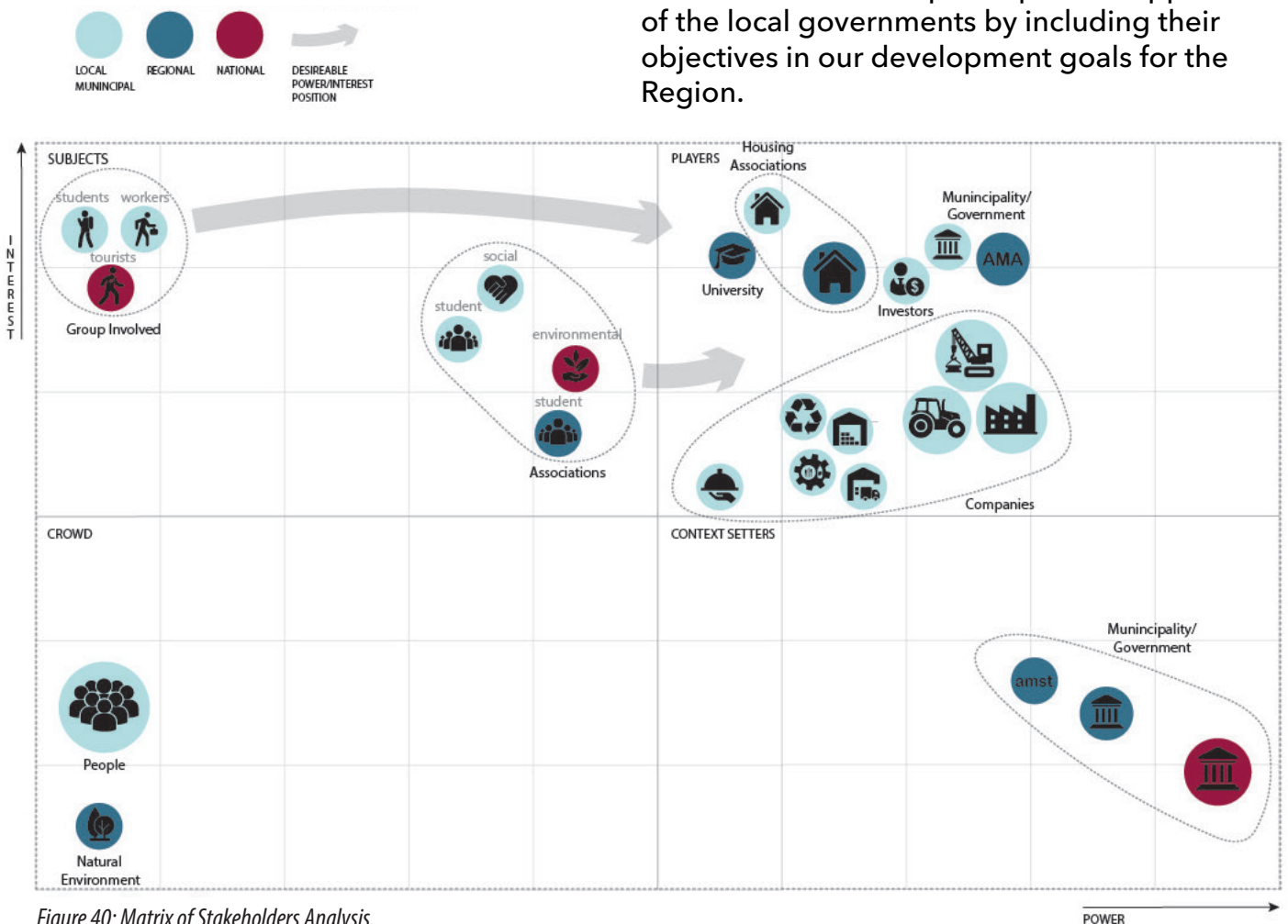


Figure 40: Matrix of Stakeholders Analysis.

4.4. Specific Connections

After defining the potential spots for intervention, we took a closer look into those neighbourhoods, analysing them through social and spatial factors. We compare them by the age groups, ethnicity, housing price, income groups, vacancy and condition of surrounding public spaces. We marked similarities and differences trying to find conditions where possible, already existing circular economy projects could work best.

According to the analysis we have done for each of the potential locations in the AMA, we divided them into 3 types of intervention areas, focussed on agricultural character, recreational character and innovative character. Each character of intervention area has similar qualities and challenges occurring at the specific location. However, the qualities and challenges of the different characters may overlap. Therefore the potential interventions overlap as well, as interventions may address multiple issues. Consequently, these intervention area types are based on the opportunities that lay in the locations of each area instead of the spatial qualities or challenges. Figure 41, 42 and 43 demonstrating our first connection. Every location through quality that we defined was connected to interventions answering in possible best way.

Based on this analysis we decided to skip two cities: Haarlem and Hilversum. In both of them we find society diverse enough according to age, ethnicity and income groups. Additionally Hilversum is localised to closed to Utrecht competing with AMA region in the terms of students.

Maps overview of different locations

Agricultural and Recreational character

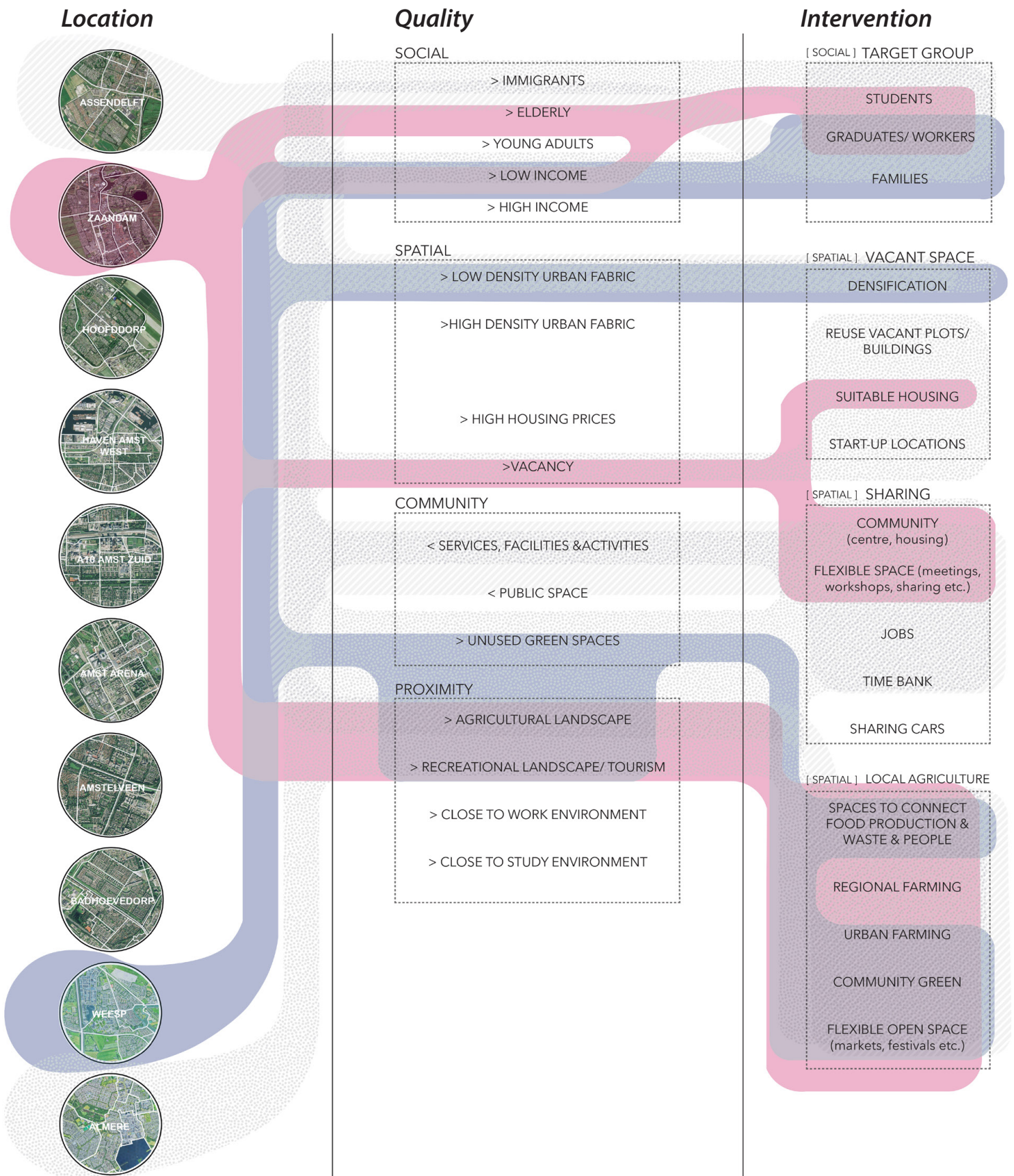


Figure 41: Analysis of potential locations.

Maps overview of different locations

Innovative character (Sub-Urban)

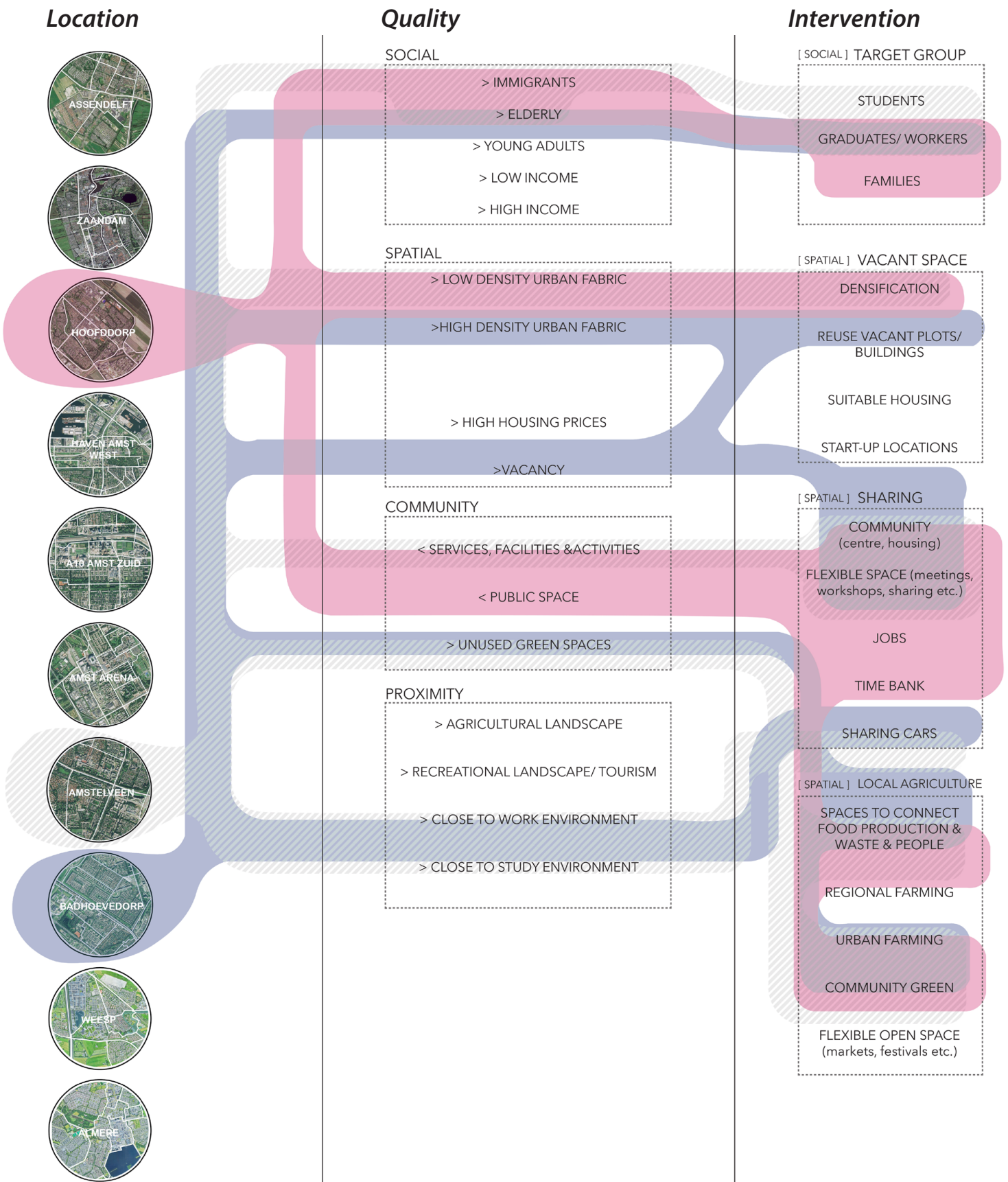


Figure 42: Analysis of potential locations.

Maps overview of different locations

Innovative character (Urban)

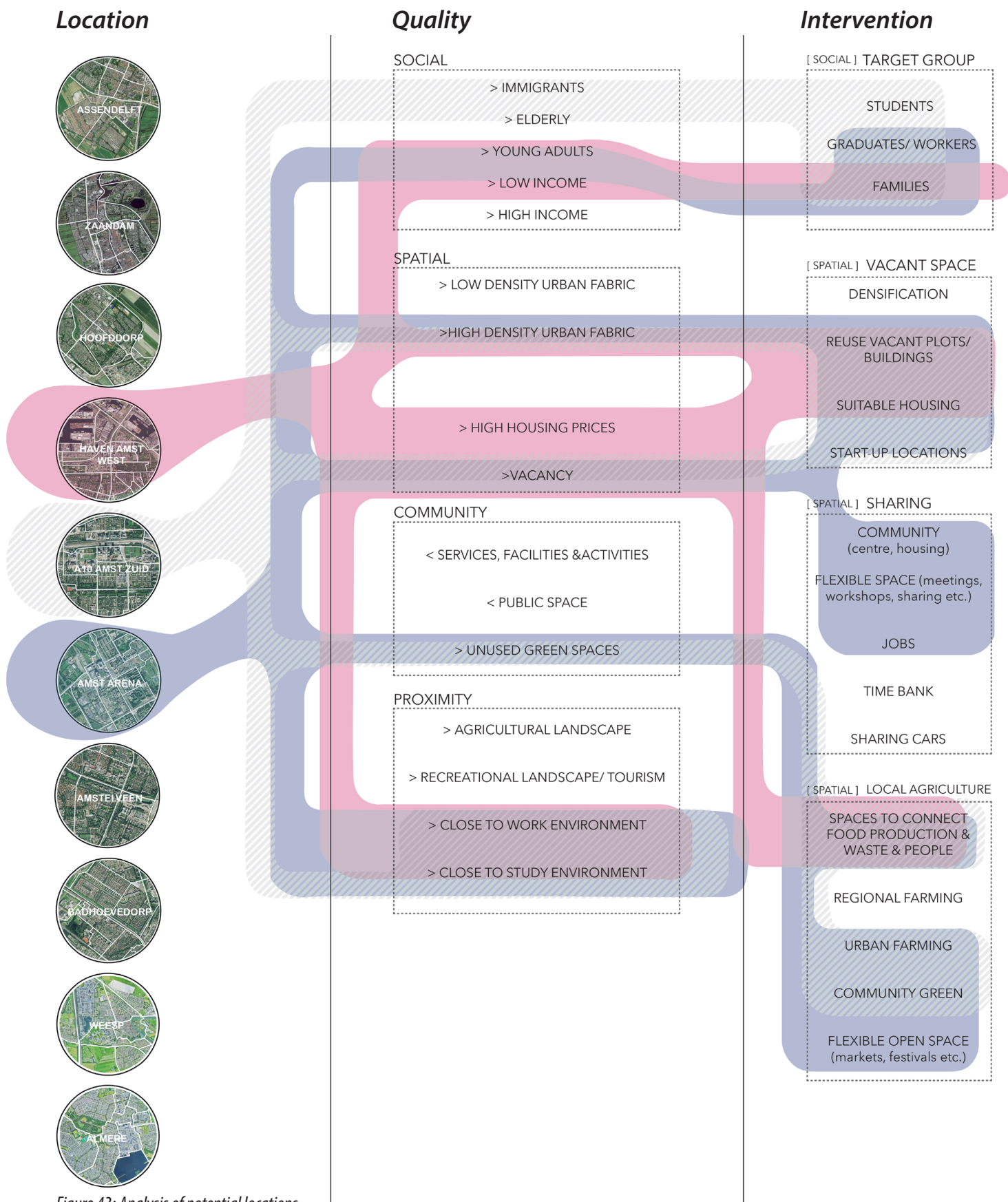


Figure 43: Analysis of potential locations.

4.5. Spatial strategy

The spatial strategy table (figure 45) together with map (figure 44) combines the potentials of these characters together with the intervention principles defined in our vision. Showing a multitude of possibilities for each character. These projects together aim to firstly, reuse vacant land and buildings, to densify and diversify neighbourhoods by introducing housing, flexible spaces and creative labs. Secondly, to exchange knowledge and awareness by connecting stakeholders in the community and creating opportunities and places for them to interact. For example by creating festivals, workshops and creative labs, where different people can come and work together. At the same time, these places can be used to reuse, (up-) recycle and refurbish products, organic material and exchange time. In general the with these projects the sharing economy will be encouraged, connecting community with material flows.

Road map (figure 46) localising general categories of the projects on time axis. We hope that all the ready policy framework would be ready to start implementing in 2020. However project can already start now by organising temporary events, festivals or meeting on the areas, having on aim introducing main project ideas, localise communities, understand needs to implement changes in most efficient way. After finishing policies we can start implementing physical changes. Firstly places for startups and self employment, then adding to this housing which supposed to work simultaneously. On prepared basis we would introduced food circles, and on it bio-waste circles.

