Active cities

Spatial conditions for a healthier lifestyle in The Hague's Transvaal and Moerwijk

a master thesis by
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Active Cities - Spatial conditions for a healthier lifestyle in The Hague's Transvaal and Moerwijk

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Cover: Active cities
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Spatial conditions for a healthier lifestyle in The Hague’s Transvaal and Moerwijk
This report presents the results of a study done at the Faculty of Architecture at Delft University of Technology. This report is composed as a final graduation project in urban design at the department of Urbanism in the graduation studio of Urban Regeneration.

This report can be used as a reference guide by fellow students and colleagues from practice.

Readers who are interested in the problem statement can see the first chapter. Anyone interested in the different research that has been done, can go to chapter 2 of this report. For the design task, see chapter 3. The vision for the project area is outlined in chapter 4. Those who are curious about the design interventions can view chapter 5.

During the graduation process two mentors from the Faculty of Architecture have supervised me: Maurice Harteveld and Remon Roolj. My thanks go to them for their good guidance and advice. Without them, it was not possible to bring this report to a successful end.

Additionally, many thanks to the municipality of The Hague, in particular Loes Verhaart and Nicola Kornig for their support from practice. I also would like to thank Clarine van Oel (TU Delft), Sanne de Vries (TNO), Willeke van Staalden (TNO), Menno Hinkema (TNO), and Marcel van Heck (Rijksbouwmeester) for their time and advice, which have been of great importance during my research.

Last but not least, thanks to my friends and family for their support in the past year.

Delft,
1 July 2013

Djawid Tahery
SUMMARY

As urban designers we deal with urban space. Since urbanism is about people's movement through that space, we automatically also deal with people. Attention is needed on the combination of people and the use of that space. It seems that there is a difference in the use of public space in the past couple of decades: we see few children playing outside and we often observe people with overweight on streets.

This movement affects people's health. What also seems to be the case is that people lack physical exercise. Facilitating soft-transport (like walking, cycling and other outdoor activities) in the urban environment becomes more and more important for public health. Research has proven that fifteen minutes of brisk walking or half an hour of slow walking per day decreases the chance of gaining weight (Morabia & Constanza, 2004).

During a time frame of 30 years the share of people with overweight in the Netherlands has almost doubled (the Dutch Statistics, CBS, 2012). When looking at four big cities in the Netherlands, The Hague is one of the leading ones. This city knows four deprived neighbourhoods that face social, environmental and economical problems. Of the four deprived neighbourhoods, Transvaal and Moerwijk have the highest percentage of people with overweight. That is also the reason why these two neighbourhoods are chosen as the project location.

This master's thesis deals with the main research question: How can the design of public space create conditions for a healthier lifestyle of citizens?

The importance of this question is that there is little known about the combination of health care and urban design. Health scientists know a lot about how to lead a healthy life, what to eat and what not to eat. The urban design discipline thinks a lot about how to organize public space for different users. But there are few people who know how to organize the city in order to stimulate a healthy lifestyle. The spatial and functional organization of a city and the design of public space do seem to make a difference in this matter.

This thesis aims to develop spatial conditions in urban environment in order to stimulate, invite and encourage people to lead a healthier lifestyle.

In order to be able to answer the main research question four methods are used that in the end have contributed to making design interventions in Transvaal and Moerwijk.
**Literature study** is done with the aim of creating a body of knowledge about the subject. As a result of this study a review of literature is made discussing active and healthy cities in relationship with people’s health. It seems that urban environment plays a major role in mental as well as physical well being of people. An important keyword for fighting against overweight is physical activity. It seems that the presence of amenities and accessibility of public spaces contributes to stimulating this healthy behaviour in urban environment. The attractiveness and challenging environment contributes in bringing people together, again in the urban environment; it will make them active sociable citizens of their neighbourhood.

**Spatial analyses** are done with the aim of discovering the relationship of different urban elements with each other. As a result of this study a set of drawings from the project area are made about the existing spatial conditions. The morphological layers have showed that, mainly in Moerwijk, people are limited by the main infrastructure in their ability to walk further. What is evident is that many public spaces do not meet the needs of the users, mainly because they do not have the features users require nor does it have a quality to make use of the public space.

**Interviews** are held with the aim of discovering spatial and physical characteristics of a public space. Talking to residents and some key actors (like the municipality and researchers from TNO) has provided information about their point of view on the urban environment and what really is needed.

In order to create spatial conditions that can stimulate an active lifestyle in the neighbourhood, public space in Transvaal and Moerwijk has to respond to the needs of the residents, which is more and safe urban space for pedestrians that is able to facilitate different activities, amenities in the existing public squares and attractive routes for walking and cycling to that public squares. Public space should be open up in order to activate the neighbourhood and also the live of people in that neighbourhood.

**Reference study** is done with the aim of exploring existing solutions that have been done elsewhere around the world on the topic of active and healthy cities. As an outcome of this study, a collection of examples is gathered that can be used in the case of The Hague’s Transvaal and Moerwijk. It seems that in order to stimulate an active city, a city needs to provide conditions on different scales: on the scale of the city, on a neighbourhood scale as well as on street-level. City-wide it is important to have green routes for cyclists and pedestrians that lead to qualitative places around the city. A neighbourhood needs to
have a public square that allows different activities for different users. The street-level on the other hand, needs to be challenging the users, children as well as the elderly, like active playgrounds or just simple attributes for the elderly on street.

Several researchers have clarified that small spatial interventions in public space can contribute in vitalizing a neighbourhood. Conclusion is that these small scale interventions helps creating new kind of public space that meets the needs of the users. The interventions in Transvaal and Moerwijk are based on creating spatial conditions on three scales (city scale, neighbourhood scale and street level) that will stimulate, invite and encourage people to be physical active day in day out.
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What do urban designers know about health? And what do health scientists know about urban design? Is it possible to combine these two professions, an Urban Health Designer, who is specialized in creating healthy living environment?

This chapter deals with the problem field about our health and the conditions of urban environment.
1.1 | Problem statement

Public spaces are known for ages. Especially in the Greek Antiquity, places like the Agora, which had public functions: a place that integrated economic, political and cultural activities. The Agora was seen as 'necessary condition of city life' (Madanipour, 1999:883). Public space was the place for leisure time activities.

But many centuries later with the expansion and the industrialization of cities, the quality of public space was more and more subordinated. In the 19th century, public space was created with the intention of improving the health and quality of life within the working classes (Giles-Corti et al., 2005). In that time the health matter was of another degree than we nowadays face: mainly urban hygiene was the cause of concern. Poor water supply, sanitation problems and air pollution were the main reasons for the unhealthy life of people.

While the sanitation infrastructure and the air pollution are improved in advanced societies (mainly in the West), we still have health problems in our modern life. The current lifestyle of Western societies is encouraged and supported by the use of the automobile. The more advantage the transport industry gets the more negative impact it will have on the urban environment and therefore on people's daily activity.

In the 19th century, before the advent of the car, walking and cycling was the common way of moving around. Nowadays people walk or cycle little, mainly because of the advanced mobility, and more importantly, because of the conditions of public space, especially in deprived and post-war neighbourhoods. This way people face health problems concerning obesity and lack of exercise, especially children and the elderly.

As urban designer we deal with the urban environment, and in particular with public space. Over the years there has been a visible change happening in the image of the streets. We see often people with overweight and few children playing outside. Extreme examples can be found in America, but countries in Europe, like the Netherlands, face this change as well. It seems that people are not that well aware of their physical behaviour, the basic forms of exercise and the contribution that it can have in maintaining their health.

People in western societies often use the car for short distances, for example to take their children to school or do the groceries. This way people get little exercise, especially children and elderly people. A research done by Timperio et al. (2008) showed that child obesity is increasing rapidly all over the world. To tackle this problem physical activity among children is becoming more and more important. Also for elderly people physical activity is important in order to stay longer
healthy and live longer independently.

Looking to the Netherlands, currently more than half of the population is overweight, of which 10% has obesity. According to Hartstichting (2012) 25 years ago 1 in 3 adults was overweight and among the very young 1 in 6 are too fat. The cause for this is having too much calories than one can handle and/or having too little physical exercise. Among the youth mainly 12-17 year are less active than they need to be (De Vries et al., 2010).

A research of Blokstra et al. (2011) shows that in the Netherlands in 2009/2010 about 60% of male and 44% of female is overweight and according to Schönbeck et al. (2012) 14% of the youth are overweight (table 1.1.1, figure 1.1.1 and 1.1.2).

According to Centraal Bureau voor de Statistiek (the Dutch Statistics, CBS, 2012) the share of people with overweight has increased in the past 30 years. In the Netherlands 6.5 million people are overweight, which represents 41% of the total population, among the youth as well as among adults. In the 1980s the percentage of people with overweight was 27% and child obesity has increased from 7% in 1980s to 11% in 2010 (CBS, 2012). This proves that there is a trend going on that needs to be taken seriously.

The keyword for fighting against overweight is physical activity. Research has proven that fifteen minutes of brisk walking per day or half an hour of slow walking decreases the chance of getting weight gain (Morabia & Costanza, 2004).

For children, qualitatively good places like playgrounds and the distance to a public space are the important elements. The activities and facilities available in the public space will encourage children to be outside and make use of the urban environment. The more facilities a place has, the more satisfying the experience of users will be (Giles-

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<th>Youth age 2-21</th>
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<tr>
<td></td>
<td>male</td>
<td>female</td>
</tr>
<tr>
<td><strong>Overweight</strong></td>
<td><strong>(BMI &gt;25 kg/m2)</strong></td>
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<tr>
<td></td>
<td>60</td>
<td>44</td>
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Table 1.1.1 | Percentage overweight adults and youth in the Netherlands
Source: Blokstra et al. (2011)
For elderly people recreational routes are important in order to stimulate healthy mobility. The recreational mix provides for this target group opportunity for physical activity and social interaction (Giles-Corti et al., 2005). To keep elderly people healthy it is important to motivate them and keep them motivated to be active in the society.