We need to mark that because of reusing in the projects vacant buildings, not introducing new ones, after 25 year strategy should be reconsider. We also hope that after 25 years our idea would adapt in a way that startups and self employment would transform into bigger companies hiring local people and working purely in circular economy concept.

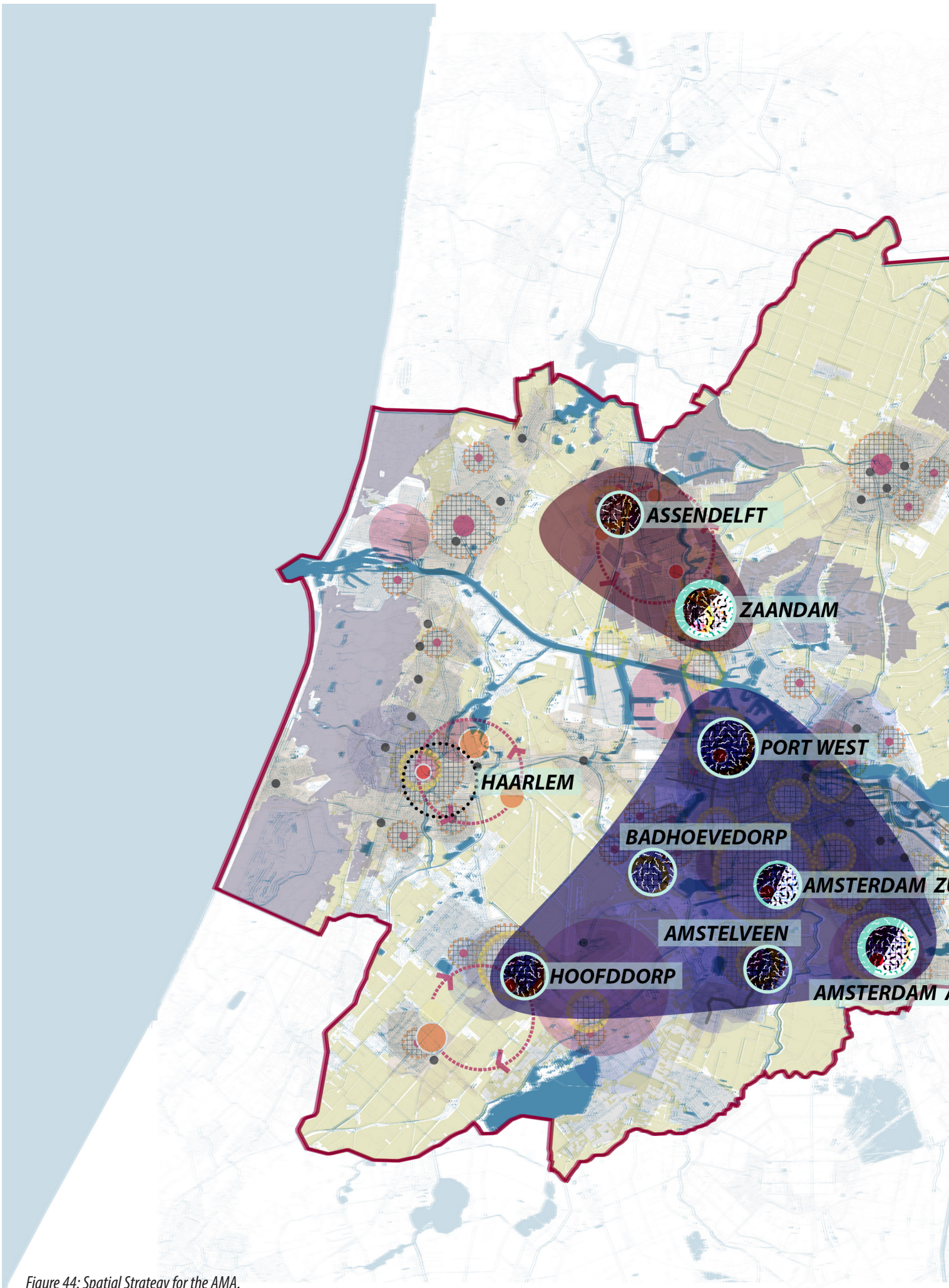
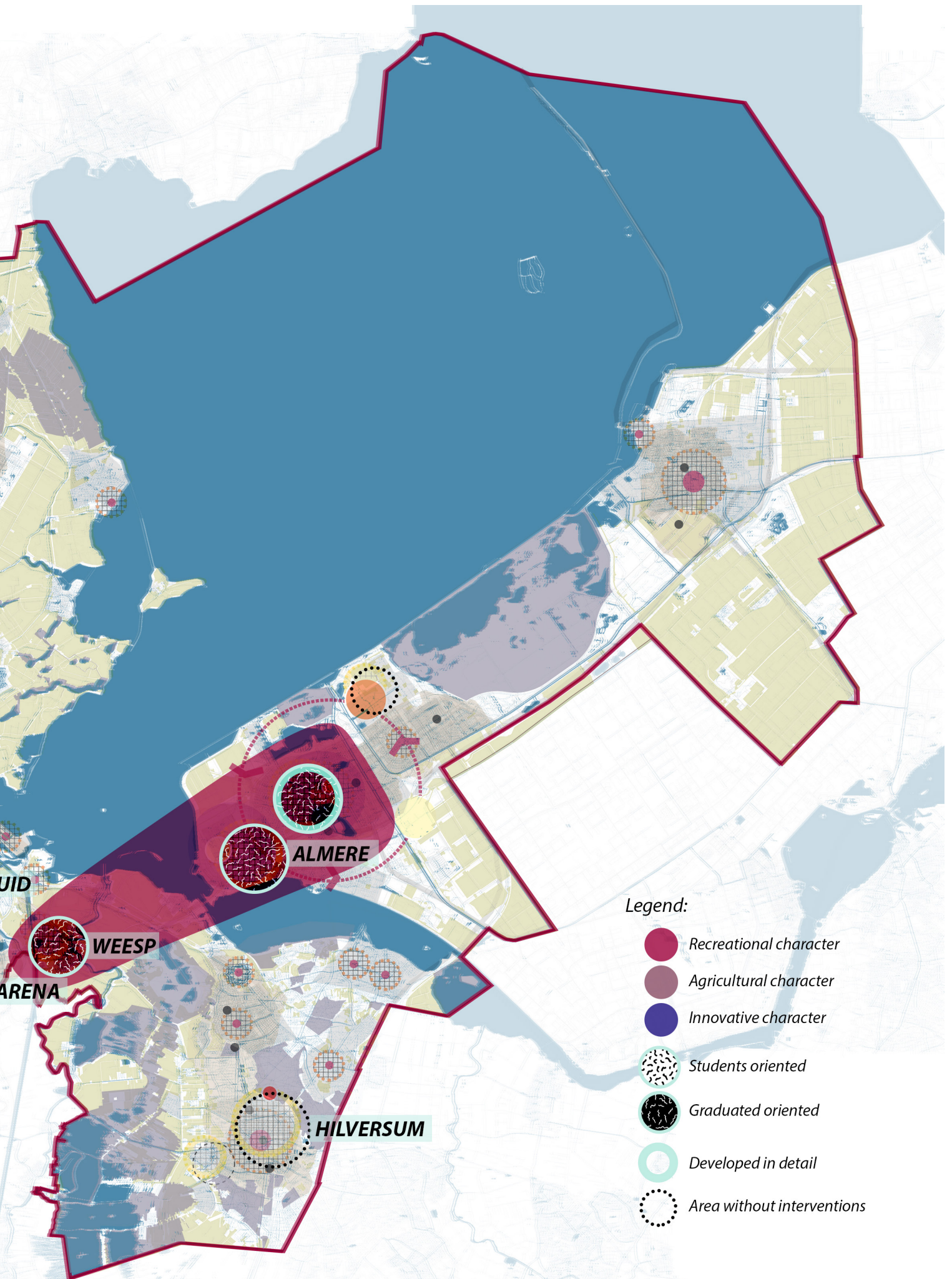


Figure 44: Spatial Strategy for the AMA.



- Legend:**
- Recreational character
 - Agricultural character
 - Innovative character
 - Students oriented
 - Graduated oriented
 - Developed in detail
 - Area without interventions

Spatial strategy table

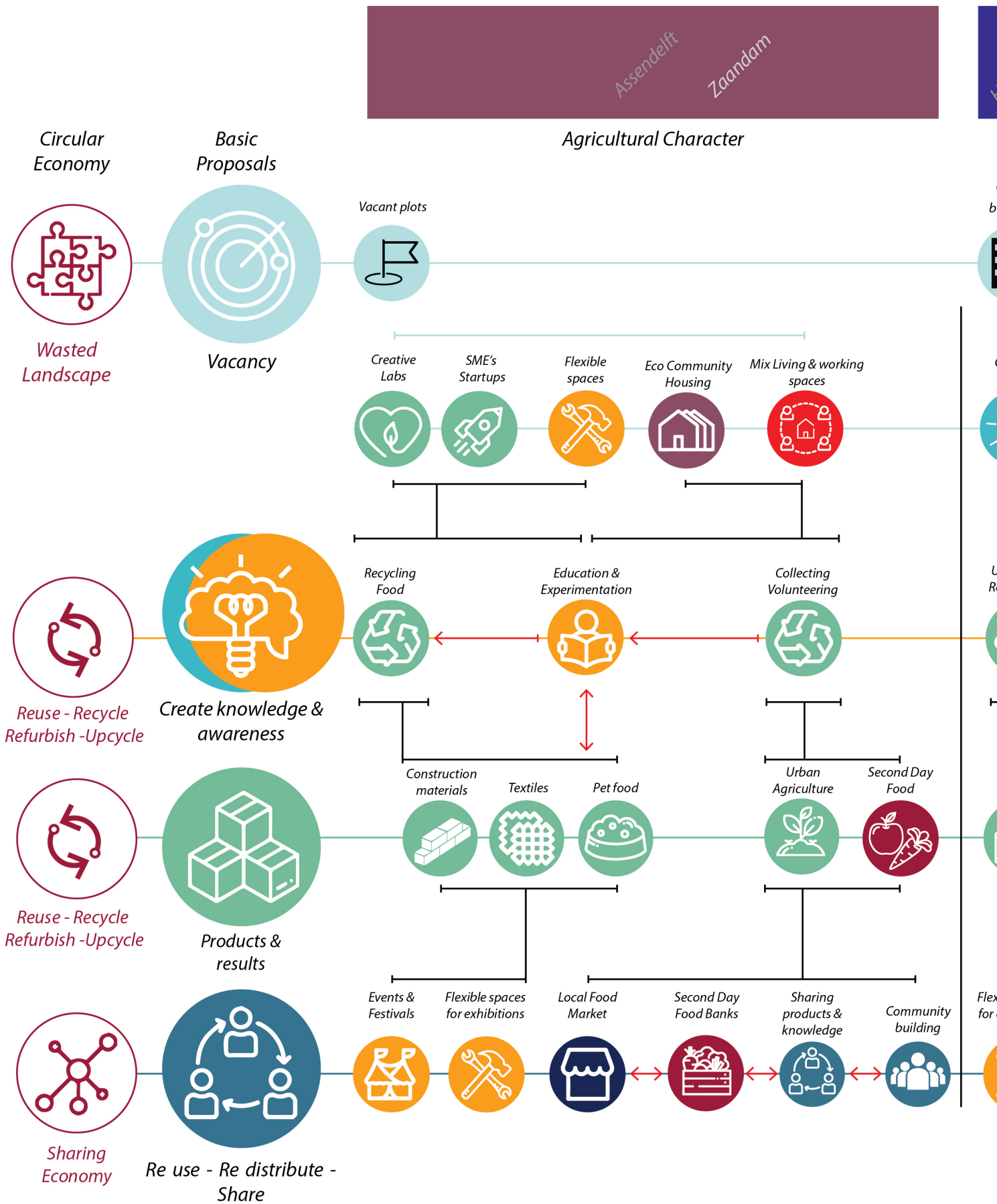
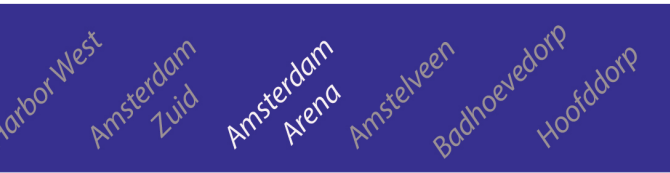
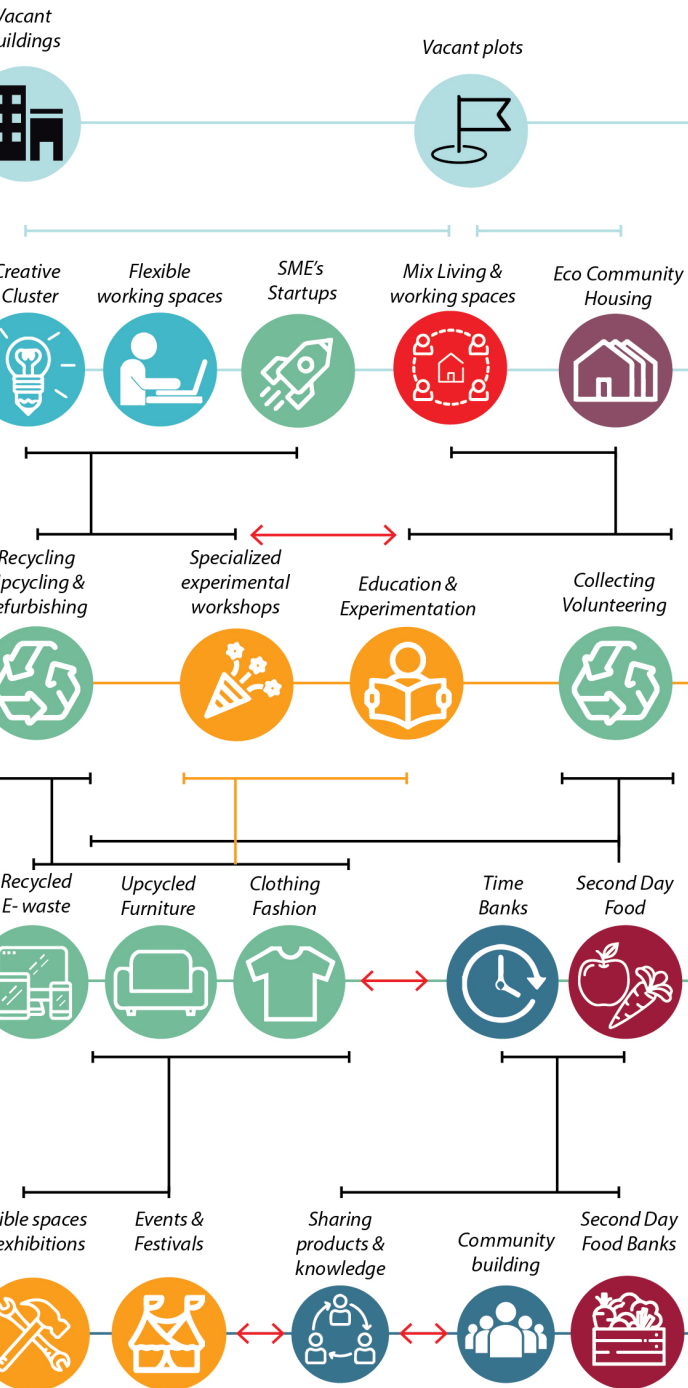


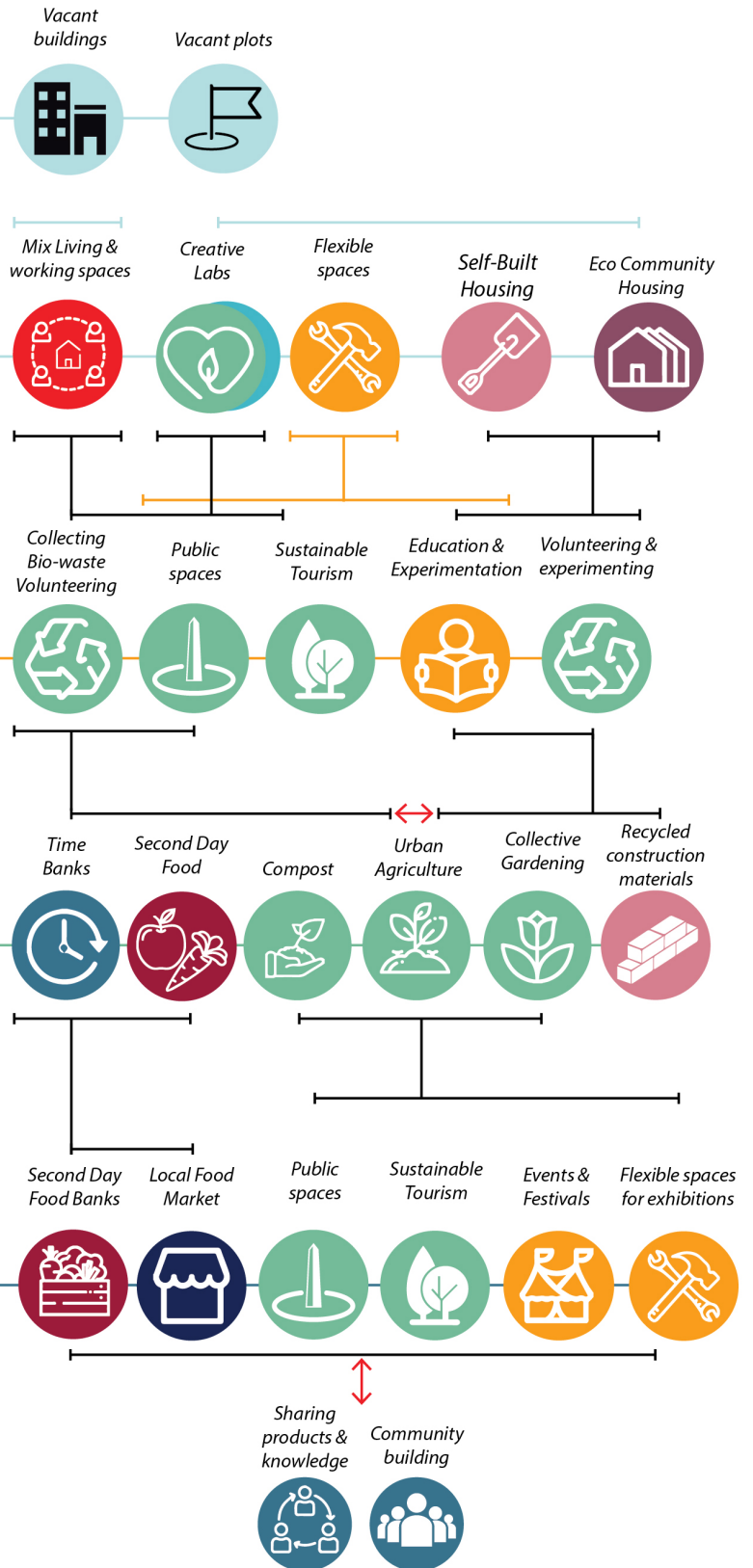
Figure 45: Spatial strategy table for the AMA.