If we look at the urban environment, both groups face obstacles to mobility in public space. Because of safety reasons children are not allowed to go far away outside their streets. Parental supervision is needed. The elderly do not feel invited in their neighbourhood because of the poor conditions of public space. Many public places are designed for the very young. For this group qualitative public space, accessibility and reachability are important features. So there is room for improvement where we need a new kind of environment that invites people to be active.

Of course there is also the middle group in society, aged between 20 and 55. But the lack of physical activity and obesity and a shortage of physical activity within this group are less prevalent than among the very young and the elderly. Research has proven that more than half of all young people are insufficiently active for their health (Timperio et al., 2007). Despite the fact that people aged between 20 and 55 also have issues concerning physical activity, this research is not mentioning the middle group so explicitly.

In this way one can say that both of the target groups, the very young and the elderly, have the public space in common. Moreover, soft-transport (like walking, cycling and other outdoor activities people

![Graph showing percentage overweight adult females in the Netherlands](image-url)
can do) is becoming very important in fighting against weight. For this matter, public space forms the basis for having an active life, it has a big impact on how people experience a place and it defines the atmosphere of public space. It is a place where people meet each other, and exchange information and it contributes to the physical health of people (Gemeente Den Haag, 2012).

It seems that urban design and public health have a connection with each other. If it is about leisure time physical activity, walking is seen as the common form of moving (Ewing & Handy, 2009). It is therefore more reason to promote a community design, which incorporates walking and cycling into daily life.

When it is about physical activity, the physical environment is an important influence. Therefore public spaces are environmental features that can facilitate physical activity among people (Timperio et al., 2007). The quality and accessibility of a public space play an important role in the use of such a space.

For the very young and the elderly the social environment, like social security, behaviour of peers and active parents as a role model, is of great influence for physical activity (Ferreira et al., 2007).

What seems important is that people experience little stimulation in the their environment in order to be more active (Chorus & Hildebrandt, 2010). Along this line, Wendel-Vos et al. (2007) mentions that the physical environment, such as the design of residential areas and the infrastructure, can encourage physical activity. It seems that traffic safety and a wide range of sport facilities and greenery in a neighbourhood are positive physical environmental factors that can

![Figure 1.1.2 Percentage overweight adult male in the Netherlands](source: Blokdre et al. (2011))
influence this. Traffic safety, social insecurity and a lack of playgrounds are the obstacles for children not to move around and not do any exercises.

Research done by Crawford et al. (2008) clarifies the urban environment also as an important area for physical activity. In this research amenities and accessibility of a public space are seen as important elements, which motivates people to move around. For that reason public spaces are environmental features that can facilitate physical activity among people.

So the physical conditions of any public space determine, to a great extend, the use of a place, the mobility of people and the amount of walking and cycling people will be encouraged to do. The better the quality of any public space the more inviting it will be for people to stop, sit, eat or play there (Gehl, 2011). In other words, the spatial structure of a public space needs to be improved in order to encourage people to walk and bicycle and therefore exercise more.

This means that public space should be open to all activities and must have easy access but should not give the opportunity for any one group to dominate a part of the public space (Iveson, 1998). When designing public space, it is necessarily to think about public access for multiple users. This increases the usage and quality of the public space (Giles-Corti et al., 2005).

To sum up, according to research the main problem statement is:

Nowadays people all over the world (mainly in advanced societies of the West) face health problems concerning obesity and lack of exercise, especially children and the elderly. The current lifestyle of Western societies is encouraged and supported by the use of the automobile. The more advantage the transport industry gets the more negative impact it will have on the urban environment and therefore on people's daily activity. Therefore, urban design and public health have to come together to tackle this problem. By improving the spatial conditions of urban environment we can provide people with new kind of places where they are stimulated, invited and encouraged to have an active lifestyle and therefore lead a healthier life.
In continuance to the previous section the main research question should cover a wider topic, which are active cities and healthy cities. The main research question for this master’s thesis has been:

**How can the design of public space create conditions for a healthier lifestyle of citizens?**

Further investigations has been done in order to be able to answer the main research question. The following sub research questions divided into subjects have helped gathering knowledge about the topic.

01 | Public space and people’s health  
*What is the link between people’s health and public environment?*  
- health of people and importance of exercise  
- public environment and soft mobility  
- amount of time/distance people walk  
- purpose for a walk

02 | The characteristics of public space in relation to walkability and bikeability  
*Which characteristics of public space make an area walkable and bikeable?*  
- importance of distance/time  
- importance of quality for motivating people  
- importance of the built environment

03 | City structure and the relationship with walkability and bikeability  
*What are the structural elements of a place that makes a route interesting for walking or doing exercises?*  
- importance of having a clear route to encourage people to repeat the walk through the same neighbourhood  
- importance of a program in a route

04 | Spatial design elements  
*How can I redesign the spatial environment in a neighbourhood in order to create conditions for an active and a healthy lifestyle?*  
- attributes in public space

Each research question involves a different research method in answering it. This will be discussed in section 4 of this chapter: the graduation project approach.
1.3 | Aim of the project

The aim of this master’s thesis is to develop spatial design interventions for public space in Dutch cities, which can be used to enhance the use of soft-mobility (like walking, cycling and other outdoor activities) and therefore stimulate people in having an active and healthy lifestyle, regardless of the venue. This thesis is about tackling the city from the design of public space’s point of view in such a way to be able to contribute to a healthier lifestyle of people, especially for the very young and the elderly.

Improving the quality and the use of public spaces can achieve this. By bringing change in the structure of an urban environment we can design public space that will stimulate people to make use of the environment often. In other words, it is about tackling the city with the design of public space in order to improve the structure of an area that will facilitate physical activity.

The title of this graduation plan is Active Cities. This is used as an umbrella title. The main theme is getting people into motion in public space. Within Active Cities we can include walkable as well as bikeable cities, healthy cities and cities of sport.

Walkable and bikeable cities are about the redesign of public space, about clarifying urban structure in order to encourage this healthy behaviour. For short distance as well as for longer trips.

According to Southworth (2005:248), a ‘walkable city is the extend to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network’.

Making a city more walkable and bikeable is about improving safety, accessibility and reachability to an urban environment. The city should be interesting to walk and to cycle through it, but it should also offer qualitative space for people spending time during their trip. These places should not only be interesting for people who live there but also for the ones who do not live there or do not know the area.

‘Walking and bicycling are viewed as essential ingredients in an integrated, intermodal transportation system to give travellers transportation options and to provide continuity from home to destination’ (Southworth, 2005:246).

By making small interventions in the network structure of a neighbourhood, the city as a whole can be changed. This will improve the neighbourhood’s image and it will give people a better living
environment.

Healthy cities on the other hand are about identification of a healthy leading urban environment. For example using design elements in public space in order to contribute to people's health, like greenery in the urban environment or facilities that can stimulate people's daily physical exercise.

'Healthy city is a place that is continually creating and improving the physical, social and political environments and expanding the community resources that enable the individuals and groups to support each other in performing all the functions of life and in developing themselves to their maximum potentials' (Corburn, 2009:6).

The 19th century's improvements in the city, mainly sewage related, saved people from many diseases and in that line healthy cities of the 21st century can safe people from obesity and stress related problems. In here, it is about leading an active life integrated into daily routines. The presence of attractive facilities along certain routes will help in stimulating a healthy behaviour.

The last term is cities of sport. In these cities, sport plays a major role. We can think of cities that have organized big sport events, like the Olympic Games or Soccer Championship. These events are temporarily but nevertheless it is a starting point in bringing sport under the attention of people.

Nowadays sport shifts from team sport into individual sport and the popularity of sport increases. Cities of sport can also be used to create or enhance urban meeting places. In order to make this happen, sport accommodations needs to become visible and should be combined with other programs in the area such as shops, restaurants, culture and education.

The design goal is to encourage the health of people in urban area and the means for this is to ensure that the environment is good for walking, cycling, outdoor activities and places with the possibility for informal sports.
1.4 | Project location

With a population of more than 500,000 inhabitants, the city of The Hague is the third largest city of the Netherlands. This city knows four deprived neighbourhoods. These areas, which are termed Krachtwijken, face social, environmental and economical problems that needs to be solved. These four neighbourhoods are Schilderswijk, Stationsbuurt, Transvaal and Zuidwest (Bouwlust, Morgenstond and Moerwijk) (see fig. 1.4.1).

A research of Gemeentelijke Gezondheidsdienst (Municipal Health Service, shortly GGD) has compared four big cities in the Netherlands. The outcome shows that the population of The Hague has the highest percentage of overweight problems (table 1.4.1). Because of this reason The Hague is chosen as the project area. In this city that has a population of more than a half million, 15,000 children in The Hague are overweight (Gemeente Den Haag, 2010).

Research has showed that 6% of children aged between 2 and 4 years in The Hague are overweight. Among the ages of 4 until 19 years it is even more, 20% (Gemeente Den Haag, 2010). Differences in ethnic groups are also visible; Turkish and Moroccan children have more overweight problems than for example the Dutch children (see fig. 1.4.3).

Municipal research shows that Schilderswijk and Transvaal have the highest percentage of children (diagram 1.4.1). Of these two neighbourhoods it is the children from Transvaal who have the highest percentage of overweight (diagram 1.4.2) and these are also the ones who do not meet the standards of movement as we can see in diagram 1.4.3. On the other hand it is Zuidwest where the most elderly people live with overweight (diagram 1.4.1 and 1.4.2).

The above mentioned is supported with figure 1.4.2, which shows the percentage of overweight per neighbourhood in The Hague. The darker the colour the more people face overweight problems. Among the four deprived neighbourhoods mentioned, this proves again that Transvaal (number 30) and Moerwijk (number 36) are the ones with the highest percentage of people with overweight. Because of this fact, these two neighbourhoods are chosen as the project area for this master’s thesis.

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<tr>
<th></th>
<th>Amsterdam</th>
<th>Rotterdam</th>
<th>The Hague</th>
<th>Utrecht</th>
<th>NL</th>
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<tr>
<td>obese</td>
<td>30%</td>
<td>34%</td>
<td>34%</td>
<td>26%</td>
<td>35%</td>
</tr>
<tr>
<td>total</td>
<td>40%</td>
<td>48%</td>
<td>47%</td>
<td>38%</td>
<td>47%</td>
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Table 1.4.1 | Percentage overweight of 4 big cities in the Netherlands
Source: Van Hooydonk (2012)
Figure 1.4.1 | Deprived neighbourhoods of The Hague

Figure 1.4.2 | Percentage overweight per neighbourhoods of The Hague
These two deprived neighbourhoods already face environmental problems and research has now proven also health problems. This is the part where the discipline of urban design and the discipline of health could be combined to bring change on this matter.

Diagram 1.4.1 | Age distribution per deprived neighbourhoods
Source: Gemeente Den Haag (2010)

Diagram 1.4.2 | Overweight
Source: Gemeente Den Haag (2010)

Diagram 1.4.3 | People meeting standards
Source: Gemeente Den Haag (2010)

Figure 1.4.3 | Overweight per ethnic groups
Source: Gemeente Den Haag (2010)
1.5 | Graduation project approach

In order to answer the main research questions some concrete steps have been taken. Below a selection has been made of the methods, which are used in understanding the situation and to come up with a solution to the given problem. Each of the following method has a direct link with the (main/sub) questions.

**Literature study**
First of all research has started with literature study in order to seek to a body of knowledge about the subject. For this study scientific articles, papers and governmental documents are used, but also books and articles of architects and urban designers, like Jan Gehl and Michael Southworth.

The aim of this study has been creating a theoretical framework to underpin the graduation project, to examine and explore existing knowledge about healthy lifestyle and the role of public space but also to get an idea about the problem in general as a case.

The outcome of this research method is presented in chapter 2, which will review literature about public space in relation to walkable and healthy cities.

**Spatial analysis**
This method has increased the knowledge about the relationship of different urban elements with each other.

The aim of this analysis has been to discover the problems, shortcoming and spatial potentialities of an urban neighbourhood in order to understand the urban elements of an area. This will help in formulating a clear task area.

The outcomes are a set of drawings from the project area that provided several maps about the existing spatial conditions (section 2.2).

**Interviews**
By questioning people one can discover things about the spatial and physical characteristics of a public space. Interviewing people in the project area have provided information about their point of view on the urban environment and what really is needed. This way of working can provide valuable input for formulating conditions and can give insight what really the problems are.

Actors who are interviewed are inhabitants, because they are the people who encounter problems in their daily life. Beside this, some key actors are interviewed to get specific knowledge about the problem field.
The aim for this method is to discover the shortcoming of an area in relation with health and public space.

The outcomes presented in section 2.3 have provided ideas, which can be used in doing a proposal for the design intervention.

**Reference study**
This method explored several urban areas where the problem is the same or where there has been a solution presented in improving and promoting a healthy lifestyle in a neighbourhood.

The aim is to discover good qualitative design principles that can be used in the chosen project location (section 1.4). By doing this study one can penetrate into the essence of the problem and come up with real life solutions.

The outcome of this study (see section 2.4) is a collection of example with spatial qualitative design principles that will be used for design interventions in the project location.

A possible city to examine is the city of Copenhagen, which has done a lot in pedestrianizing the city. Examples from New York will be also helpful, because health problems in the US are much more badly than here in western Europe.

Figure 1.5.1 illustrates the coherence between the different research methods and the relationship with the design recommendation for the project area.
How can the design of public space create conditions for a healthier life style of citizens?

**Literature study**
- Create theoretical framework
- Explore existing literature around people's health and public environment

**Spatial analysis**
- What are the structural elements of a place that makes a route interesting for leading an active life?

**Designing**
- What elements does a public space need to facilitate active travel?
- Create spatial conditions

**Reference study**
- Discover practical solutions elsewhere
- Discover design principles and recommendations

**Interview**
- How can I redesign the spatial environment in a neighbourhood in order to create conditions for an active and healthy lifestyle?
- Discover spatial characteristics people face in daily life

**Output**
- Design recommendations for project area
- Set of conditions for design area

---

Figure 1.5.1 | Graduation project approach scheme
Source: Tatera (2012-2013)
This master's thesis has a social and academic relevance.

The urgency of people's health is very important. It is a socially desirable image to keep people longer healthy. The social relevance is to make society aware of the opportunities and the contribution an urban environment can have for health.

One can open at random a newspaper and will find articles (next two pages) about the problems of obesity and the benefits of having a longer healthy life. Children have at young age health problems, which will influence eventually their adult life. A healthier lifestyle at a younger age is more or less a guarantee for a healthier lifestyle in the future.

By improving the spatial structure of an urban environment we can encourage people to leave their car more often and make use of walking and cycling. But the space that people deal with does not encourage this idea. People either do not feel safe in such areas or it is not pleasant enough to walk through an area. This research should stimulate the discussion among politicians and among residents in how we as urban designers can contribute to the quality and the use of urban areas for a healthier life, without intervening in people's personal way of living.

The academic relevance is to increase the knowledge about spatial conditions that stimulates a healthy living and an active lifestyle in urban environment. This should make the knowledge accessible and applicable for colleagues.

The health of people is very present nowadays. There is a need for knowledge about a healthy lifestyle. We have health scientists who know a lot about the healthy living (what to eat) and we have the urban discipline that think a lot about the design of public space (how to organize space for cars, for pedestrians, for cyclist and so on). But how are these two linked with one and another?

There are few people who know how to organize the city in order to stimulate a healthy lifestyle in a good way. So on this matter there is a need for design ideas and knowledge for a healthy city. This thesis should increase the knowledge people have when creating design principles for a more healthy public space, which remains attractive today and tomorrow.
**Overgewicht**

Het aantal kinderen met overgewicht is de laatste jaren sterk gegroeid en zal vermoedelijk nog verder toenemen. Overgewicht leidt ook bij kinderen tot medische en psychische problemen. Daarbij worden dikke kinderen vaak discriminatie onderhevig. Veel voorkomende fysieke problemen bij kinderen zijn astma, verhoogde bloeddruk en galstenen. Psychische problemen zijn verminderd gevoel van eigenwaarde geassocieerd. Uit onderzoek blijkt dat de kwaliteit van leven van opeisend kinderentrest zo laag is als in rankarme politiebuurtjes. Psychotherapie en lichaamsontwikkeling zijn de behandeling.

**Grotere baby heeft later meer kans op overgewicht**

Kinderen die in de eerste twee jaar van hun leven meer gewicht hebben, hebben een grotere kans om op latere leeftijd overgewicht te ontwikkelen. Een studie uit het British Medical Journal. Ook kinderen die een grote baby zijn, hebben een hogere kans op overgewicht. Zowel in de kindertijd, tijdens de geboorte en als jonge volwassenen zijn deze kinderen vaak sinds de vroege eeuwen veel in meer opgevoed. In Nederland heeft 10% van de kinderen meer dan 30% van de normale gewichtsbelasting.

**Overgewicht verkleint kans carrière en relatie**

Overgewicht heeft niet alleen medische, maar ook forse sociale gevolgen. Overgewicht verkleint de kans op een carrière en relaties. Overgewicht blijkt een zware belasting voor vrouwen. Onderzoek heeft getoond dat laatste vooraleer voor vrouwen die te zwaar zijn. Vrouwen met een overgewicht nemen een vooraleer minder vaak een goede baan of een levenspartner dan vrouwen die een gewicht hebben gebracht.
HET DNA VAN EEN GEZONDE STAD
Met Jan Hendrik Dronkers, Henk Ovink, Maarten van Bottenburg en Olv Klijn

Steeds grotere doodskist voor dikke Nederlander

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As it is already mentioned in the problem statement, there is a change going on in our health. We have seen examples for The Hague, which deals with a trend regarding overweight and obesity. But this is not only the case in The Hague, but the whole Netherlands is facing it.

Figure 1.7.1 gives an overview of 30 years of obesity epidemic in the Netherlands, starting from 1981 going to 2010. As it is illustrated, the colour is changing from light purple to dark purple. The darker the colour the more overweight the population becomes. This is confirmed by Gemeentelijke Gezondheidsdienst (GGD, Municipal Health Service) (Van Hooljdonk, 2012). It seems that almost half of the Dutch population faces overweight problems (see also table 1.4.1, section 1.4).

Most of the time the cause is unhealthy lifestyle: too much food and too little physical exercise. The parent’s behaviour determines the lifestyle of their children. They decide what a child eats, how often and how long they can play outside or watch television or participate in a sport.