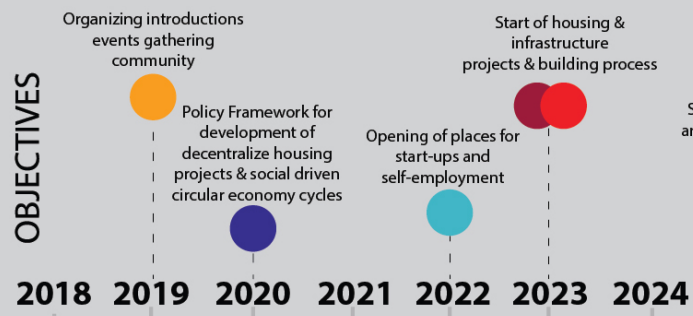
Innovative Character



Recreational Character



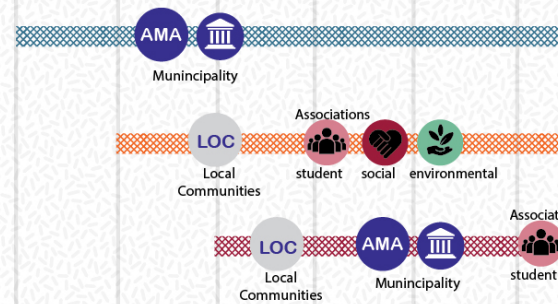
4.6. Road map



Regional Governance *(Policy Framework for creation of livelihood in AMA)*

- *Strengthen local economies for creation of jobs aligned with local economy & regional sustainable goals (small business & startups);
- *Encourage densification processes & diverse living environments in strategic development areas under affordability & environmental sustainability guides;
- *Encourage social sustainability - diversity & activation trough the development of custom projects connecting public & private entities with local communities.

STAKEHOLDERS



Local Feasibility

- *Elaborate economic feasibility of local intervention;
- *Involve local stakeholders & create plan for public private investments;
- *Locate vacant buildings & plots > land ownership & negotiation process;
- *building permits and legislative processes.

Specific interventions

- *Self-Build Housing
- *Creative Experimental Labs
 - Recycling Lab
- *Pop-Up temporary Initiatives (Flexible spaces)
 - Pop-Up Experimental workshops
 - Recreative Events & festivals
 - Local food market
- *Eco – Community housing
- *Mix Living & Working Spaces
 - Co-housing
 - Flexible working spaces
- *Flexible working spaces & Creative Cluster
- *Second Day Food and Food Banks
- *Waste Collection / Processing
 - Bio-waste collection
 - Other materials collection
 - Processing
- *Urban Farms
- *Other services and ineeded infrastructure
- *Possible new Circular Economy working places

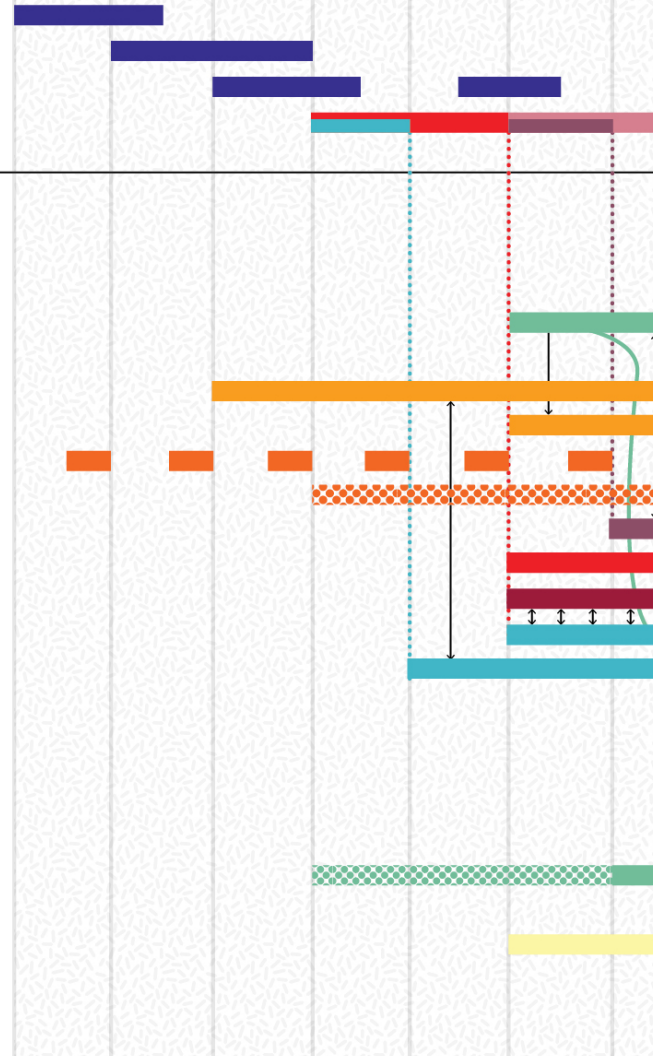
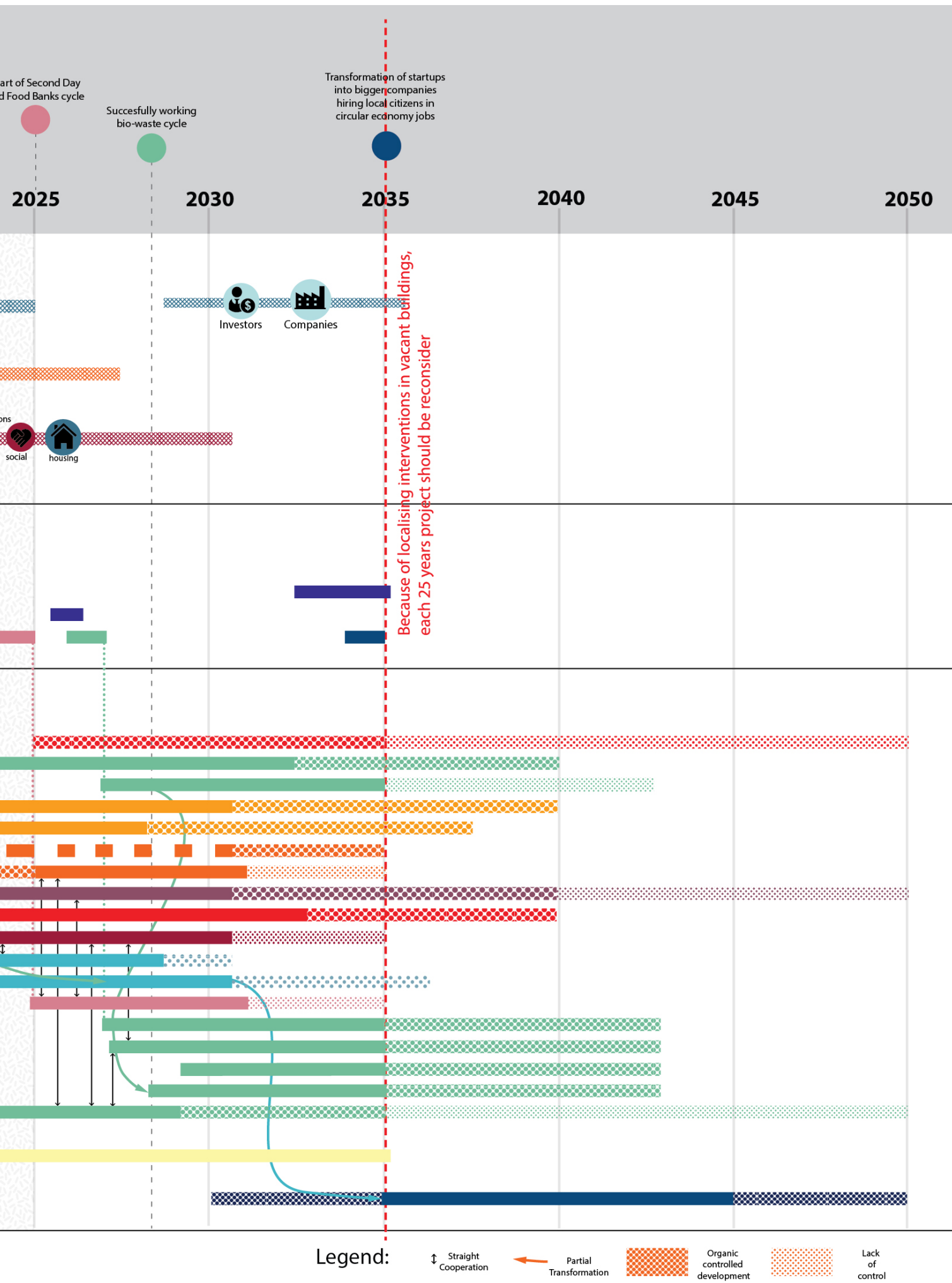


Figure 46: Road Map including stakeholders and main projects.



5. Propositions



5.1. Explanation

The spatial strategy in the previous chapter described the underlying principles guiding the proposals for each location. It also showed that each location of one of the defined characters, is more suitable for certain implementation than others. This chapter will show which specific projects will be implemented in each location. The project table will explain these multitude of projects, what it consist of, which group of the evolving profile it is aimed for, and the stakeholders involved.

These projects each have their own icon, these icons return in the sections showing the multitude of projects applicable for that specific city(area) and their relation to each other, the community and the built environment. The colours of these icons, at the same time relate back symbols in the map of the proposed projects. In each city (area) a specific zone is chosen where a multitude of projects will be introduced together. This way, increasing the impact of the acupuncture of interventions. Creating a foundation for innovation and participation through the introduction of the evolving profile.

According to the previous analysis of the locations, we have chosen Zaandam, Amsterdam Arena and Almere to have the most potential to implement change and create interaction and participation through our target group, students, graduates and starting families. These three cities will be discussed in the following pages.

Living



Eco – Community Housing

New housing developments intended for middle income families & graduates and starting families will make use of vacant plots located near to services & commerce areas. The housing developments will guaranty properties in sale and affordable units for rent; the ground floor will host services, commerce, common spaces for community activities and urban gardens in the roofs.



Relation to stakeholders
These projects will involve families, that are interested in the creation of common spaces and sharing their knowledge in the area.



Self-Built Housing

Graduates build their own sustainable houses

* Requirements >

Areas identified for self-built housing initiatives can be acquire at lower prices than average open market price. Specific building quality requirements and regulations apply to the projects:

- Encourage the use of eco design approaches;
- Local or recycled construction materials in relation to local production;
- Material Circularity Passports;
- Cradle to cradle or regenerative design;
- Fulfill requirements of energy efficiency and passive house standards;

The building properties should be maintain for a minimum period of 5 years, and Co-housing initiatives with shared facilities are encourage.



Relation to graduates
Graduates interested in building their own houses, and adapting to the market.



Mix Living & Working Spaces

This developments will offer affordable temporary housing for students and families in situation of economic or social vulnerability. The housing will be located in restructured office buildings, many of which are already identified by local municipalities as suitable for being restructured into housing units.

The buildings will feature *Community housing* (Co-housing) and other flexible living units to satisfy different needs for small or large families, *Shared kitchens* & *Flexible working spaces* for startups & freelancers.



Relation to stakeholders
The affordable housing work that will be done will include:
• Collecting information
• Recycling
• Distributing



Flexible working spaces & Creative Cluster

Local governments will incentive the creation of small creative enterprises through various strategies like business support, infrastructure development, public subsidies. Specialized policies and financial incentives will specifically benefit SME/micro creative enterprises focused on environmental and social sustainability, eco-design, recycling & refurbishing materials among other areas, with the aim of creating social and environmental value. Vacant buildings will be converted into co-working spaces offered at low rental fees to specific types of startups and SME's in exchange of some hours of voluntary work with the local community, regarding sustainable practices and innovation.



Relation to students
These projects will involve civil society as well as clusters.



Creative Experimental Labs

Are composed by a mix of stakeholders and institutions that connect the local government with citizens and can be sponsored by venture capitalist, civil society or governments. Work on complex environmental issues affecting the city and propose sustainable projects to revitalize underused or unattractive green public areas and explore / exploit local touristic potential of the parks and ecological reserves; also stimulates the creation of startups that work with more specialized themes related to circular economy, sustainability and its connection to the territory.



Relation to graduates
The Labs can offer careers as part of eco-tourism and



Creative Lab + Recycling Lab > Specialized in recycling and storage of bio-waste

The Creative Lab fusions with a Recycling Lab so that research, experimentation, education and promotion all gather in the same place to utilize food as a resource. New products will be made out of food waste such as Blood bricks and biodegradable plastics. All the created products can be showcased and sold in the exhibition areas inside the building.



Relation to graduates
The Recycling Lab exhibition area and students can use these laboratories

Working - Creating - Recycling

Pioneers

Stakeholders

Students
 are designed to host the evolved profile of students, i.e. graduates or starting families in a more stable social and economic situation, but still are open to learn, profiting from a creative environment created around them (Creative Labs - startups), and implement & share knowledge with the community using dedicated spaces such as community gardens, community centers, etc.



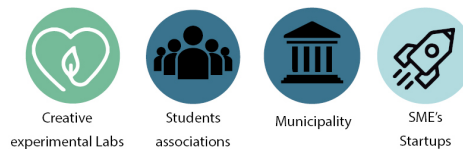
Graduates
 integrate in the existing social structure of the city and pioneer by 'self-building' their own spaces and also innovate in the fields of eco-design, creatively using recycled local materials and implementing sustainable construction standards.



Students
 will be offered in exchange of a minimum of 10 hours of weekly voluntary work. The program consists of:
 - Collecting bio-waste or other materials from households located in the near areas of influence of the project;
 - Collecting the collected bio-waste in the near Recycling points;
 - Using the compost in local projects of urban gardening & urban farms.



Students & graduates
 will involve graduates as pioneers of local sustainable practices and students and graduates as beneficiaries of the educational workshops and activities created in the creative spaces.



Graduates & students
 will connect existing local HVO & MBO schools offering Tourism or Sports & Recreation to their educational curricula; and stimulate the participation of local students in the revitalization of public areas in the city.



Graduates – students and communities
 The Creative Lab will be managed by the Municipality, while the laboratories, workshops and activities can be managed by the Creative Lab organization and local startups. Graduates and startups taking part of the workshops will be the pioneers on using food as a resource in the laboratories.





Urban Farms

Unused - unattractive green public areas, post war neighborhoods, and roofs in newly developed or restructured housing buildings will be made into urban farms and /or ornamental gardens.



Waste Collection & Processing

Collection

- **Bio-waste collection >**
The Mix Living and Eco Housing and Self-Built housing developments will be the primary points for collection of bio-waste.
- **Other materials collection >**
Creative clusters and flexible working spaces will be points of collection of other materials such as electronic waste and up-cyclable products, such as clothing and used furniture.

Processing

- **Compost processing>**
Will take place in Worm Hotels and the Creative Lab + Recycling Lab Specialized in recycling and storage of bio-waste.
- **Other materials > Recycling Labs**
Will be recycled in the *Recycling Labs*, some empty buildings converted into recycling laboratories where all kinds of activities related to recycling production can take place. The laboratories will offer flexible workshop spaces for recycling local waste like carpentry, bicycles, appliances, and offer the opportunity to design, build and test all kinds of prototypes. Materials will also be processed in *Temporary Experimentation Workshops* organized in vacant plots and parking lots with the *Pop-Up projects*.



Second Day Food Project

The project collect unsold food surpluses and spontaneous donations from buyers within the local markets and manage the redistribution to families & students in economic difficulty, in exchange for "restitution" actions in the local community. The project will make use of Local farmers, Supermarkets, and Local food markets as collection points, and existing food banks & Community Centers as central points for re-distribution to the most vulnerable households in the area.