Overweight at younger age comes with a lot of diseases at an older age. Children as well as their parents need to be aware of a healthy lifestyle. That is why it is important to start being healthy at a younger age so it can be a guarantee for a healthy lifestyle at an older age.

In preventing overweight there are some factors that play an important role; the school, home situation and the environment they live in. Most activities happen in and around school. The home situation has to do with the role of parents. The neighbourhood where they live is about the facilities and possibilities a public space can offer children in order to motivate an active life.

It can be mentioned that we have a social problem. This has been proven in the case of The Hague. This problem of health deals with the urban environment and this is questioned by how the design of public space can contribute to a healthier lifestyle. But since this problem regards the whole Netherlands (fig. 1.7.1), and even other countries over the world, we can suggest that the methods that will be presented for the case of The Hague can also be applied in other cases, national and international.
Figure 1.7.1 | Obesity epidemic in the Netherlands from 1981 to 2010
Source: Van Hooijdonk (2012)
During my graduation I have been supervised by two mentors from the Faculty of Architecture at Delft University of Technology: Maurice Harteveld (Chair of Urban Design) and Remon Rooij (Chair of Spatial Planning and Strategy).

The Chair of Urban Design focuses on transformations in the existing urban area. The main subject is the design of public space in relation to infrastructure, urban objects and urban greenery. Urban design is practically always concerned with redesign, i.e. renovation work in an existing situation: revitalisation, intensification, multiple use of space.

Analysis of the historical stratification is important for exposing spatial structures and form types that still have significance for the city's use and identity. Morphological and typological research therefore has an important place in the Urban Design Chair, combined with research into a location's current significance and morphological and typological characteristics. Owing to the emphasis on form and significance, there is close cooperation with other design disciplines (architecture, landscape architecture, civil-engineering) and cultural studies (history of art and architecture).

Spatial Planning and Strategy is concerned with knowledge about the formulation, implementation and evaluation of strategic and urban planning tools - visions, strategies, plans and programmes. This chair is particularly interested in how intervention through spatial planning can meet the challenge of territorial management in the context of the growing complexity of networked urban regions.

Maurice Harteveld has specialised in urban design and the architecture of the city, with a current focus on public space. The body of his work emphasises on the multiplicity of public space from out of the understanding of use, governance and significance. In researching and designing, he always explicates interrelated socio-spatial transformations and cross-cultural exchange.

Remon Rooij is a researcher in strategic urban planning and is specialised in transport oriented urban development - a network city approach - and in sports (facilities and events) as catalyst for urban and regional transformation.
kids playing in 1984

kids playing in 2012

facebook.com/Dagelijkse.moppen.Official
So far we have seen that people all over the world face health problems concerning obesity and lack of exercise. Having a healthy life is a socially desirable image that prevents many diseases and keeps us longer independent in the society. On this matter, urban design can create spatial conditions in public space that will make a difference for leading a healthy lifestyle, for example creating new kind of urban environment that will stimulate walking, cycling and other outdoor activities.

This chapter examines the problem field in depth. First about healthy living environment and the conditions for an active/healthy city and then more specific about the project location, with a conclusion that will outline in a task definition for Transvaal and Moerwijk.
2.1 | Literature study

In this research and design graduation project a societal problem is approached from a spatial design perspective. Much has been said and written about the walkability of cities and the relationship between walking and public health.

This section will provide an overview of literature research that has been done for this research and design graduation project. The central question posed during literature study is:

**What is the link between people’s health and public environment?**

**Introduction**

In the 19th century public spaces were created with the intention to improve the health and quality of life of the working classes (Gilles-Corti, 2005). In that time the health issue was of course of another degree than it is now. Poor water supply, sanitation matters and air pollution were the main reasons for the unhealthy life of people.

While the sanitation infrastructure and the air pollution are improved, we still have health problems in our modern life. Our current lifestyle is encouraged and supported by the use of the automobile. The more advantage the transport industry gets the more negative impact it will have on people’s daily activity. Nowadays people face health problems concerning obesity and lack of exercise, especially children and the elderly.

Child obesity is increasing rapidly all over the world (Timperio et al., 2008). To tackle this problem physical activity among children is becoming more and more important. Children should at least do one hour of physical activity per day in order to counter obesity (Timperio et al., 2008). For the elderly it is important to stimulate a healthy
mobility in order to keep them longer independent.

The way people use the urban environment has changed and this depends strongly on what kind of features an area can offer. Examples of features are playgrounds, water fountains, streetlights, basketball court, floodlights, a walking path, lawn games, a running track and skateboard facilities. These features can contribute in motivating and encouraging people to be more active.

Research done by Crawford et al. (2008) clarifies the urban environment as an important area for physical activity. In this research amenities and accessibility of a public space are seen as important elements, which motivates people to move around. For that reason public spaces are environmental features that can facilitate physical activity among people.

First there will be a brief overview about walkable cities. Secondly, the health problems we deal with in our modern life will be discussed. The third part will deal with the urban environment. And the last part is about the possibilities an environment can have as a working-out place. This all will end with a brief conclusion.

The walkable city
Regardless the type of transport, walking is always the beginning and the end of every trip. According to Southworth (2005:248), ‘walkable city is the extend to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network’.

The idea of walking has changed during the years. Before the car came in people's life, walking was the method for moving around. Nowadays people walk and cycle more for recreational purposes rather than transportation purposes.

One of the reason why people used to walk more until the nineteenth century was that everything was within a reachable distance of not more than half an hour walking. 'Cities of the middle ages were remarkable in their walkability and typically packed all the necessities of urban living into an area no more than half mile from central square' (Southworth, 2005:247). But in those times walking was not necessarily healthy. Back then people had health issues concerning poor air and water quality and a lack of sanitation facilities.

While the sanitation infrastructure and the air pollution are improved,
we still have health problems in our modern life. Our current lifestyle is encouraged and supported by the use of the automobile. 'High speed transport and the quest for efficiency killed the walkable city' (Southworth, 2005:247). Today we face problems concerning overweight and obesity. It seems that people living in a compact city walk more, weight less and have less chance of high blood pressure than people living in a 'sprawl' city (Southworth, 2005).

Of course it is not only how compact a city should be in order to promote walking and cycling, the quality of the urban environment has also a great influence in how often people walk. This means that the functionality of the environment and the network of public places are an import factor: 'the path system needs to be in place, serviceable on foot or by wheelchair and well connected with places people want to go' (Southworth, 2005:249).

There are several criteria that make a city walkable. One of the most important factors is the distance to destination, which determines whether people walk or cycle or take the car despite the weather or physical circumstances. Southworth (2005:249-253) gives six important attributes for a walkable network.

The first one is the connectivity of the path network: pedestrian paths are the important elements. The second attribute is about the linkage with other modes of transport: creates connectivity with the larger city and the region. The third one is about the fine grained and varied land use for daily use: amenities within a reachable distance and should happen without any (traffic) danger. The next one is safety from traffic and safety from crime: walking through a neighbourhood should be enjoyable, safe and interesting. The fifth one is the path quality: the higher the quality the more people will walk through the area. The last attribute is about the path context: the interest a path arouses with the users.

So to make a neighbourhood walkable these six attributes should be coherent with each other. A well-connected path network has a highly walkable environment that invites people for walking. These places create a sense of safety and comfort among the users.

Public health
There is a great current interest in the public health field because of the concern about low levels of physical activity and increasing obesity. Walking and cycling can be seen as a significant part of physical activity, which is important for health (Kulen, 2012). Increasing the possibility for a walkable place could have important public health benefits (Forsyth et al., 2008).
According to Hartstichting (2012) (Hearth Association) 25 years ago 1 in 3 of Dutch adults was overweight. Currently more than half of the population is overweight, of which 10% has obesity. Among the very young 1 in 6 are too fat. The cause for this is having too much calories than one can handle and/or having too little physical activity. Among the youth mainly 12-17 year are less active (De Vries et al., 2010).

A research of Blokstra et al. (2011) shows that in the Netherlands in 2009/2010 about 60% of male and 44% of female had overweight and according to Schönbeck et al. (2012) 14% of the youth is overweight. It seems that obesity is increasing with aging of people (Blokstra et al., 2011). So in order to prevent this trend a healthy lifestyle is more than desirable on a younger age. One can argue that a healthy lifestyle at a younger age is more or less a guarantee for a healthier lifestyle at an adolescent age.

In the past thirty years the share of people with overweight has been increased (Dutch Statistic, CBS, 2012). In the Netherlands 6.5 million people are overweight, which represents 41% of the total population, among the youth as well as among adults. In the 1980s the percentage of people with overweight was 27% and child obesity has increased from 7% in 1980s to 11% in 2010 (CBS, 2012). This proofs that there is a trend going on that needs to be taken seriously.

The keyword for fighting against overweight is physical activity. Research has proven that fifteen minutes of brisk walking per day or half an hour of slow walking decreases the chance in getting weight gain (Morabia & Costanza, 2004).

It seems that both urban design and public health have a connection with each other. If it is about leisure-time physical activity, walking is seen as the common form of moving (Ewing & Handy, 2009). It is therefore more reason to promote a community design, which

<table>
<thead>
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<th>Adults age 30-70</th>
<th>Youth age 2-21</th>
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<tr>
<td></td>
<td>male</td>
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<tr>
<td>Overweight (BMI &gt;25 kg/m2)</td>
<td>60</td>
<td>44</td>
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<tr>
<td>Obesity (BMI &gt;30 kg/m2)</td>
<td>13</td>
<td>14</td>
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Table 2.1.1 | Percentage adults and youth with overweight
Source: Blokstra et al. (2011)
incorporates walking and bicycling into daily life.