Pop-Up temporary Initiatives

Series of activities that will take place in vacant plots located in strategic areas of the city; temporary activities like festivals or workshops could be proposed by local communities, social organizations, Creative Labs or startups. Permits for temporary use of these areas could be given by the municipality based on the relevance of the proposal, in terms of knowledge building (around sustainability & C.E issues), and community building. The workshops and festivals will be temporary, and the space should always be open to new initiatives, stakeholders and innovation.



Pop-Up Experimental workshops

Make use of: vacant land & parking lots
Parking lots are converted into experimentation areas for testing and educational workshops. The activities will be organized by local startups and small companies to test Innovative products, experiment with recycled - refurbish and upcycled materials.



Recreative Events & Festivals

The important cultural and commercial hub Amsterdam ArenA multifunctional sport and buildings complex, every year will host Events & Festivals of Sustainable Innovation, a platform to the local sustainable innovative projects created in the area to be showcase and promoted at city scale. Creative Labs in collaboration with local governments can be in charge of the organization of the events, while local startups and small creative enterprises will showcase their most innovative projects, sale objects, offer their services to a larger community and develop workshops and interactive learning activities for the festival guests.



Local Food markets

The local food markets will connect local food production with local consumption, gathering a range of locally produced food in a fixed market organized once a week. The markets will take place in vacant plots as a Pop-Up temporary activity or in an already existing market in the city.



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Figure 47: Projects table for the AMA.



Graduates – students and communities

Projects will be managed by students involved in the Mix living projects and by graduate-led Community Housing projects. Participation of the local community will also be encouraged through Community Centers to work on the rehabilitation of public spaces with ornamental



SMEs - Startups



People

Students

Projects involving compost collection & recycling will involve students of the Mix Living Project, they will collect bio-waste, create composting points, elaborate the compost in the worm hotels & re-distribute the compost through the Urban Farm & Gardening Projects.



Graduates and communities

Projects involving Creative Labs will be managed by the local municipality, Creative Labs, and benefit from the support of the students involved in the Mix living projects. This project will also provide opportunities for employed and people at risk of social and economic exclusion.



Municipality



SMEs - Startups



People



Community associations



Creative experimental Labs



Students & vulnerable people

Projects involving food redistribution from the Mix Living project will collect food from supermarkets and Local Foodbanks and distribute it into diverse Foodbanks and Community Centers in the city. People involved in the project will also do some minor restitution activities like Urban Farming and gardening in public spaces.



Local farmers



Local supermarkets & other retailers



Community associations



Students associations



Creative experimental Labs



Graduates – graduates & communities

Projects involving temporary initiatives students will propose and develop creative activities like pop-ups involving the local community, and will also take active part in the experimental



Local farmers



Students associations



Municipality



Creative Experimental Labs



Students & workers

Projects involving pop-up workshops are part of a sharing economy cycle where local startups benefiting from initiatives such as lower rental fees & taxation, should contribute with the creation of these Pop-ups where the knowledge can be incentive and shared with other specialized components.



Regional government



Municipality



Creative experimental Labs



SMEs - Startups



Community associations



People



Graduates - students and communities

Projects involving providing local startups and small creative enterprises will have the opportunity to develop their creative work as well as the activities made in collaboration with local community through temporary initiatives, Second Day Food Project, Urban gardens, Self-built housing and Community Centers.



Local farmers



Municipality

5.2. Zaandam



Figure 48: Current image of Zaandam.



Figure 49: Proposed image for Zaandam.

Zaandam is chosen to be the most representative for the agricultural character. It is well connected with Amsterdam by public transport and therefore has potential to attract students studying in Amsterdam. Its population now consists mainly of elderly and inhabitants with relatively low income. Introducing students and graduates in this area therefore is plausible to create a more diverse community. Moreover, vacancy is identified in the area, making it possible to densify these areas and provides potential plots for locating the projects. At the same time, Zaandam is very connected with its agricultural lands and the food industry. Providing the elements for potential connections between the community and material flows.

Zaandam has many services and facilities, especially surrounding the train station. Notably a lot of community centres too. Moreover, the city is a popular destination for tourists, as it characterised by its historic agricultural landscape, the polders and Zaanse Schans. Furthermore, the river Zaan plays important role in the character of the city and economic activities, as city together with its industries emerged along this river.

The characteristic projects in Zaandam are:

Mix Living & Working Spaces (3)

These developments on currently vacant plots in area 3, will offer a mix of affordable housing for students and vulnerable families (socially or economically). It will be built mainly around the train station area, where it is in proximity to public transportation and the intermediate vocational school (MBO). The buildings will feature community housing (Co-housing) and other flexible living units to satisfy different needs for small or large families. It will also include shared kitchens and flexible working spaces for startups & freelancers. Moreover it will include:

**Bio-waste collecting services*

***Second-day food projects*

**** Time Bank*

Eco - Community Housing (1)

New housing developments intended for middle income families & graduates and starting families will make use of vacant plots located in area 1, in proximity to industry, services and commercial areas. The housing developments will guaranty properties in sale as well as for rent, while the ground floor will host services, commerce, flexible working space and common spaces for community activities. Collective gardens will be placed on the roofs. These are situated along the harbour and close to food processing industries, making it attractive for start-ups related to this sector.

Creative Lab + Recycling Lab (3)

This creative lab will be specialized in recycling and storage of bio-waste and organic material. It fuses with a Recycling Lab so that research, experimentation, education and promotion all gather in the same place to utilize food as a resource. New products will be made out of food waste such as Blood bricks and biodegradable plastics. All the created products can be showcased and sold in the exhibition areas inside the building. This facility will also include:

**Bio-waste collecting and processing services*
Flexible working spaces

Pop-Up temporary Initiatives (1,2&3)

Series of activities that will take place in vacant plots located in strategic areas of the city. These could be temporary activities like festivals or workshops proposed by local communities, social organizations, Creative Labs or startups.

In particular the local market at the harbours offering regional products to consumers will be characteristic for Zaandam because of its dominant agricultural landscape.

** Bio-waste collection in the form of the worm hotel or other composting initiatives*

*** Second Day Food Project is a project that collects unsold food surpluses and spontaneous donations from buyers within the local markets. These may be local farmers, supermarket, local food markets or urban farms. These food surpluses, are redistributed from local food banks or community centres to families and students in economic difficulty, in exchange for activities in the local community.*

**** The Time Bank concept offers low renting prices in exchange for voluntary work or providing community activities and workshops locally. For example maintaining the urban farms.*

Legend: Scale:1:2000



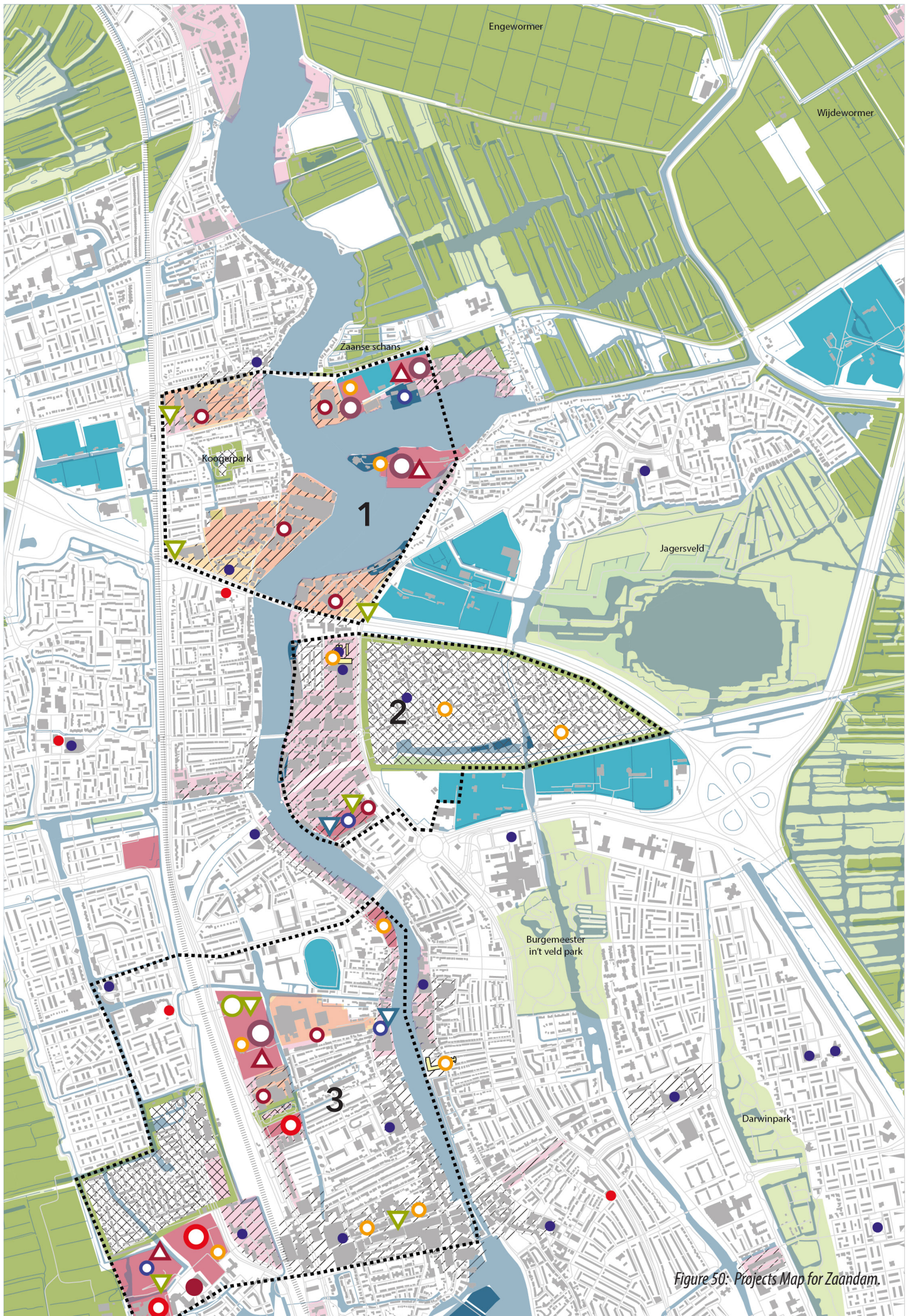


Figure 50: Projects Map for Zaandam.

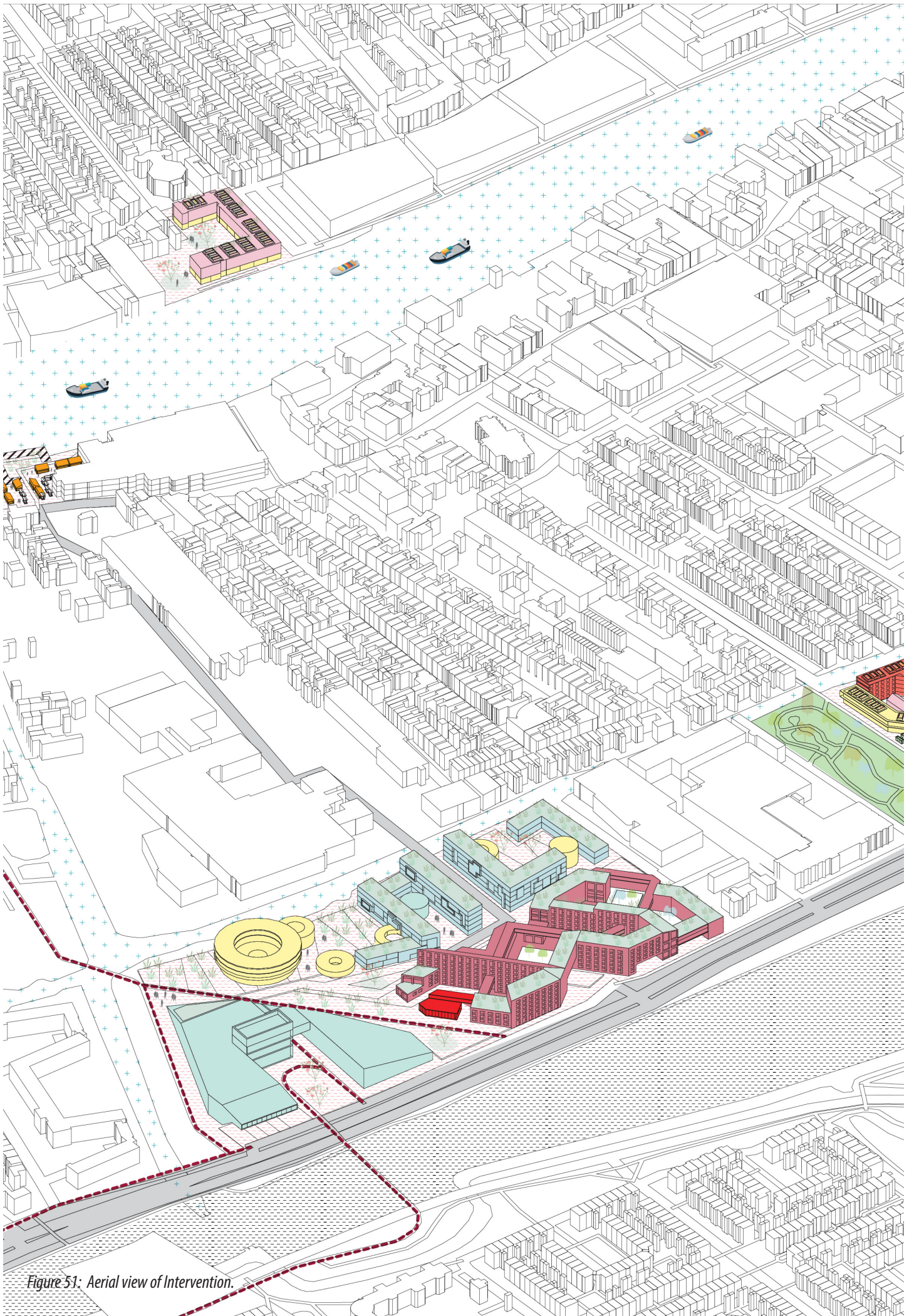
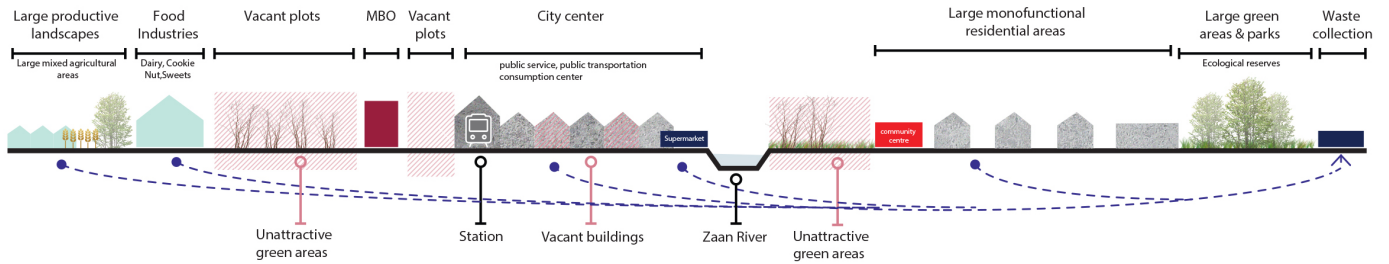


Figure 51: Aerial view of Intervention.

Current situation



Proposal

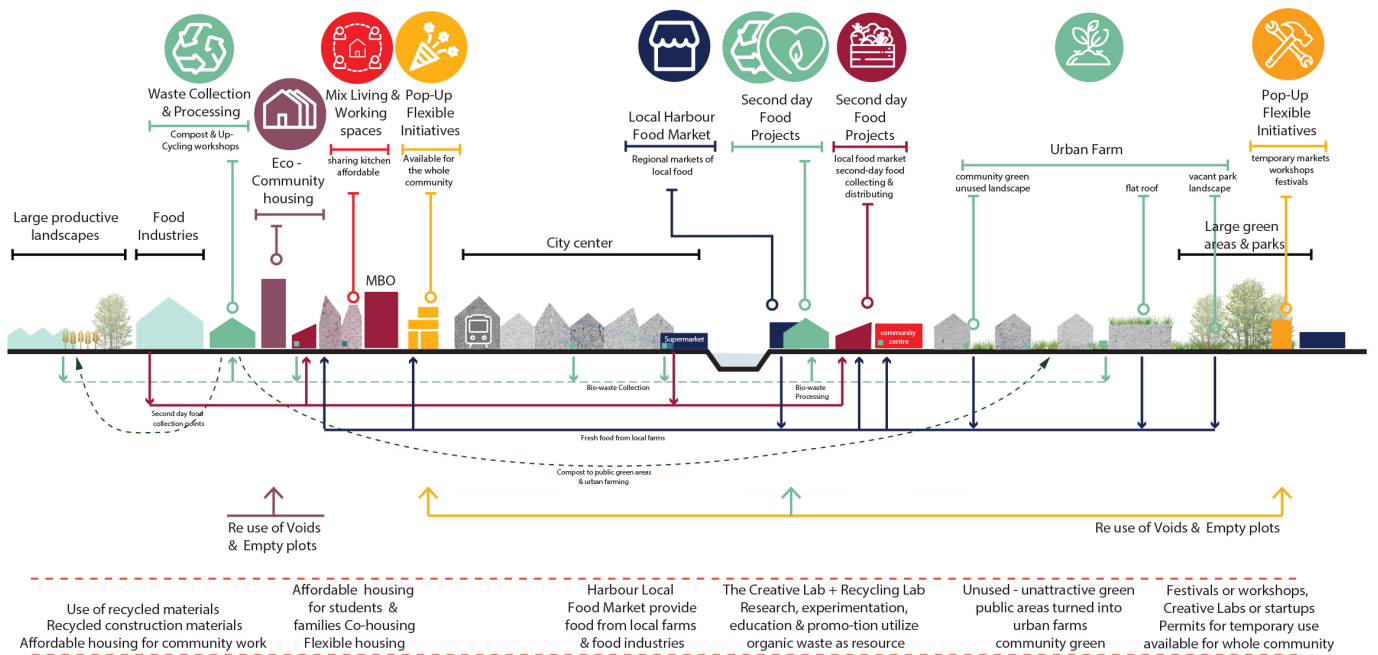


Figure 52: Systemic Section.