Ewing & Handy (2009) argue that there is a link between perception of physical features of a neighbourhood and the walking behaviour. These features influence the quality of an environment. But it still remains a perception of an individual and these qualities are judged differently by each one of us. That means that each individual reaction to a place and thus to the quality of the urban design is differently. All of these perceptions – physical features, urban qualities and individual reactions – influence the overall picture about an area as a walking place (figure 2.1.2).

So the physical conditions of any public space determine, to a great extent, the use of a place and the mobility of people and the amount of walking and cycling people will be encouraged to do. The better the quality of any public space the more inviting it will be for people to stop, sit, eat or play there (Gehl, 2011). In other words, the spatial structure of a public space needs to be improved in order to encourage people to walk and bicycle and therefore exercise more.

The urban environment
The organization of a public space has a great influence on the lifestyle and the social well being of people. It promotes walking, cycling, doing exercises and playing and it stimulates social contact between neighbours. At the moment there is little known about the effects of physical environment on people’s health. We do know there is a correlation between environmental conditions and health, like obesity and diabetes. It is known that the environmental conditions have a positive effect on physical activity among the very young and the elderly (Ministerie van Volksgezondheid, Welzijn en Sport, 2012).

Most pedestrians are in motion, they move back and forth and they tend to scan the environment (Ewing & Handy, 2009). A street has to have amenities, such as landscaping lighting street furniture and

![Conceptual framework](image-url)
businesses, in order to keep the interest of pedestrians.

To arouse people's interest in the urban environment the street as a whole, the visual interest, the transparency, greenery and visible activity are important elements for a positive walking experience (Southworth, 2005). The transparency of a place provides people a sense of social and natural life of the environment by observing the area. The more complex a path is designed the greater is the feeling of a longer walk.

Also Jan Gehl points this out, in his book Life Between Buildings (2011:143), that an interesting walking network will have "psychological effect of making the walking distance seem shorter". Sometimes people experience this in the way back home as being shorter, mainly because they recognise elements in the urban environment and feel comfortable with the idea of getting home.

This means that in order to contribute to more physical activity among residents, there is a demand for safe and attractive walking and cycling routes through the neighbourhood and qualitative area where people can spend time during the day. The presence of attractive amenities contributes in stimulating a healthy behaviour in a neighbourhood.

Of course it is not only about being physically active. Mental well being is as important as well. Green environments influence the physical and mental well being of people. Elements that influence the physical activity in public space are 'trees, water features, bird life and size' (Giles-Corti et al., 2005). This all creates a sense of being away from the busy daily life of people.

For example, the amount of visible green (like trees and other green features) in a urban environment seems to have positive effects on people's health. This results in reduction of doctor visit for common symptoms like headache or stress related problems (Ministerie van Volksgezondheid, Welzijn en Sport, 2012).

A possible explanation for this correlation between having green in the neighbourhood and the positive effect on health is that green has a stress-reducing effect on people. This correlation seems to be strongest among children and the elderly because they are the groups who spend most of their time in the close neighbourhood. Moreover, the green seems to be inviting in making social contacts and for children it has a stimulating role in being more physical active in the open air.

Not only the amount of greenery in an area is an important factor but also the reachability of it plays a significant role. Here the distance between people's home and the public space plays an important role.
in how often an open space is used. Especially for parks 'distance is a major determinant of park use' (Giles-Corti et al., 2005).

According to a research of Timperio et al. (2008) it seems that a 300-metre distance from home to a public open space is considered as a manageable walking distance for children. Also the way in how children go to a place could hinder the visit. How children cross the roads and whether there is a lack of infrastructure or unsafe road crossing forms a barrier for children's walking and cycling behaviour (Timperio et al., 2008).

Public space as a working-out place
It is becoming more and more common for people to play a sport. The accommodations grow and become better. Many people are joining a sport club or do sport on their own. But the problem is with the group of people who do not play any sport. This has major negative effect on health and social behaviour. Most of the time those people are from deprived neighbourhoods. Financial reasons are one of them but the urban environment is also an issue that limits them in their ability to sport.

Although the popularity of sport increases, still few people are joining a community. Nowadays people are more into individual and unorganized sports. This means there is more demand for unorganized spaces, which allows the possibility for physical activity (Van Bottenburg, 2012).

Sometimes it is difficult to do any exercise in the neighbourhood, especially for children and the elderly. The social horizon of children seems very small, which is focused around the street where they live. Exceptions are the joined sport clubs. These clubs enlarge the child's environment and it brings them in contact with other people. Children need a place where they can play freely, a place where they can go without the parental guidance.

In the Netherlands we have the Richard Krajicek Foundation and Johan Kruijff Courts that allow this free movement. The function of these playgrounds is that it is a legitimate place where children can be back on the street, where they are not seen as burden in the neighbourhood.

The advantage of these facilities is that people do not have to become a member and compared with sport clubs these areas are used often and during varied hours of the day. It belongs to very one and yet to no one. Here the law of the streets counts: who comes first has the right to take the place.

Even for the elderly, there is not always a place where the can be
active. Especially for this group physical activity is important in order to keep them healthy and longer independent. For them basic elements are sufficient. A place where they have the opportunity doing basic exercises, like balancing, "eye- and hand coordination".

Some cities, like The Hague in the Netherlands, know the elderly playgrounds (fig. 2.1.3). Like the playgrounds for children, they have facilities where the can do basic exercises. In the public open space they have working out equipment, to stimulate them in having an active life.

So activities and amenities in a public space encourage people in higher levels of having a healthy life. The more attributes an area has the more satisfying experience users will have.

**Conclusion from literature study**

It seems that urban design and public health have a connection with each other. We know that our current busy lifestyle has a major impact on our health, especially for children and the elderly. From research we know that child obesity is increasing all over the world and that we have to keep the elderly active for a healthy life so they can stay longer independent.

For that reason walking and cycling can be seen as a significant part of physical activity, which is important for health. What we need is a walkable city, where the important factor is the distance to destination.

*Figure 2.1.3 | Elderly playground in The Hague*  
*Source: Tekary (2012-2013)*
In compact neighbourhoods people tend to walk often than in sprawl areas.

In order to contribute to more physical activity among residents, there is a demand for safe and attractive walking and cycling routes through the neighbourhood and qualitative areas where people can spend time during the day. The presence of attractive amenities and accessibility of a public space contributes in stimulating a healthy behaviour in a neighbourhood. For that reason public spaces are environmental features that can facilitate physical activity among people.

The aim of this section was to understand how to create a walkable environment for a more social and active life and with that create a healthy lifestyle. This section has proven that there are several features that can be used in creating a healthy lifestyle. Examples of features are playgrounds, streetlights, basketball court, a walking path, a running track, skateboard facilities and so on.

So the physical conditions of any public space determine, to a great extend, the use of a place and the mobility of people and the amount of walking and cycling people will be encouraged to do.

To sum up, the leading question during literature study being - *What is the link between people's health and public environment?* - can be answered as followed:

People need to become and stay healthy. Urban environment plays a major role in mental as well as in physical well being of people. One of the most important keyword for fighting against overweight is physical activity. Research has proven that fifteen minutes of brisk walking per day or half an hour of slow walking decreases the chance of gaining weight.

This activity can take place in public environment in the form of just walking or sport. Although the popularity of sport increases, still few people are joining a community. Nowadays people are more into individual and unorganized sports. This means that there is more demand for unorganized spaces in the urban environment.

So the urban environment plays a role in encouraging people to a higher level of a healthy life. In addition it seems that certain amenities in an area has a satisfying experience among users. This kind of environment will bring people together and will make them active sociable citizens of their neighbourhood.
2.2 | Spatial analysis Transvaal and Moerwijk

This section presents spatial analysis on three different scales.

The central question that is being put forward during spatial analysis is:

**What are the structural elements of a place that makes a route interesting for leading an active life?**

**The city scale**

With a population of more than a half million inhabitants, The Hague is the third largest city of the Netherlands after Amsterdam and Rotterdam. Of the twelve provinces, The Hague is the capital city of the province of South Holland in the Netherlands. The Hague is the seat of the Dutch government and parliament, the Supreme Court, and the Council of State.

The Hague knows eight districts. Figure 2.2.2 shows the city of The Hague and the project location that is marked in red: Transvaal and Moerwijk. The neighbourhood of Transvaal belongs to the district of Centrum and Moerwijk is part of Escamp's district.

These two neighbourhoods are located in the central zone of The Hague nearby one of the largest parks in The Hague: Zuiderpark.

Looking at the built environment in The Hague, the central part of the city is very densely built (fig. 2.2.3). Towards the outskirts the buildings and the spaces in-between seem to be more spacious.

Figure 2.2.4 illustrates the main infrastructure. We can see that Moerwijk is an important connection route from southwest to the city centre because of the primary road going through this neighbourhood.
The greenery is very much sprawl in the centre of the city while a green ring is visible around the centre of The Hague (fig. 2.2.5).
Figure 2.2.3 | Built area

Figure 2.2.4 | Main Infrastructure
The neighbourhood scale

Transvaal is located in the southwest of The Hague and is part of the Centrum district. This neighbourhood has 14,000 inhabitants of which 31% is aged below 20 years and 25% is aged above 55 years. 58% of the inhabitants are overweight and 23% are obese. Between the ages 3 and 16 years 30% is overweight. The environmental conditions are judged by the inhabitants with an average of 5.5 (10 being the best) (Gemeente Den Haag, 2010).

Moerwijk is a post-war neighbourhood and it is part of the Escamp district. This neighbourhood has 19,000 in habitants of which 23% is aged under 20 years and 21% is aged above 55 years. 56% of the inhabitants are overweight and 16% are obese. Between the ages 3 and 16 years 27% is overweight. The environmental conditions are judged by the inhabitants with an average of 5.7 (10 being the best) (Gemeente Den Haag, 2010).

The physical conditions of both neighbourhoods are different when we look at morphological patterns but they do show similarities looking at street level.

The built environment

First of all, Transvaal was built before the Second World War (1900-1935) and Moerwijk during and mainly after the Second World War (from 1940). This is clearly visible in figure 2.2.7; the built area in Moerwijk is fine grained than the one in Transvaal. Also, looking at the block structure, Transvaal has closed blocks and in Moerwijk almost all of them have open structure. Because of these differences the environment in Moerwijk looks much more spacious and has an open
Figure 2.2.8 | Transvaal and Moerwijk
character when walking through the area.

The infrastructure
Because of the main infrastructure going through Moerwijk, this neighbourhood is divided into four smaller parts, while Transvaal can be seen as one (see fig. 2.2.8). This has an influence on the sense of safety, especially for children. Mainly in Moerwijk they face a lot of traffic when going from one part of the neighbourhood to the other.

The greenery
The green area on the other hand is much more sprawled in Transvaal than it is in Moerwijk; here it shows a continues line that seeks for connection with the rest of the city, while Transvaal is not connected at all with the surrounded neighbourhoods (figure 2.2.9). This affects the continuity in a route when promoting soft-mobility.
Figure 2.2.7 | ESVt area
The street level
The following four pages presents a selection of street images made during the field trip. The pictures show different type of areas. Both Transvaal and Moerwijk have open public spaces but they either lack in quality or they do not have a public function (category A).

Category B presents large amount of green space with no function for people to be active in the public space. Here the car seems to dominate the street image.

Both neighbourhoods show signs of participation from the residents. For example children create their own space by putting elements in public space in order to create a playground. Also, when it is possible people put elements in public space to give a meaning to a certain area, like the small slide and the swing (category C).

The last category is about the open public space without a function, where the car dominates the street’s image. There it seems to be no space for small interventions in order to involve and invite people to do activities outside.
Transvaal  Moerwijk

Category A | Through space but lack of quality and almost no function
Source: Tilbury (2012-2013)
Category B: Large amount of green space with no facilities for people to be with. Signed image converted by the car
baseline memory (2011-2013).
Transvaal

Moerwijk

Category C | Pedestrian-friendly linking returning to the public space
Gesloten Tuinen (2012-2013)
Category D | Public space without function, street image dominated by the car.
Figure 2.2.10 | Public buildings
Public buildings in Transvaal and Moerwijk

Figure 2.2.10 illustrates public buildings of which the (primary) schools are important because of the younger target group. In Transvaal there are eleven schools with a total of 2804 pupils and in Moerwijk there are also eleven schools with a total of 1861 pupils.

This means that a total of 4,665 children need a place where they can be active. This space is not always available or it does not meet their needs and when there is a qualitative public space, it is not within a reachable distance from children's home.

Furthermore, Transvaal has one elderly home care centre and Moerwijk has two elderly home care centres. For this target group safety from traffic and reachability to a public space is of great importance in order to stimulate a healthy movement through the neighbourhood.

As we know, children (but also the elderly) are the most vulnerable groups in society. That is why children are not allowed to go far away from where they live, especially the very young need parental supervision. Because of this safety reasons we know from a research of Timperio et al. (2008) that a 300-metre distance from home to a public open space is considered as a manageable walking distance for children. But looking at open public playgrounds in both districts of The Hague, where can these children go and play?

Figure 2.2.11 illustrates open play area in public space with a radius of 300 metres. As it is illustrated, almost every area in Transvaal and Moerwijk are within this radius. Public space that is not covered by this circle of 300 metre could be the potential intervention area that will needs to have a playground or at least the possibility for the very young to be active. This does not mean that the space within this radius has to stay untouched. Sometimes those are the places that need to be redesigned in order to meet the needs of the users.

For the elderly attractive route or a path that leads to an interesting place are important. As figure 2.2.12 illustrates, there are a few routes that actually lead to a qualitative public space. Transvaal has one big neighbourhood square (Hobbemaplein) and two smaller squares, while Moerwijk has only one small square that only facilitates the very young. Following these routes gives sometimes difficulties or have obstacles that limits mainly the elderly in their walking. These routes can be seen as possible intervention area for promoting soft-mobility on a higher level.
Figure 2.2.11 | Theoretical range of 300 metre from a playground
Conclusion from spatial analysis

Spatial analysis gives an overview of the many public spaces in Transvaal and Moerwijk. Some of them function as a neighbourhood park while others are just a small playground for the very young.

The morphological layers have showed that, mainly in Moerwijk, people are limited by the main infrastructure in their ability to walk further. Safety reasons are for them essential, but not being able to cross street is even more important for the walkability. Furthermore, the green area in Transvaal is sprawl through the neighbourhood, which affects the use and the connection with one and another. This again will have an influence on the walking behaviour of people. Looking at greenery in Moerwijk, it does show some continues lines, which can easily be followed during a trip, whether by bike or on foot.

What is evident is that many public spaces do not meet the needs of the users, mainly because they do not have the features users require nor does it have a quality to make use of the public space. But more often the public space is not within a reachable distance.

Using Google Earth's path-tool, it is discovered that the theoretical range of 300 metres does not correspond with the actual distance of 300 metres people cover from their home to a public space (fig. 2.2.13). The difference between this measured range and the 300 metres radius has to do with the fact that people bypass the area because of building blocks and streets but also due to some small streams in the area people are limited in the distance they can cover because they have to walk around it. This means that a larger area is not covered (yellow parts in fig. 2.2.13) and thus making the design task therefore larger than it is opposed earlier.

To sum up, the leading question during spatial analysis being - What are the structural elements of a place that makes a route interesting for leading an active life? - can be answered as followed:

A place has to meet users needs in order to attract them and invite them to follow a certain route. Structural elements like qualitative routes and continuity of greenery are important. People have to have some features along this route that invites them following the route and using the space.
Figure 2.2.12 | Interesting routes that lead to a qualitative public space
Figure 2.2.13 | Affected area
Interviews are used to gain a set of recommendations that can be applied for a certain target group. Within this interview, a distinguish is made among the people spoken to: the residents of the project area and some key actors.

First of all there are the residents of Transvaal and Moerwijk. These people have specific knowledge about a certain situation, for example about the spatial conditions in their neighbourhood. Secondly, there are some key actors who are specialized in a certain topic, who have a lot of general knowledge about their field of work.

The combinations of the findings of these two groups can provide a set of recommendations for the design area.

The central question that is being put forward during the meetings with key actors as well as with residents in Transvaal and Moerwijk, is:

*How can I redesign the spatial environment in a neighbourhood in order to create conditions for an active and a healthy lifestyle?*

**Interview with whom?**

During several meetings, I have spoken to residents of Transvaal and Moerwijk and to the following key actors:

- Ir. Loes Verhaart and Ir. Nicola Kornig, employed at municipality of The Hague as an urban designer;
- Ir. Willeke van Staalduinen, researcher at TNO, the Netherlands’s Organisation for Applied Scientific Research, specialized in aging and healthy living environment;
- Ir. Menno Hinkema, researcher at TNO, specialized in health care research;
- Drs. Marcel van Heck, advisor architect at Atelier Rijksbouwmeester;
- Dr. Clarine van Oel, employed at Delft University of Technology, specialized in health effects of physical interventions in urban environment;
- Dr. Sanne de Vries, researcher at TNO, specialized in exercise-friendly neighbourhoods for children and the importance of playing outside.

When and where?
The meetings took place on 23 January 2013 (with Verhaart and Kornig), on 20 February (with Van Staaldruinen, Hinkema and Van Hek), on 21 February (with Van Oel) and on 28 February (with De Vries).

The meetings took place at the municipality of The Hague, at the office of Atelier Rijksbouwmeester in The Hague, at the Faculty of Architecture in Delft and at the TNO office in Leiden.

During the field trip in November 2012, some residents were approached randomly. These people brought some specific topics and problems forward that they would like to see changed.

Summery of the discussions per theme

1. The actual problem of public space in The Hague
From literature research we know that people face health problems concerning obesity and lack of exercise, in particular children and the elderly. This is supported by Van Hooijdonk (2012), employed at the GGD (Municipal Health Service), where she mentions that almost half of the population of The Hague is overweight – the same average as in whole Netherlands (see also table 1.6.1). To prevent this from going worse, healthy food is important, but being regularly physical active is even more important.

Being physical active can happen indoor at sport clubs (where you have to become a member) or it could happen in public space (for free). But the difficulty with public space in Transvaal and Moerwijk is, that it does not always and in every place facilitate active behaviour, neither does it have a quality to invite people to be active. Here it is important to utilize the hidden potentials of hidden places by qualitative interventions (Hinkema, TNO).

This is supported by the spatial analysis and by asking the residents how they experience public space in the two district of The Hague. Spatial analysis show a lack of qualitative spaces. Streets are too narrow, the existing greenery has no quality and the couple squares in the area does not have an invited image. Residents of both districts indicate this as well. They face monotonous of public space that only facilitate the needs of younger children. Especially for the elderly there
is a lack of social meeting places in public space. A female resident of the neighbourhood of Moerwijk, aged 66, acknowledges this:

"Young children can go play everywhere. For the very young there is enough to do in public space but for people like my age there is not much in the environment. Sometimes I bring my grandchildren to a playground and the only thing I can do is sit and watch what they are doing."