5.3. Amsterdam Arena



Figure 53: Current image of Amsterdam Arena.

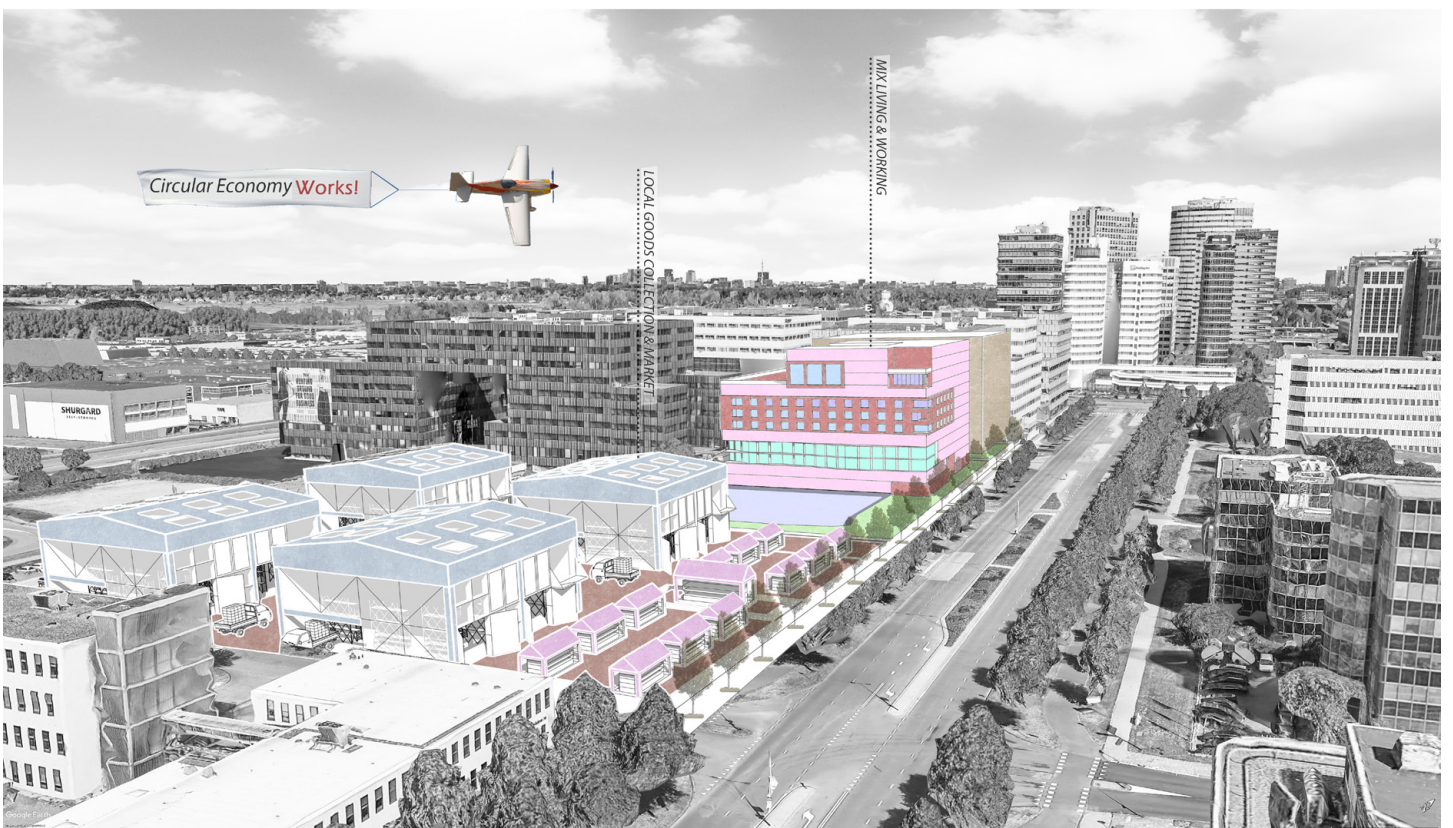


Figure 54: Proposed image for Amsterdam Arena.

Amsterdam Arena is chosen to be an example location for the innovative character. It is an urban environment with high density, where mainly young adults are living and inhabitants with a relatively low income. Therefore this location will be focussing more on introducing graduates and starting families. This location is also very close to the work and study environment, making it attractive for students to accommodate. Additionally, Amsterdam Arena has several big recreational services in its commercial centre, close to the station. For example the Ziggodome, a large concert hall and the Arena Stadium, a multifunctional football stadium. However, at the same time, this area has some monofunctional business areas, with a lot of vacant buildings and vacant plots. These areas have the potential to be transformed to more attractive and vibrant areas through the introduction of our target group.

The characteristic projects in Amsterdam Arena are:

Mix Living & Working Spaces

These developments in currently vacant buildings, will offer a mix of affordable housing for students and vulnerable families (socially or economically). It will be built mainly in the chosen vacant buildings, as these are most suitable for transformation to housing. Additionally, it is in proximity to public transportation and offices of companies that could provide internships or other work for these groups. The buildings will feature community housing (Co-housing) and other flexible living units to satisfy different needs for small or large families. Also shared kitchens and flexible working spaces for startups & freelancers. These places will include:

**Waste collecting services*

**** Time Bank*

Flexible working spaces & Creative Cluster

Local governments will incentive the creation of small creative enterprises through various strategies like business support, infrastructure development, public subsidies. Specialized policies and financial incentives will specifically benefit SME/micro creative enterprises focused on environmental and social sustainability, eco-design, recycling & refurbishing materials among other areas, with the aim of creating social and environmental value. Vacant buildings will be converted into co-working spaces offered at low rental fees to specific types of startups and SME's in exchange for some hours of voluntary work with the local community, regarding sustainable practices and innovation ***. These projects will involve graduates as pioneers of local sustainable practices and students and civil society as beneficiaries of the educational workshops and activities created in the creative clusters.

Creative Lab + Recycling Lab

The creative lab in Amsterdam Arena will be composed of a mix of stakeholders and institutions that connect the local government with citizens and can be sponsored by venture capitalist, civil society or governments. Work on complex environmental issues affecting the city and propose sustainable projects. It also stimulates the creation of startups that work with more specialized themes related to circular economy, sustainability and its connection to the territory. This will be introduced together with the recycling labs. Some empty buildings can be converted into recycling laboratories where all kinds of activities related to recycling production can take place. The laboratories will offer flexible workshop spaces for recycling local waste like carpentry, bicycles, appliances, and offer the opportunity to design, build and test all kinds of prototypes. Materials will also be processed in Temporary Experimentation Workshops organized in vacant plots and parking lots with the Pop-Up projects

**Waste collecting and processing services*

Eco - Community Housing

New housing developments intended for middle income families & graduates and starting families will make use of vacant plots located the area, in proximity to industry, services and commercial areas. The housing developments will guaranty properties in sale as well as for rent -

while the ground floor will host services, commerce, flexible working space and common spaces for community activities. Collective gardens will be placed on the roofs. As the intervention area in the Amsterdam Arena has a large monofunctional office area, mixed housing developments are introduced to diversify the neighbourhood.

Pop-Up Experimental Workshops, Recreative Events & Festivals

Parking lots are converted into experimentation areas for testing and educational workshops. The activities will be organized by local startups and small companies to test Innovative products, experiment with recycled - refurbish and upcycled materials.

The important cultural and commercial hub Amsterdam ArenA multifunctional sport and buildings complex, will host Events & Festivals of Sustainable Innovation every year, a platform to the local sustainable innovative projects created in the area to be showcase and promoted at city scale. Creative Labs in collaboration with local governments can be in charge of the organisation of the events, while local startups and small creative enterprises will showcase their most innovative projects, sale objects, offer their services to a larger community and develop workshops and interactive learning activities for the festival guests.

** Waste collection, mainly products such as electronic waste and up-cyclable products, such as clothing and used furniture.*

**** The Time Bank concept offers low renting prices in exchange for voluntary work or providing community activities and workshops locally.*

Legend: Scale:1:2000



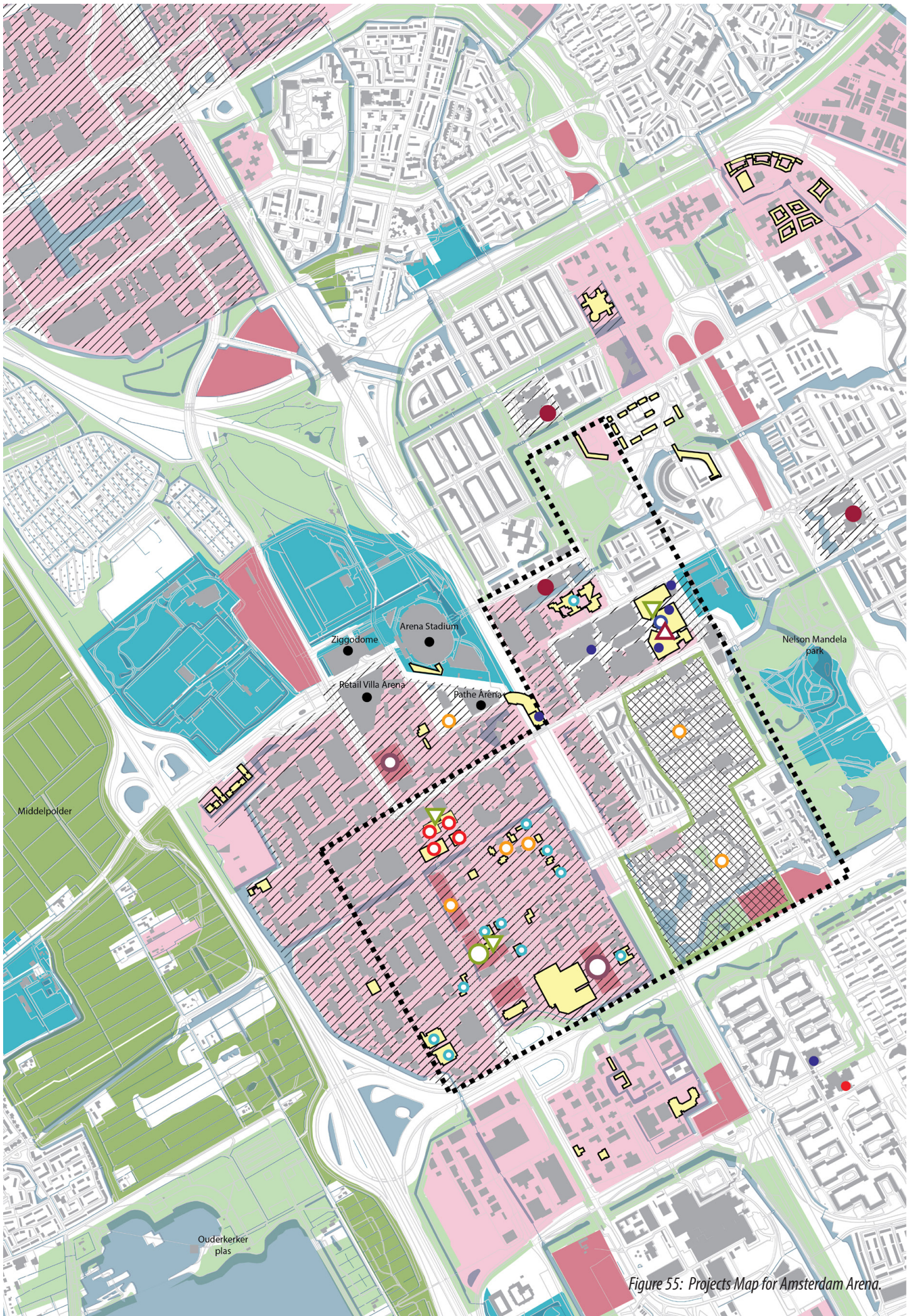


Figure 55: Projects Map for Amsterdam Arena.

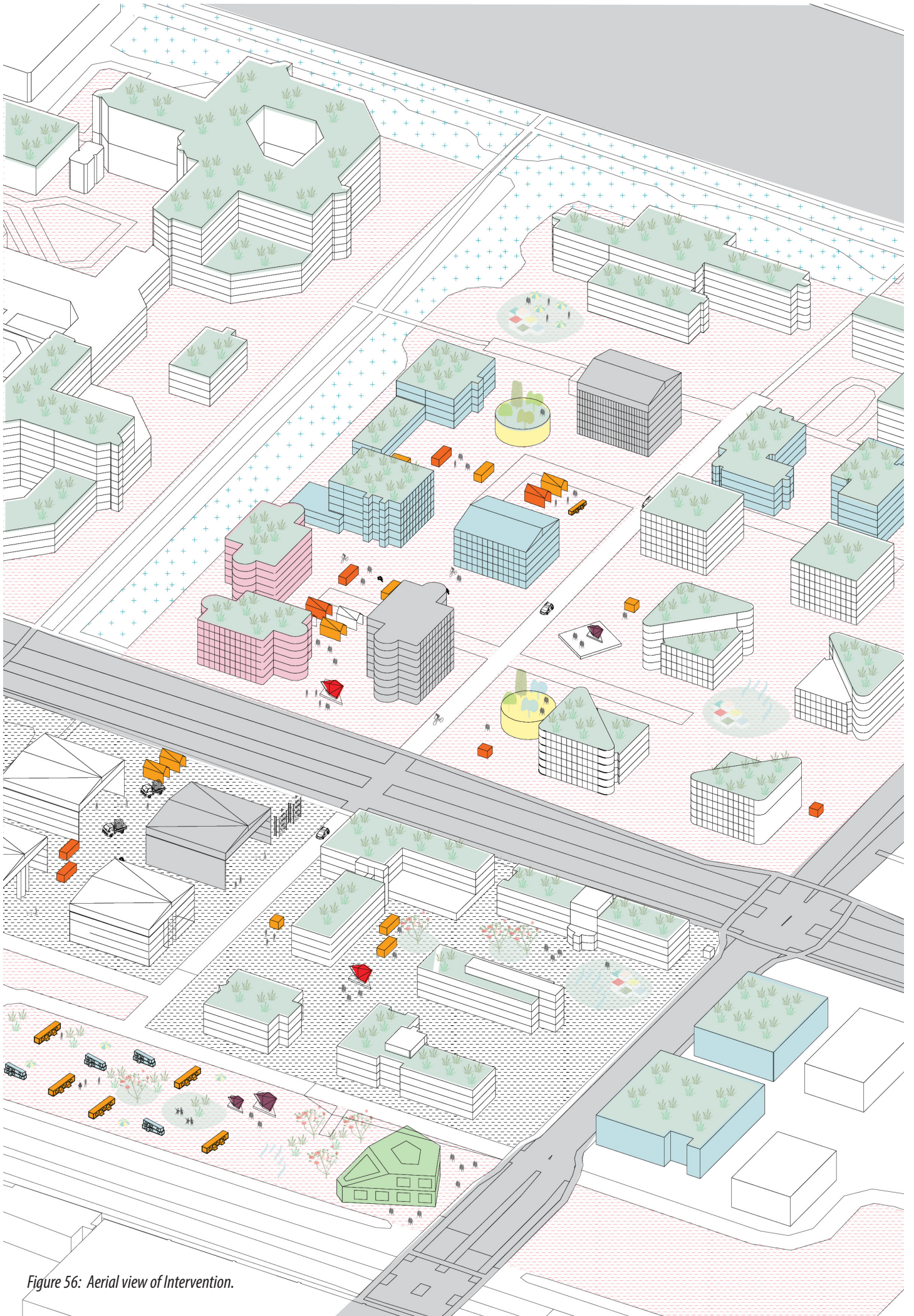
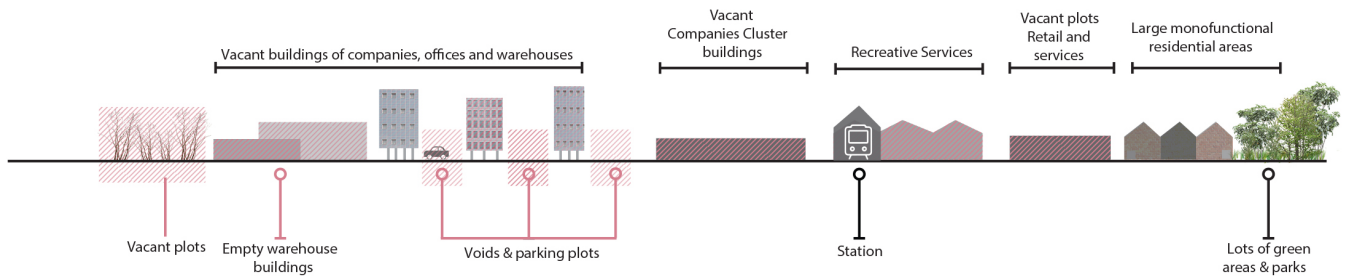


Figure 56: Aerial view of Intervention.

Current situation



Proposal

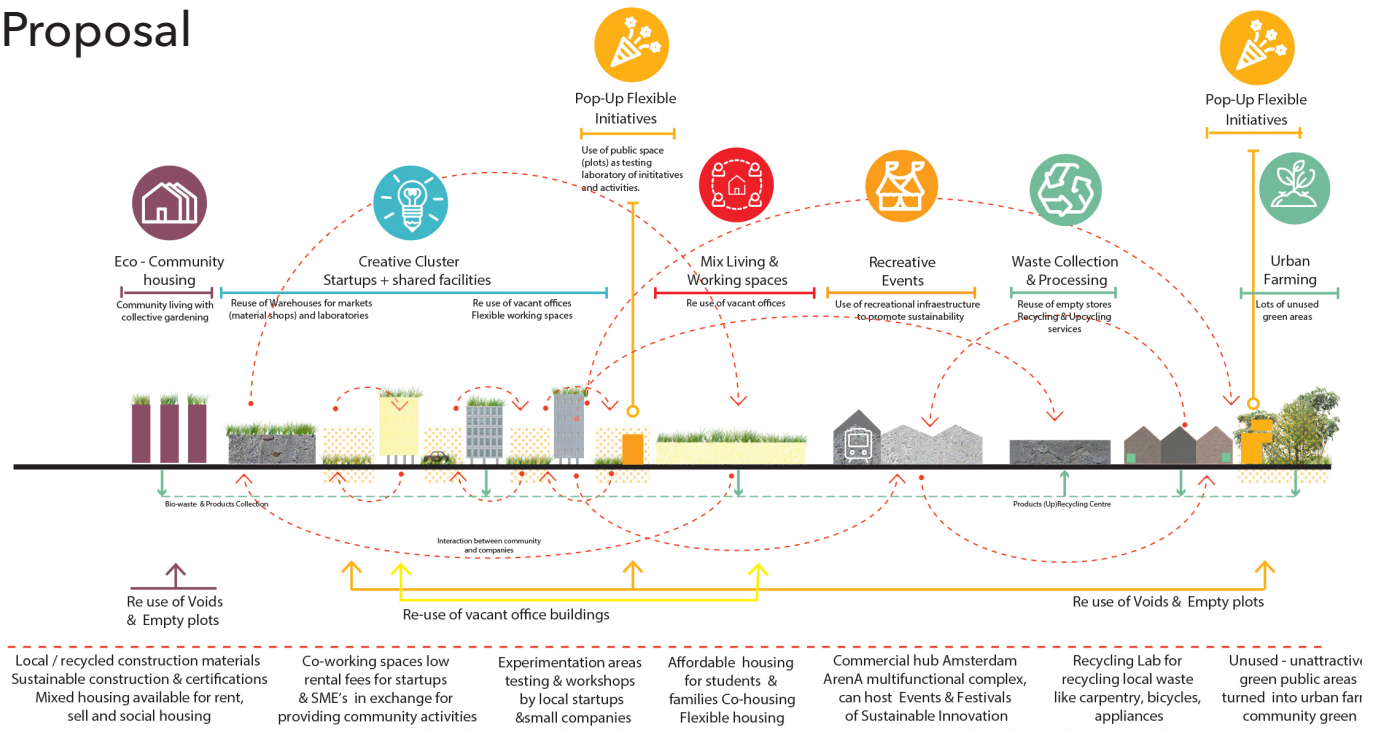


Figure 57: Systemic Section.

5.4. Almere



Figure 58: Current image of Almere



Figure 59: Proposed image for Almere.

Almere is chosen for its recreational character. Here, a relatively big group of immigrants, families together with inhabitants with a relatively low income are gathered. The urban fabric of Almere is not very dense, and there are a lot of spaces for recreational green, parks, gardens and urban farming. Concurrently, it is surrounded by large agricultural landscapes. Because of this low dense built environment, there is a lot of open space that is left unused together with some vacant plots. At the same time, a clear separation can be identified between residential, commercial and business areas. Resulting in lack of services in the residential area. In the commercial and office areas, some vacant buildings can be found. These areas have the potential to be transformed to more attractive and vibrant areas through the introduction of our target group. A development typical for Almere is the places reserved for the opportunity to self build housing. Showing the innovative and entrepreneurial character of Almere's citizens.

The characteristic projects in Almere are:

Self-Built Housing

Graduates and starting families can build their own sustainable houses if certain requirements are met. This way, residential areas can be diversified by introducing self-building projects, pioneering in the social structure. Areas identified for self-built housing initiatives can be acquired at lower prices than average open market price. Specific building quality requirements and regulations will apply to the projects. Projects must aim to use eco design approaches, use local or recycled construction materials, include Material Circularity Passports and fulfill requirements of energy efficiency and passive house standards. For example, Cradle to cradle or other regenerative design concepts. Additionally, the building property should be maintained for a minimum period of 5 years.

Mix Living & Working Spaces (1, 2)

These developments in currently vacant buildings, will offer a mix of affordable housing for students and vulnerable families (socially or economically). It will be built mainly in the chosen buildings, as these are most suitable for transformation to housing. Additionally, it is in proximity to public transportation, facilities, services and the higher vocational school (HBO). The buildings will feature community housing (Co-housing) and other flexible living units to satisfy different needs for small or large families. Also shared kitchens and flexible working spaces for startups & freelancers. These places will include:

**Bio-waste collecting services*

***Second-day food projects*

**** Time Bank*

Eco - Community Housing (1,2 & 3)

New housing developments intended for middle income families & graduates and starting families will make use of vacant plots, in proximity to offices, services and commercial areas. The housing developments will guaranty properties in sale as well as for rent, while the ground floor will host services, commerce, flexible working spaces and common spaces for community activities. Collective gardens will be placed on the roofs.

**Bio-waste collecting services*

Pop-Up temporary Initiatives (1,2&3)

Series of activities that will take place in vacant plots located in strategic areas of the city. These could be temporary activities like festivals or workshops proposed by local communities, social organisations, Creative Labs or startups. Parking lots are converted into experimentation areas for testing and educational workshops. The activities will be organized by local startups and small companies to test Innovative products, experiment with recycled - refurbish and upcycled materials. The workshops and festivals will be temporary, and the space will always be open to new initiatives, stakeholders and innovation.

Creative Lab + Recycling Lab (2)

Are composed by a mix of stakeholders and institutions that connect the local government with citizens and can be sponsored by venture capitalist, civil society or governments. Work on complex environmental issues affecting the city and propose sustainable projects to revitalize underused or unattractive green public areas and explore / exploit local touristic potential of the parks and ecological reserves. It will also stimulate the creation of startups that work with more specialized themes related to circular economy, sustainability and its connection to the territory. The Labs connect existing local higher and intermediate vocational schools (HBO & MBO), offering Tourism or Sports & Recreation careers as part of their educational curriculum. This way it will stimulate the participation of local students in eco-tourism and revitalization of public areas in the city.

**Bio-waste collecting and processing services*

Flexible working spaces

**** Time Bank*

** Bio-waste collection in the form of the worm hotel or other composting initiatives*

*** Second Day Food Project is a project that collects unsold food surpluses and spontaneous donations from buyers within the local markets. These may be local farmers, supermarket, local food markets or urban farms. These food surpluses, are redistributed from local food banks or community centres to families and students in economic difficulty, in exchange for activities in the local community.*

**** The Time Bank concept offers low renting prices in exchange for voluntary work or providing community activities and workshops locally. For example maintaining the urban farms or ornamental gardens in the city.*

Legend: Scale:1:2000



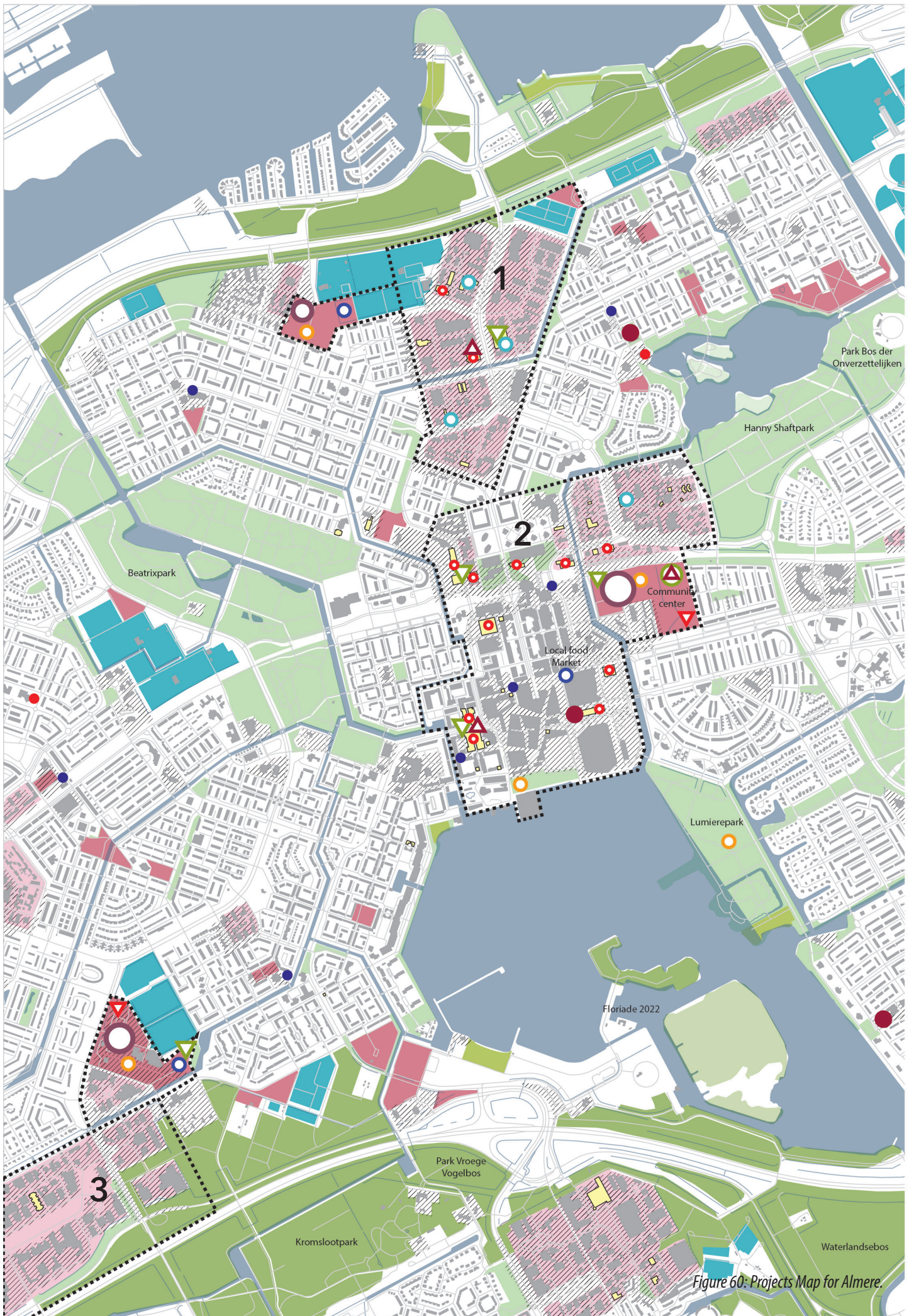


Figure 60: Projects Map for Almere.

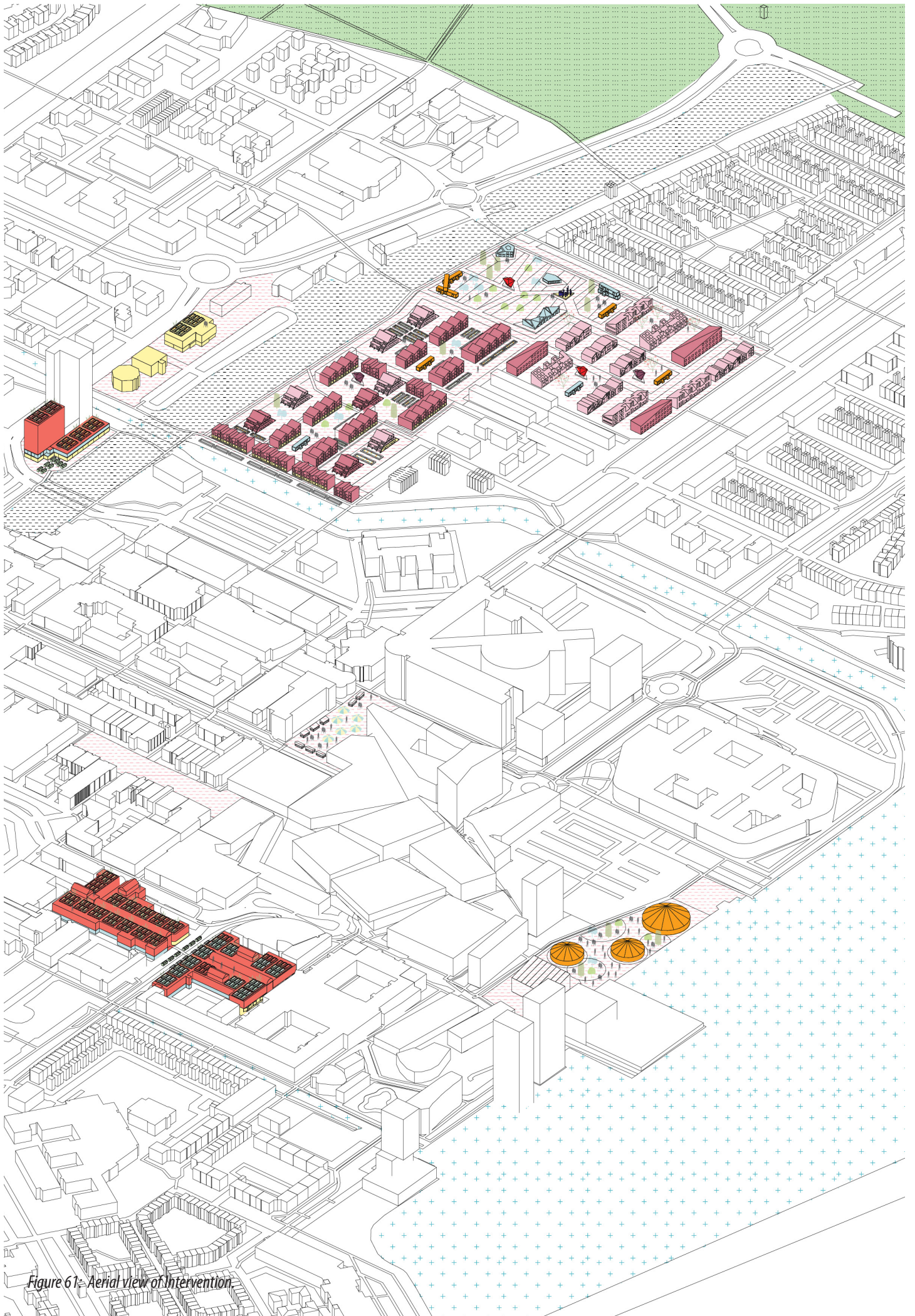
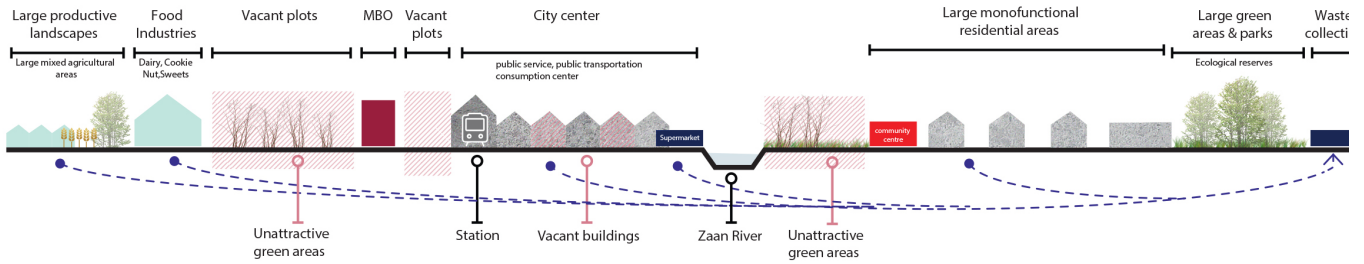