Even when the elderly go for a walk, they face difficulties and obstacles in public space.

"There are some green space, mainly along the roads. But those greenery are just good to look at. These places should not only have visual quality but also use quality."

2. Encouraging active socialization for the elderly
Many people in Transvaal as well as in Moerwijk mention the lack of space for the elderly. For the elderly the quality of a route, having the opportunity to sit or to do something during the walk or during a bike trip and social safety are the important elements in public space. Sanne de Vries (TNO) mentions the following about that:

"For the elderly the question is not if they go for a walk, but what kind of route will they walk. This depends on the urban environment. Social unsafe places and places with a slope are being avoided. The elderly rather choose a qualitative route with the possibility to have a rest once in a while during the walk."

Looking back at literature study, there is a similarity noticeable about walkability of urban environment. People will take a path if it is interesting. To arouse people's interest the design of the street as a whole, the visual interest, the transparency, greenery and visible activity are important elements for a positive walking experience. The more complex a path is designed the greater is the feeling of a longer walk (Southworth, 2005).

3. Different categories of spatial intervention and accessibility of public space
Interventions should be based on:
- safe routes to and from school (street level);
- improvement of accessibility to active spaces (street level/neighbourhood scale);
- improvement of squares (neighbourhood scale);
- long lines for pedestrianizing the area (city scale).
The area nearby school is very important for children, not only during school hours but also after school. Especially the playground that is aimed at the play behaviour of children. That is why safe and recognizable routes that lead to this kind of area are important. Clarine van Oel (TU Delft) acknowledges this:

"For young children the routes to the primary school are important. Within this development you see the school playground functioning as a neighbourhood playground."

This statement is also supported by Sanne de Vries (TNO):

"From research we know that for children infrastructure is the important thing. Safety from traffic is more important than having greenery in the environment or sport and playground facilities."

It is good to have playgrounds and sport accommodations, but as long as they are not accessible (or only during certain hours of the week) for the majority of people, they will not be used.

From the municipality of The Hague there is proposal in trying to open up 'hidden' spaces.

Loes Verhaart (municipality of The Hague): "The plan is to make school playgrounds publicly. These playgrounds should not be only for the school but the whole neighbourhood has to have the opportunity to use it, especially after school hours."

It is not only about playgrounds around schools. Making sport accommodations accessible for the non-members can contribute in increasing the attractiveness of neighbourhood and in creating an active society. This way the urban environment can meet the demands for individual sports, something that wins more and more ground in the society but is not well facilitated in urban environment. Marcel van Heck, director at Atelier Rijksbouwmeester in The Hague, recognises this as well:

"Sportive Holland is rising, especially in public space. This should be encouraged and promoted in public space."

Another important issue is creating conditions that encourage physical activity at long distance. Nowadays the use of the car is becoming more expensive and people will rather take the bike, not only for the daily needs but also for recreational purposes. For elderly people these long lines interventions become important for recreational activities,
walking or cycling from one public space to another. The elderly indicate the lack of qualitative walking and cycling routes. A women aged 65 and resident in Transvaal, mentions the following about public space in her neighbourhood:

"There is some space where elderly people can go and sit. But I don't do that because many times youngsters gather around and I do not feel invited going there. These youngster make me feel uncomfortable."

4. Actor involvement
We can make a design intervention for an area and realize it, but how is it organized from that point on? Who are the actors? What are their interest and goals and what are their resources?

The organizational part is outside the design task of this graduation, but nevertheless it is worthwhile mentioning the different actors who might be involved in the process of creating an active urban environment. The following list of actors can give an overview of the many actors that will be involved in making a city active:

- Municipality (of The Hague)
- Housing corporations
- Schools/Universities
- Health care (GGD)
- Community centres
- Sport clubs
- Department of municipal infrastructure
- Playground equipment suppliers
- Residents
- Krajicek Foundation
- Johan Cruijff Foundation
- Kindergarten
- Retirement homes/Nursing homes
- ADO soccer club

Figure 2.3.2 | Social domain
Source: Rooij & Roosboom (2010) and Hofsteg (2006)
According to figure 2.3.2, the society is constructed out of three domains: the government, the market and the civil society. The government is the representative of public affairs; the market is the domain of production and distribution of goods and services; the civil society is the act of public domain of citizen by its norms and values (Rooij & Rosenboom, 2010 and Hidding, 2006). For a plan it is important to know which actor is in which field and what their role is in implementing the plan.

Eventually, when the plan could be realized, the initiative lies with the municipality. They are the leading actors in realizing the plan. When they see the benefits of the plan and the positive effects it will have on people and the city, they can approach bigger stakeholders and ask for their contribution.

Beside this, it is important to have public support in the neighbourhood and that there are different actors involved besides the municipality. Clarine van Oel (TU Delft) mentions the following about that:

"Involving community centres, sport organizations and residents in a design contributes in the success of a plan. Look for example at Poptahof in Delft. Here, the primary school and residents were involved in the redesign of the area. This area is now used intensively, especially during the summer. This all thanks to the participations of different actors."

For this master's thesis the focus will be more on the design and planning process rather than on looking at the organizational part. Of course the whole organization behind a sport facility for example, is very important for motivating people to become active, but this part will be of importance when the plan is implemented.

**Conclusion from the meetings**

The current public space has to work better for different age groups. Residents of Transvaal and Moerwijk see it as mono-functional that is only aimed at young children. At the moment public space does not facilitate the needs of the users and has an empty image. A safe image in the area seems very important for the elderly in order for them to feel invited in their own neighbourhood.

In Transvaal and Moerwijk there seems to be enough public meeting places, but the route towards it is neither clear nor interesting. There should be a clear connection between the different public spaces, especially when walking or cycling on a long distance is going to be promoted. The existing green spaces should not only have a visual quality but has to contribute in the use quality as well.
The route to school is important for children so they can walk or cycle to school instead of being supervised by their parents or even brought by car to school. Many playgrounds in and around schools have fences around them. This does not give an inviting image.

Not only the playgrounds, but also many sport facilities are gated that only allows members from that sport club. When there is an increasingly trend going on that requires more space for individual sport, these kind of sport facilities needs to be open up for the neighbourhood.

To sum up, the leading question during the interviews being - How can I redesign the spatial environment in a neighbourhood in order to create conditions for an active and a healthy lifestyle? - can be answered as followed:

In order to create spatial conditions that can stimulate an active lifestyle in the neighbourhood, public space in Transvaal and Moerwijk has to respond to the needs of the residents. Public space has to be able to facilitate different activities for different age groups. It should create attractive routes for walking and cycling and public space should be opened up in order to vitalize the neighbourhood and also the live of people in that neighbourhood.
Having an active city can happen on different scales: on city scale, on a scale of a neighbourhood and on the level of the street. This chapter gives an overview of references that have been used on three different scales to generate ideas for The Hague’s Transvaal and Moerwijk.

The central question during reference study has been:

*Which characteristics of public space create conditions for an active urban life?*

Following examples show a possible solution for an active city on different scales.

**City scale:** *stimulating healthy movement on a longer distance*

Looking at the city as a whole, it is important for cyclist (and pedestrians) to have a qualitative and safe route that lead to interesting place.

One of the world’s greatest walkable and bikeable cities is the city of Copenhagen. Pedestrianizing the city of Copenhagen happened gradually, starting from the 1960s. Due to increasing number of private automobile, a traffic-free zone was proposed. The city changed from a car dependent to a people-oriented town centre (Brambilla & Longo, 1977).

The plan is based on an integrated network: creating qualities in the streets and in parks. For example, a green bicycle network going through and around the city. Whether people are walking or cycling, they should get the priority in the traffic.

Green bike network take Danish to different places in Copenhagen that are invited and have a quality to spend some time there, new kind of
routes going through the city that connects with new kind of facilities. This way the city can be revitalized, because routes lead people to different type of neighbourhoods. This way, city parts that are not well visited, will become important again, different kinds of public space and different scales through the city that invites people for activity in the city (Villadsen, 2012).

Giving priority to pedestrians and cyclist can in practice happen by creating green-wave of traffic light for bicycles going to and from the city centre (and red light for the cars), during strategic times of the day, as it is implemented in the case of Copenhagen (fig. 2.4.3)
Figure 2.4.20 | Copenhagen's green bicycle network
Source: Vitanesen (2012)

Figure 2.4.3 | Copenhagen's green-wave for cyclists
Source: Vitanesen (2012)
Figure 2.4.4a | Public square in Copenhagen
Source: Freymond (2013)

Figure 2.4.4b | A place for socializing, playing and sport
Source: Freymond (2013) and Villadsen (2013)
Neighbourhood scale: attractive public space
In order to attract people, on a neighbourhood scale it is important to have a qualitative square that allows different activities for the neighbourhood.

A good example is the Red Square in Copenhagen, where a public square is painted. To have unity in the square, a bike path makes its way through the red pattern. In each corners of the square there is a
diverse program with different facilities, which features playgrounds as well as spaces for basketball, football, cultural activities, picnics, socializing and relaxing (see fig. 2.4.4).

Another example in redesigning an urban environment into a public space that allows active life in the neighbourhood, is the Columbus Circle in New York (fig. 2.4.5). Here, one part of the street is dedicated to pedestrians and cyclists only. Along the street there is a possibility to sit and take a rest.

Interventions at neighbourhood scale can also be used to connect several public spaces with each other. A good example for that is Avenida de Portugal in Madrid (fig. 2.4.6). This avenue connects the most important perimetral urban park in Madrid, linking it to the cornice spaces where the Royal Palace is located. This avenue is an active link that allows free movement both for pedestrians and cyclists.