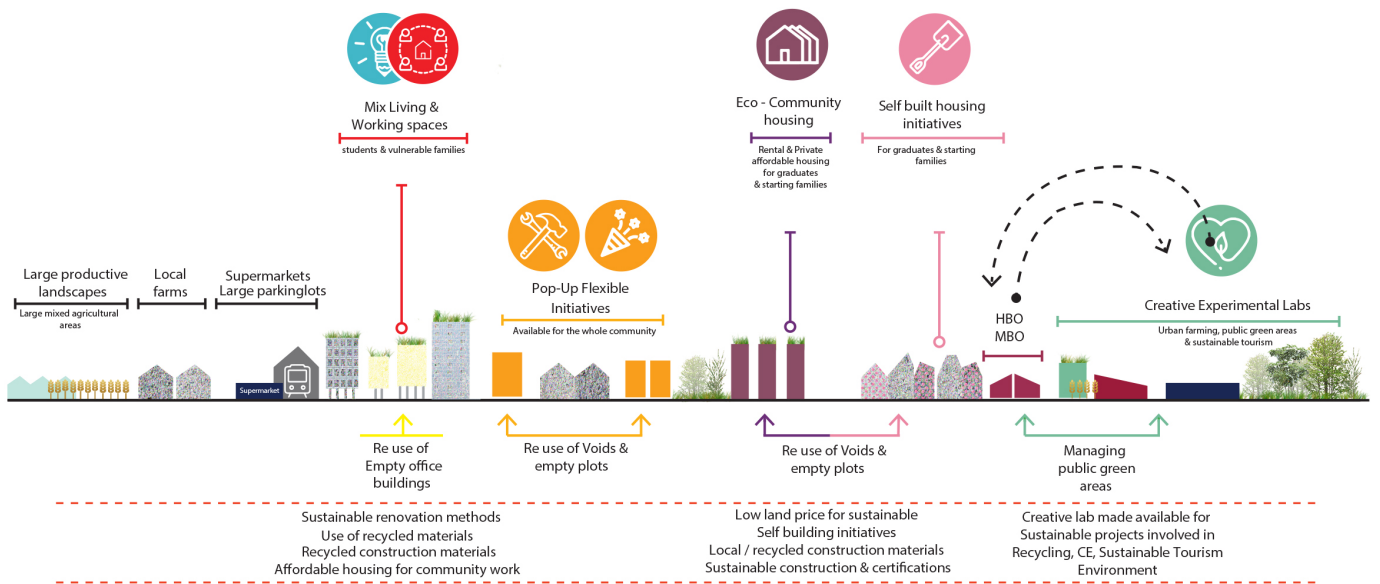
Figure 61: Aerial view of Intervention

Current situation



Proposal

MATERIAL FLOWS & PROGRAM



ORGANIC FLOWS

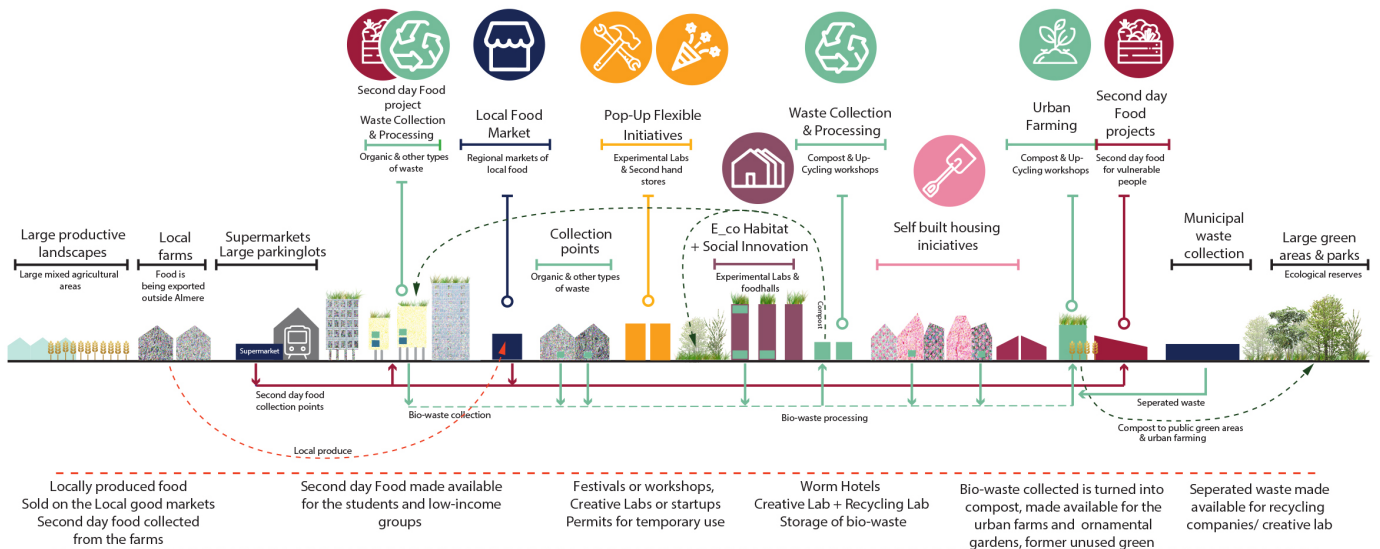
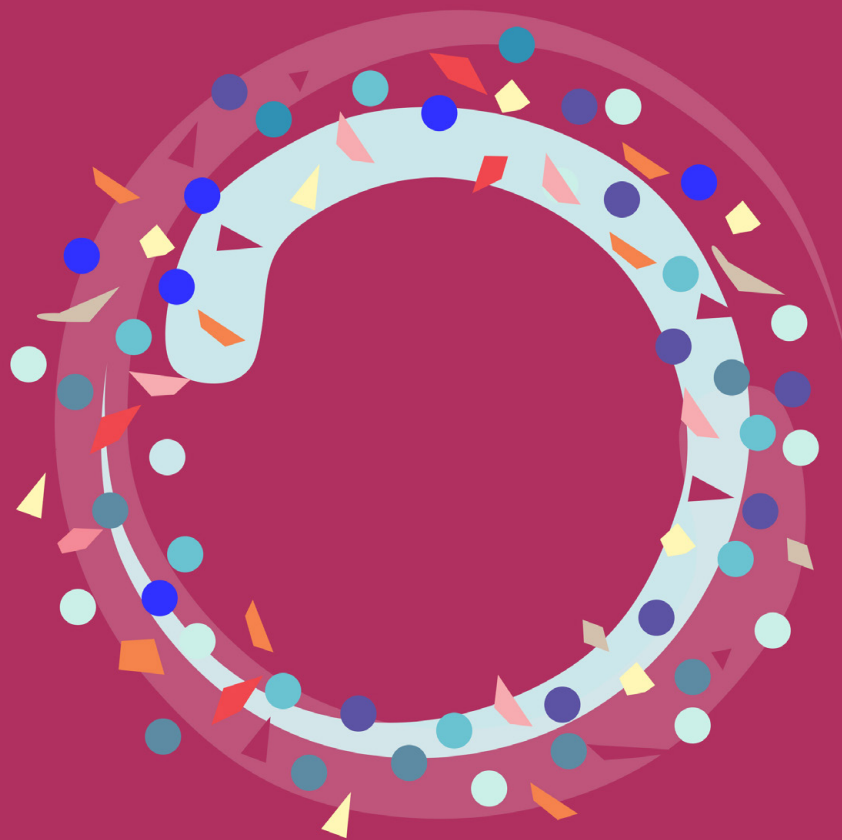


Figure 62: Systemic Section.

6. Conclusions



6.1. Reflections - societal relevance

Since the AMA is projected to continue population increase in the coming decades, at least 250,000 housing units will be built between 2016 and 2040 (MRA Agenda, 2016). Undoubtedly, the common challenge for policy authorities and real estate stakeholders will be to build enough housing for an increasing amount of families, workers and students. However, looking beyond these numbers, the social composition of this increasing population is clearly a relevant matter. In general terms, the population of the Netherlands is growing because more people migrate to the Netherlands than emigrate. Moreover because of the increasing lifespan. According to the Statistics Netherlands (CBS) "in the coming years, more children will be born, but that will not be sufficient in the long run to compensate for the increasing number of deaths". In relation with the current forecast, from the end of the 2030s more residents will die each year than are born. On the other hand, in the coming decades, the number of Dutch residents with a migration background will increase, while residents with a Dutch background will decrease. Currently, 23 percent of the population have a migration background, by 2060 this will increase to 34 percent (Netherlands trends, CBS. 2017).

On the other hand, in the AMA this tendency is going to be even more relevant due to its attractiveness for internal and external floating population. Since the City of Amsterdam represents a good position with a strong infrastructure in global networks, its economy is highly driven by services in financial, creative and knowledge-intensive sectors.

This phenomenon has influenced a functional interdependence between Amsterdam and its surrounding municipalities, and therefore impacting the social and economic distribution over the Region. As a result of this process, the AMA is facing more societal challenges, namely related with the process of suburbanisation, gentrification and segregation. These phenomena are specifically affecting the spatial inclusion of social and ethnics groups. As Savini et al. (2015) conclude, the social geography of Amsterdam shows a growing core-periphery divide with clear economic and cultural asymmetries. As they suggest, the biggest challenge for public authorities will be to find an internal balance of ethnicity and income, mitigating the polarisation between Amsterdam City, and outer neighborhoods. In this regard, the city should avoid a blind reliance on market entrepreneurialism. At the same time, try to mediate between these emergent spatial tendencies and the existent geography of social needs and diversity. On a regional level, it seems crucial to find stability in the political tradition of inter-municipal cooperation, with a emphasis on regional policies oriented to balance the current economic asymmetries.

In this regard, it is relevant for our project to integrate these findings in order to define scales of intervention able to address these trends, based on the societal opportunities for the AMA.

6.2. Reflections - scientific relevance

The AMA has embraced a strong agenda to encourage the Circular Economy in the region as a way to promote economic growth, environmental responsibility and innovation. In the words of the government, "the long term ambition is to create a circular economy with new methods of production, distribution and consumption" (Sustainable Amsterdam Agenda, 2015). In addition, it is also expected for the AMA achieve goals related with social diversity and housing (MRA Agenda, 2015). Nevertheless, as we discussed before in the theoretical framework, while the Circular Economy approach can be seen as a viable engine to promote economic growth and innovation based economy. It is however weak and vague in respect to social inclusion. In this sense, we see particularly important to establish potential connections between concepts of social sustainability and CE. In pursuance of developing concrete strategies to address the social problems in the Region but at the same time economic prosperity. However, although recent research recognizes an opportunity and a challenge in this connection, it is not quite clear about possible strategies and concrete practices to achieve this connection. Therefore, Circular Economy, as a tool for achieving Sustainability, remains as a challenge for the future multidisciplinary work focused on socio environmental global issues (Sauvé, Bernard, Sloan, 2015). In this regard, we see in spatial planning a feasible framework to elaborate concrete solutions for involved communities, pioneers, stakeholders and different disciplines in order to introduce a Circular Economy at the social level. In this project we have put our effort in to exploring possible applications and projects in the AMA. In the interest of achieving these synergies and contributing to a more sustainable and healthy development for the people. We strongly believe that only by including approaches as Circular Economy with the diverse needs of different societal groups, we can create unexpected outcomes of social creativity and innovation, to lay the foundation to solve the different problems we are facing as a global society.

6.3. Ethical considerations

When we started this project we began discussing the normative aspects of the Circular Economy model for the AMA. As a diverse group shaped by students of different nationalities and backgrounds, it was relevant for us to try to understand from the origins of this approach and how it is situated in its context. Instead of accepting it as something naturally correct, we tried to cross the concept with the societal needs of the AMA to extend its impact and meaning. We found out many things in that process. In the end, from our view, that was part of trying to build something coherent with our ethical perspective about Urbanism.

Cities are made by people who have diverse opinions, perspectives, cultures and concrete needs. Researching about what are the most important trends, dimensions, problems, interests, wishes and conflicts is the main task of urbanists towards improving conditions for people and the environment. In this regard, we see there is little space for being disregarding when you work at the societal level, even in different scales of actions. Which is a notably demanding process, as it is never ending and always challenges you to be more critic, open and responsible.

Since the AMA is one of many metropolitan regions which are making huge efforts to be more competitive, its societal challenges should be included as opportunities for development. Environment and economy are not divorced of people's social and cultural needs. Migrants, students, commuters, residents, can be part of a major social and diverse chain of value or continue being simple consumers and rest on the efficiency of waste management of Circular Economy. On the contrary, another level of participation can have innovative social outcomes and improve the quality of life and the environment for the diverse communities of the Region. The challenge for urbanists and all the different disciplines, stakeholders and communities are involved in this crusade to find and create the conditions for this kind of integration.

6.4. Evaluation Framework

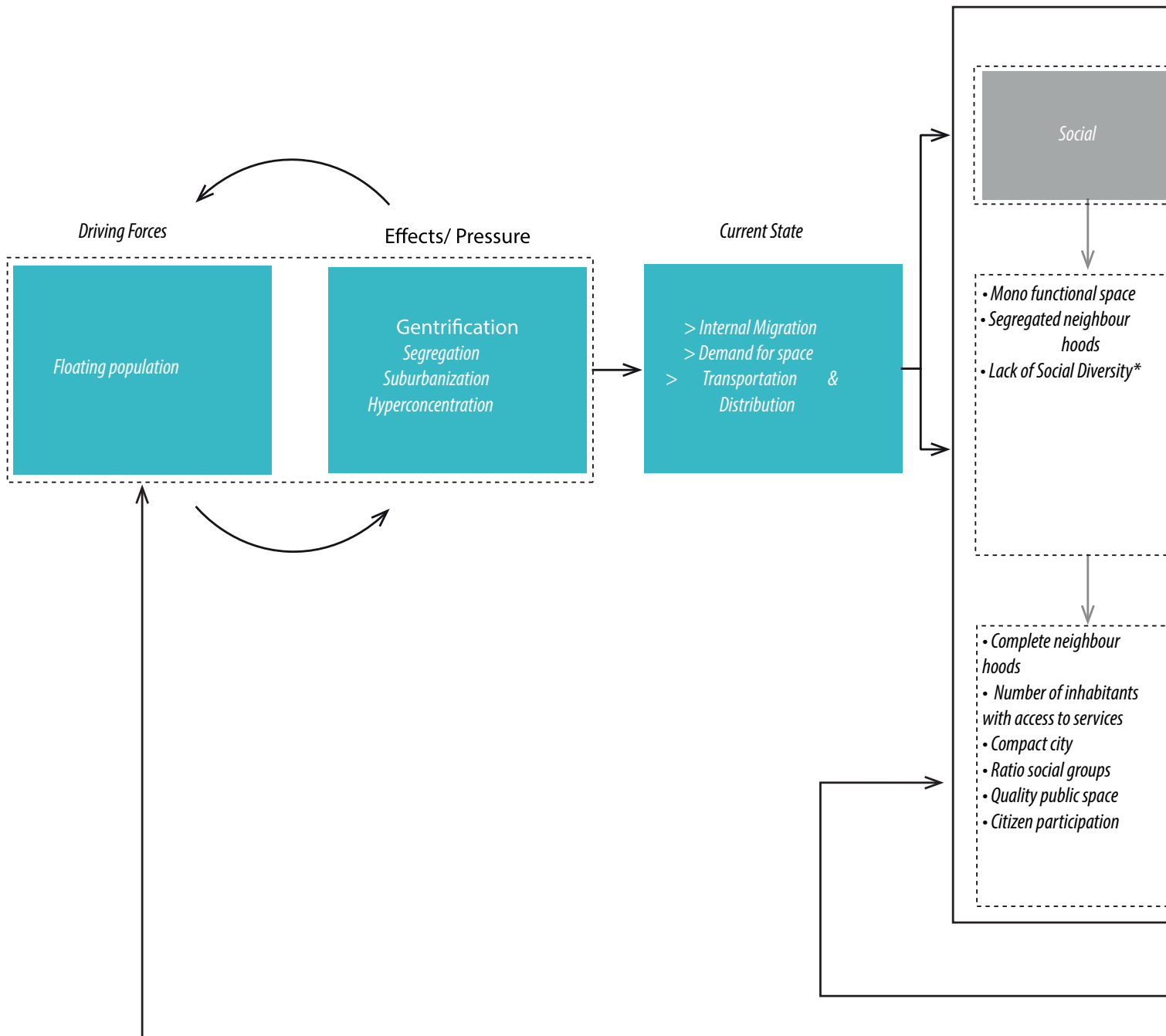
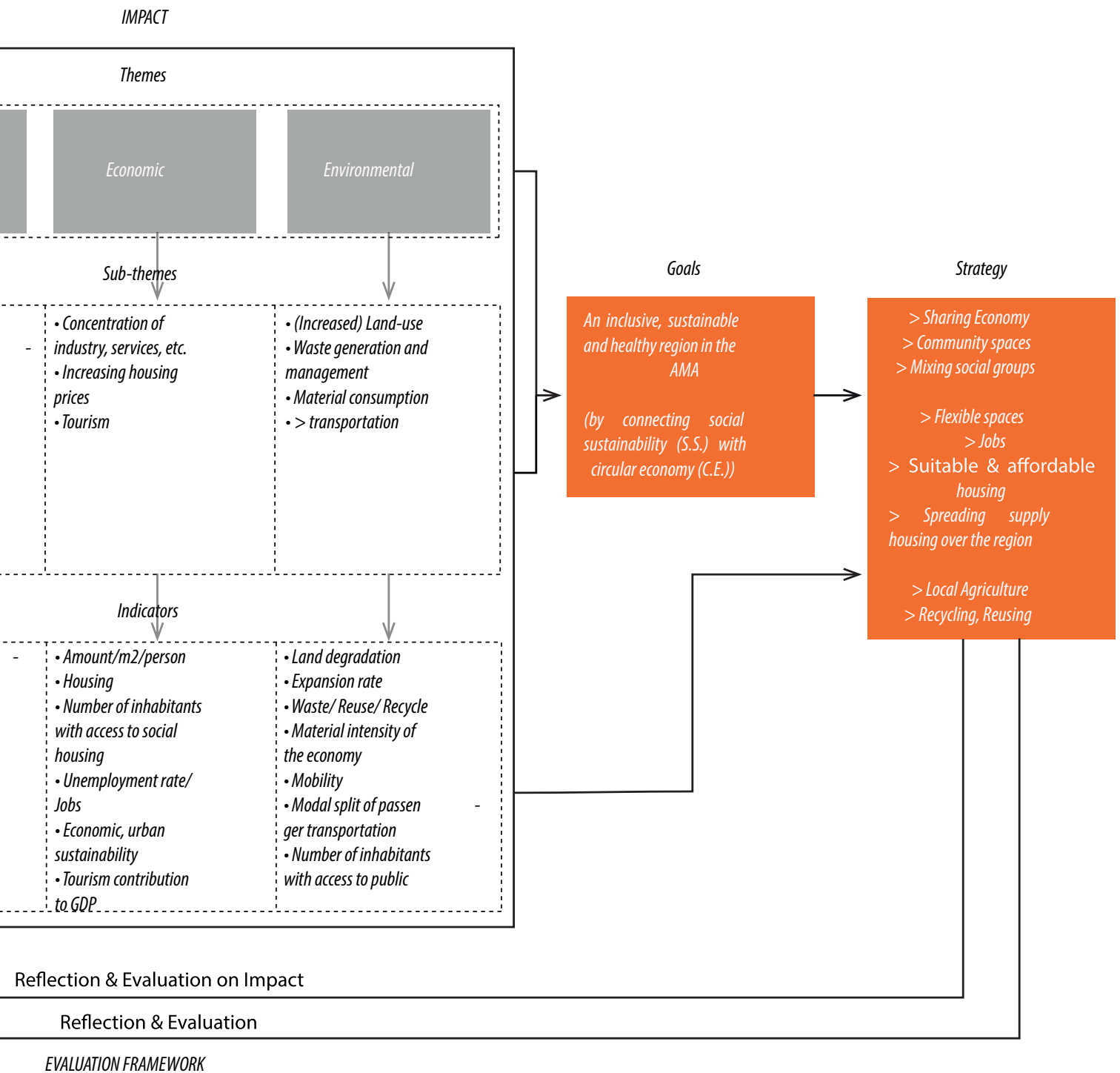
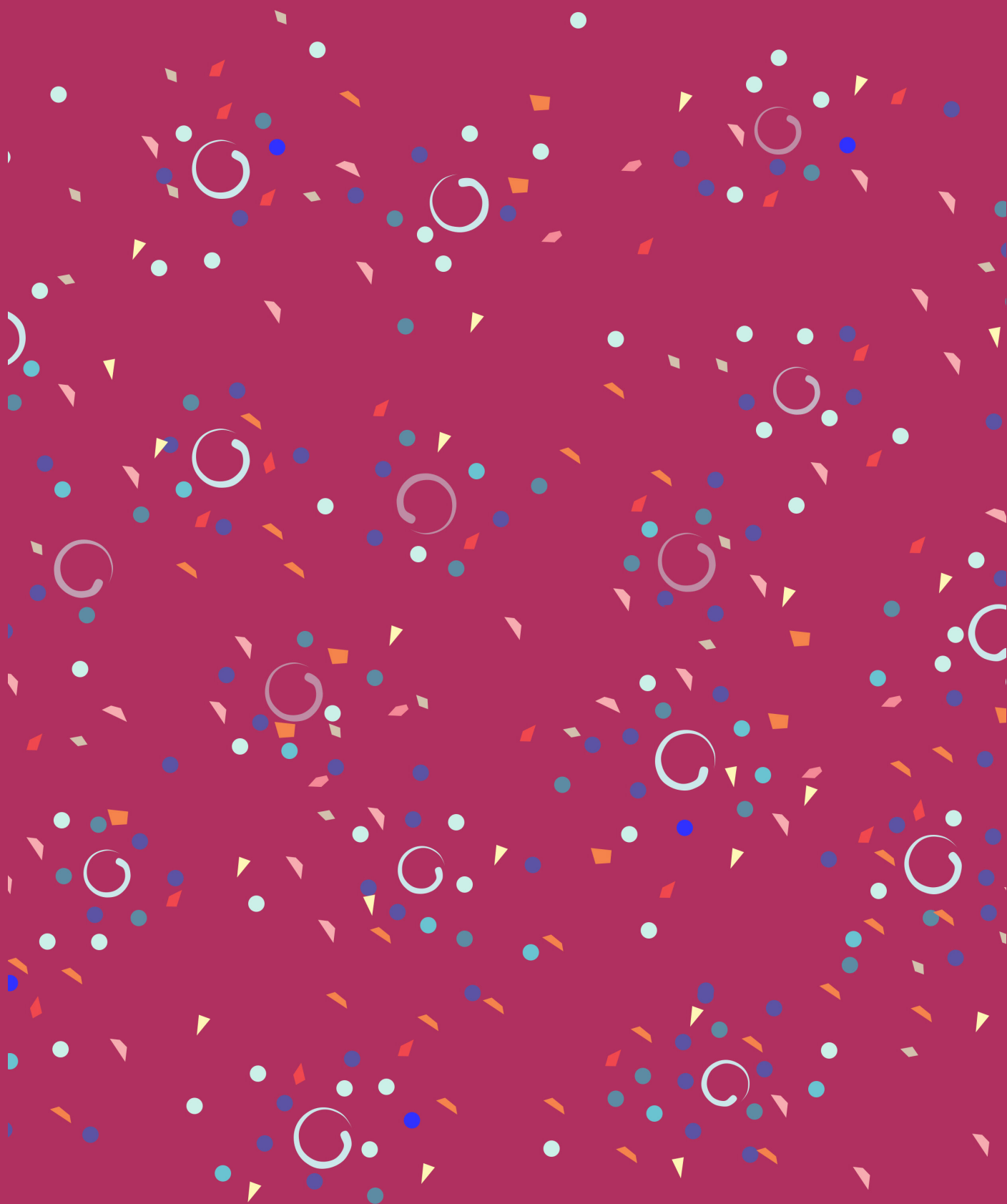


Figure 63v: Evaluation Framework Scheme.



7. Appendix



7.1.

Personal reflections

Qiyao Hu

In the last two months, we have discussed about how to make a spatial strategy for AMA that based on the concept of circular economy. The theme of our team focus on the participation of urban citizens which is one of the key principles of strategic spatial planning. At the same time, when we analyzed this area and tried to make strategies for it, some principles like identifying key issues, evidence-based, sustainability and alternative options were all took into consideration.

For a complex metropolitan area like AMA, it was really hard for us when we started to discuss "participation". Because there are some many types of people living and travelling who are also floating quickly. We decided to start from focusing on the group of students and graduates who are now temporary member of the city but also possibly the future of it. According to our evidence-based analysis, we found that they are now concentrated in the city center and a little separated from the local life. So we decided to encourage some of them to move out from the center to reduce the pressure and have better participation with local life and circular economy.

It is hard to realize our goal for the current situation is resulted from governance arrangements in place, spatial layout of urban functions and stakeholder's interests in the past years. What exists is reasonable. These preconditions would be the key points that could impact our strategy making. For example, the location choosing of universities which could not be decided by us will directly impact students housing. So when we proposed for the potential student housing, the accessibility to campus is the most important principle.

On the other hand, we wanted to realize circular economy also, so the current material flow is another important precondition of this strategic spatial planning. However, in this aspect, we could do more about it to developing local circularity in AMA for its our main goal.

In the later stage of our project, we have made a lot of strategies. But we know clearly that these things could not be finished in a short term. The sequence is important but we cannot foresee the future. Different choice could give us totally different outcomes. For example, if we build young housing in a new place before there has some attractions for young people, the project would be failed even though it is well designed and cost a lot. The roadmap helps us a lot to think about the order of our strategies. Although we cannot make sure about the outcome of each proposed projects or policies. We can have alternative options in the roadmap which could eventually help the decision making in the future.

The two month is really a short term for us to understand circular economy and strategic spatial planning. But after these learning period and so many discussion with my team members. It helps me a lot to have a right way of learning it. Now I have a more clear view of sustainable future.

7.2.

Personal reflections

Anna Klimczak

As a group from the beginning, we started with strongly social attitude. What I mean by it is that all of us wanted to improve social conditions of people living in the AMA. All of us have strong needs of implementing changes through values that believe in. By through time what was highly interesting for me we realized that each of us understand our values in a different way. For project needs, we had to agree on one specific definition for example on equality, social sustainability or diversity.

Personally, at the beginning, I believe that social-spatial strategies should be mainly addressed to the people leaving in the area that I worked on. However, during analyzing trend and conditions of the AMA I realized that we also have to take into consideration all visitors or people migrating to the region. Only by taking them into account and defining those groups as separate equal stakeholders we can implement changes possible to adapt.

This kind of thinking, taking into consideration existing local condition, not based on values that I bring to the project personally, was the issue that I learn and appreciated the most. Working on locality helped me also realized that all the trends, from the beginning mostly associated for me with a negative phenomenon, can be used and transform in order to achieve defined goals. Things understand as disadvantages could be used and transform into possibilities. Explaining it through our project: we defined phenomena of floating population that were mainly affecting gentrification and segregation of the city of Amsterdam.

However, by conscious steering of those people flows we can implement changes and not only prevent further negative conditions but also introduce new ideas: for example circular economy.

Thanks to Roadmap, as a necessary part of the project, I realized also existing weakness of spatial planning. Maybe it is a weakness of our project (due to chosen delicate interventions) or maybe it is also strong personal will to see changes at ones. However real implementation, through all legislatisation process took too long time comparing it to local initiatives. Probably we should implement part of encouraging them and trough time to attach them to our conception. Nonetheless, it seems clear to me that spatial planning should give the flexible framework in order to allow adapted changes in best, quickest way.

I am also aware that those thoughts and insights are strongly connected with aspects that we worked on. If we would decide as a group to work on economic issues, ways of building strategy could be different. From the other hand, our assignment of introducing circular economy to the region, in my opinion, can be only truly made by implementing it for society through a bottom-up approach, not through humongous plans of connecting material chains, abstract for the average citizen

I am personally really glad of this lesson of deeper understanding personal values, the importance of local conditions and using disadvantages as advantages. I have positive impression that all those mind schemes, worked out on abstract social concepts, could be possibly adapted to more economical or technical topics.

7.3.

Personal reflections

Leyden Durand Lopez

Float to Circularity begins with the premise that Circular Economy is envisioned (by local authorities) as a desirable model for the future development of the AMA region. However, most of the developmental outlines and perspectives elaborated for the region are based solely on the potential interventions on the main material and energy flows; with special focus on production and consumption chains, and how these could be re-organized in order to be embedded into a circular economy structure. All this without regard of the role of society (people - lifestyles), which, we as a group, considered an essential element for enabling Circular Economy to its full potential. For this reason, we searched for circular economy potentials in people's lifestyles, constituting this the basis of our approach and further research.

An in deep research of the territory socio - economic structure allowed us to understand, which conditions are defining current social structures and dynamics in the territory, finding out that some socio spatial trends currently are affecting Amsterdam city, like centralization, gentrification, suburbanization and have a striking relation with the -as we call it- *floating population phenomena*, and is creating dynamics that affect the socio-spatial structure of the territory at city and regional level. For this reason our envisioned spatial development aims at addressing these issues, by creating the possibility for decentralized living and working possibilities for students and graduates within the AMA region. With this strategy we wish to release some pressure out of the Amsterdam city and its *floating* inhabitants by creating the basis for alternative sustainable lifestyles in other areas of the AMA.

The economic and socio spatial potentials found on the territory, delineate the possibilities for acupuncture interventions where the students and graduates will act as pioneers of circular economy cycles and sustainable ways of living. In order to achieve this, *Democracy* and *Integration* should be at the base of our strategy, where a coherent policy framework and the integration between different levels of governance in different parts of the region are essential to create the right structure for *Participation* processes to take place and be effective at all scales of intervention.

However, I understand that these processes are very complex and involve organizational levels that are difficult to achieve, and are money and time consuming, especially if the governance structures are not designed to support these levels of interaction between the different actors that should be involved in the process, or if for some reason, the development goals or priorities are not completely aligned among the different actors. In this sense, the *Float to Circularity* proposal could be penalized by the dependency on governments at national and regional levels to take the lead at creating integrative systems that allows for effective spatial planning strategies to take place, nevertheless, this kind of synergies are possible in a country like the Netherlands, with strong democratic institutions.

Under this framework, more probabilities are that spatial planning actually respond to societal needs facilitating social cohesion and the construction of more sustainable societies where circular economy precepts are part of the social structure.

7.4.

Personal reflections

Diego Moya Ortiz

We started our analysis identifying spatial trends that arise from the increasing phenomenon of floating population. The first one is a process of internal migration which is affecting some vulnerable groups as commuters and students. The second one corresponds to an overpressure on the spatial structure of Amsterdam caused by process of external migration (Tourism, Expats). These phenomena are linked to a process of gentrification, which is influencing a silent process of segregation especially of ethnic groups.

By recognizing this context our aim is trying to generate more diversity and inclusion, but also encourage the social participation of different groups in the AMA. We believe the Circular Economy can be an effective tool for Social Sustainability if it extends beyond its macro economic and environmental framework.

To achieve this connection between the approach of Circular Economy and Social Sustainability, we recognized some essential principles to make our proposal feasible. To name them, the necessity of social participation, opportunity for challenge economic frameworks, alternative options of participation, processes of empowerment and spaces for democratic decisions. In addition, there are some preconditions that could guarantee this kind of process. These are a horizontal and integrated governance; a flexible framework of time; necessary transparency between the different actors and finally, a set of common goals for all the stakeholders (municipalities, communities, students, graduated entrepreneurs, companies).

In relation to the barriers we see potential difficulties with the different interests of stakeholders involved. At the same time this can be seen as an opportunity to involve different perspectives. In relation to the stakeholders, the proposal seeks to integrate them by implementing different actions. Firstly, by creating a diverse range of projects (expectations). Secondly, by providing a body for discussion and communication (inclusion). Thirdly, by providing a network of cooperation during the process (empowerment and autonomy). Finally, I see that some barriers related with interest conflicts or mismatch of influence and power among different groups. These can only be tackled by recognizing all the stakeholders and creating proper and democratic instances for participation.

Considering our regional design further, I recognize that weak points are related with the mechanism of involving different actors through time and with the complexity of the intervention. In order to avoid an abstract connection between the Circular Economy with Social Sustainability, it is necessary to try to establish implementation models that can really support the involvement of the different stakeholders through the time. In this sense, policymaking is key to support this process and also ensure a well structured level of coordination. We realized that in our proposal the public role of the public sector must be included. I do not see this in a normative approach but in an active and open way. However, this process entails time and will.

In relation to the strength of our proposal, the most valuable point is the kind of approach we formulated. It was valuable criticizing the concept of Circular Economy more than accepting it as something that is naturally correct. This gave us the opportunity of dealing with some societal problems that are not recognizable at first sight. This is relevant because in an evidence based planning design the diagnosis must try to be precise in order to address to right problem. In this regard, while it was not an easy process, I can argue that at the end we developed a critical framework of action that can be measured concretely in terms of its scope.

7.5.

Personal reflections

Mae-Ling Stuyt

Even though a project of only 10 weeks may only touch upon understanding the complexity of processes occurring in the AMA and concepts such as Circular Economy and sustainability. Working in a group has brought together perspectives and planning traditions from different backgrounds. Thus, this quarter has been very insightful and created in my opinion a very relevant project addressing justifiable issues questioning these concepts. In my opinion, this is what Urbanism is all about. Creating a place where different perspectives each thrive simultaneously and respectfully, aiming to improve conditions for people and the environment. More importantly, questioning current developments whether they truly achieve this goal and challenge them with new developments.

In the AMA we challenge the concept of Circular Economy whether it is truly sustainable, by proposing the inclusion of the social dimension that is now missing. According to thinking from the 'triple baseline' concept of sustainability, a basic level needs to be achieved on all levels before any sustainability can be achieved. I would say, this is crucial for strategic spatial planning as it is a tool to integrate different dimensions. Returning to the AMA, we identified social issues occurring on city and regional level (social vulnerability, gentrification etc.), creating pressure on the built environment and society. Concurrently, radical innovations trying to implement sustainable developments on these scales might overwhelm receivers. The plausibility of changes in social terms, requires a good understanding of people's preferences, practices and values in the particular context. In order to address these different scales, our acupuncture strategy aims to introduce changes in a subtle way, while actively involving a diversity of stakeholders. Encouraging social participation in the sustainable developments in the AMA,,

while increasing awareness and environmental responsibility. We aim to accomplish this by desifying and diversifying neighbourhoods by introducing housing, flexible spaces and creative labs. Secondly, encourage knowledge exchange and awareness by connecting diverse stakeholders in the community and creating opportunities in these places for them to interact. Places where people spend time to create common goals, encourage the sharing economy and create developments that are interdisciplinary, transparent and inclusive. These are spaces where knowledge and time is the capital spent and creates interest for the government, the community, companies and other stakeholders. Here the role of the government, policy making and democratic transparent bodies are key to safeguard the intent of the strategic interventions and interests of different stakeholders.

Looking back, even though we address important social processes in the AMA and the lack of the social dimension in Circular Economy. It is impossible to control these social processes and therefore also determine the impact our strategy would have on these processes, if there is any. Secondly, the impact of our "acupuncture" strategy on overall sustainability might also be limited, as it only involves subtle changes acting as pioneers. Our goal is to trigger innovative sustainable development from the people themselves. However, I think it is difficult to anticipate how well these projects will be received by the public. We have done extensive research on the criticalities and potentials of each location, analysed the stakeholders and social demographics. Aspiring for an evidence based project. Yet, despite taking this into account, by introducing a mix of projects with the evolving profile of the students, we have to be careful that it will not just spark a(nother) gentrification process, social separation or exclusion instead of inclusion. Therefore, it would be great if in the future we could have the opportunity to talk with some of the main stakeholders in these kind of projects. To explore further the different options and standpoints in the AMA and how our strategy might be received.

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