**Street level: challenging environment**

The social horizon of children is limited and mainly based around the place where they live: their neighbourhood street. The street is the place where children spend most of their outdoor time and it is a place where they are challenged to express themselves.

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Figure 2.4.6 | Avenida de Portugal in Madrid
Source: Pir and Arpe (2008)
Examples on street level are based on basic hand-eye coordination. Whether it is playing the hopscotch (fig. 2.4.7) or going through a maze (fig. 2.4.8) while waiting for the bus or just jumping from one side of the sidewalk to the other (fig. 2.4.9). All of them contribute in the amount of daily exercise people need and in engaging people in using public space to have their active moment during the day.

Those examples can easily be spread through the neighbourhood while others can function within a playground at schools. Examples are known from Copenhagen showing children climbing on beams or jumping from one spring platform to another (fig. 2.4.10 & 2.4.12).
These examples are also known in the Netherlands, like the leapfrog at the playground of Horizonschool Komeet in Oss (fig. 2.4.11).

Another good example used in and around school, is the racetrack in Roombeek and in Deventer (fig. 2.4.13 & 2.4.14). Both of them are part of the schoolyard and is meant to use it during but mainly also after school hours. During the breaks it is used as a playground.
or as a gym location and after school hours children use it as their territory. Cars are only permitted in the morning when parents bring their children to school and in the afternoon when the children are picked up again. Beside that, it is a car-free zone.

On street level, it is not only about creating challenging places for children, the elderly need these kinds of places as well. A good example is found in Madrid: the bicycle bench (fig. 2.4.15). A simple set of
cranks with heavy resistance wheels for stationary pedalling can do the trick. Although this will not bring the elderly far by just pedalling, at least they will have some cardio workout needed while watching people at the same time.

Not only in Western societies we see this, countries like Argentina and China have also active places for the elderly (fig. 2.4.16 & 2.4.17).

**Conclusion from reference study**
In order to stimulate an active city, a city needs to provide conditions on different scales: on the scale of the city, on a neighbourhood scale as well as on street-level. City-wide it is important to have green routes for cyclists and pedestrians that lead to qualitative places around the city, which gives priority to cyclists and pedestrians above motorized traffic. A neighbourhood needs to have a public square that allows different activities, like the Red Square in Copenhagen: a place to meet people, to play and to sport. The street-level on the other hand, needs to be challenging the users, children as well as the elderly, like active playgrounds or just simple attributes for the elderly on street.

**To sum up**, the leading question during reference study being - *Which characteristics of public space create conditions for an active urban life?* - can be answered as followed:

As it is illustrated in the collection of examples, the important characteristics are the openness and the inviting image of a public space. In addition, a variety of facilities and a variety in the pavement contributes to the attractiveness of an area. The attractiveness will bring people together in the urban environment and the facilities will invite and encourage them having a active urban life.
As urban designers we deal with the urban environment. Since urbanism is also about the inhabitants moving through the space, we automatically deal with the people. Nowadays leading a healthy life becomes socially desirable image. Overweight and obesity are becoming a growing problem in our modern life, not only in the Netherlands but also in many developed countries. What seems to be important is to improve people’s health through urban design.

From literature study it has been found that urban design and public health have a relationship with each other. That there is a strong link between physical activity and health that is evident. The focus is on soft-mobility (like walking, cycling and other outdoor activities) as a tool to improve people’s health.

Therefore, walking and cycling can be seen as a significant contributor to this matter. It seems that the presence of amenities and accessibility to a public space contributes in stimulating this healthy behaviour in urban environment. Examples of features can be playgrounds, streetlights, basketball court, a walking path, a running track, skateboard facilities or just simple patterns in the pavement of a sidewalk. In other words, the physical conditions of a public space determine to a great extend the use of a place and the mobility of people and with that the amount of physical exercise people will have.

Sometimes it is these conditions of place that limit people in soft-mobility. Spatial analysis in The Hague shows for example that the two neighbourhoods do have many public spaces but they are not used well because of their spatial conditions. One of the problems in the area is that the main infrastructure limit people in their ability to explore the neighbourhood by bicycle or on foot. Another issue is the lack of continuity in green space. The existing greenery is sprawl through the neighbourhood and does not show a coherent whole. This limits people in following a route for being active daily. Also because literature study has proven that fifteen minutes of brisk walking per day or half an hour of slow walking decreases the chance in getting weight gain.

Furthermore research proves that the popularity of individual sport increases while joining a sport club for team sport is decreasing. For this reason there is a demand for unorganized space in the neighbourhood. The municipality of The Hague acknowledges this. From the municipality there is also a desire in making sport accommodations open for public use.

What is evident is that many public spaces do not meet the needs of the users, mainly because they do not have the features users require nor does it have a quality to make use of the public space. But more
often the public space is not within a reachable distance.

Residents of Transvaal and Moerwijk acknowledge the lack of quality in their neighbourhood. They experience public space as mono-functional that is only aimed at play facilities for the very young. Some open public spaces have an empty, unininvited and unsafe image (especially for the elderly), others are fenced around and can be used only during certain hours of the day. These are not only the playgrounds, many sport accommodations are gated as well.

This is supported by dr. Clarine van Oel (from TU Delft, specialized in health effects of physical interventions in urban environment). She mentions the importance of a route for the elderly. The elderly will take a certain route that is essential for them, for example for their daily needs. Sometimes the elderly have to walk through a neighbourhood that is not convenient for them because they are limited in their way by plantation, the spatial conditions of a place, the visibility through the area, or a lack of social control.

Several researches done by TNO confirm this as well. A study by dr. Sanne de Vries (from TNO, specialized in exercise-friendly neighbourhoods) explains that for the elderly it is not important if they walk but which kind of route they will choose. Place with a loop or social unsafe area are being avoided. For them social safety is more important than physical safety.

In order to create spatial conditions that can stimulate an active life style in the neighbourhood, public space in Transvaal and Moerwijk has to respond to the needs of the residents. Public space has to be able to facilitate different activities. It should create attractive routes for walking and cycling and public space should be open up in order to activate the neighbourhood.

For stimulating healthy and active behaviour, a city needs to provide spatial conditions on different scales. Citywide to stimulate healthy movement on a longer distance; on a neighbourhood scale to vitalize the area and to attract and invite people in leading an active and healthy lifestyle; and on street level to challenge the very young and the elderly to be physical active day in day out.
So far this document has provided insight in the problem field and the project location. Research has proven that Transvaal and Moerwijk are two of the four deprived neighbourhoods in The Hague. These areas already face social and environmental problems. Additionally, several researches have proven that overweight and lack of exercise also plays a major role in Transvaal and Moerwijk.

In continues to the conclusion of the previous chapter, this chapter translates the findings of several researches in what could be the design task for the two neighbourhoods of The Hague.
Figure 3.1.1 Important areas for the neighbourhood
3.1 | Intervention areas

In the process of urban renewal the design task follows from looking at the existing situation. Having the design goal (enhance the use of soft-mobility and therefore stimulate people in having an active and healthy lifestyle, section 1.3) as a framework in mind, the existing situation needs to clarify several areas that on one hand seem to work very well and on the other hand areas that need attention, from small interventions in street profile to complete redesign of a public space. In this line the actual design intervention will be based on three different levels:

1) Interventions on the scale of the city will facilitate healthy physical activity at a longer distance. Creating conditions for cycling (but also walking) will be the important focus at this level;

2) On the neighbourhood scale design interventions will focus on upgrading the existing public squares in order to create a more attractive public space;

3) At street level, design interventions will create conditions for a challenging environment that invites people to be physically active.

As figure 3.1.1 illustrates, there are some routes going along and through both neighbourhoods. These routes are connection several public squares or parks, like Zuiderpark and Park Overwoorde or the neighbourhood square Hobbemaplein in Transvaal. Interventions will focus around these important lines.
Figure 3.2.1 | Possible intervention areas improving:
A) walking and cycling on higher scale
B) healthy behaviour on small scale
3.2 | Design task for Transvaal

Transvaal has some good public spaces, but the only problem is that it lack of quality. As it is illustrated in figure 3.2.1, some routes connect several squares with each other and others lead to the city centre or to the beach. At higher scale we see wide avenues, which do provide pedestrians with enough space, but pedestrians do not use it. Main reason is the lack of attractiveness in these routes and the amount of parked cars that seems to dominate the street image. These routes do have the potential turning into high quality pedestrian area, mainly because they link several public squares in the neighbourhood, like the neighbourhood park Hobbemaplein (number 6).

At smaller scale, these public squares also lack attractiveness. Some of them have a hidden image or do not meet users needs. In order to make the higher scale happen, several squares need to be improved. This will give pedestrians a reason to following the routes. Some squares only need to have some amenities while others require a complete make over, like the square in Transvaal north (number 5).

So the design task here will be improving the hidden potentials of some routes and upgrading some public squares for attractiveness and a vital neighbourhood.
Figure 3.3.1 | Possible intervention areas improving:
A) walking and cycling on higher scale
B) healthy behaviour on small scale

3.3 | Design task for Moerwijk

As it is the case in Transvaal, Moerwijk also has plenty public space. Some places have high quality (number 1) but they do not facilitate pedestrians. Others are completely closed in the middle of building block, like the sport accommodation (number 6) that is only accessible by memberships. At higher scale level, as it was discovered during spatial analysis, the main problem in Moerwijk is that people are limited by traffic in their ability to walk or cycle long distances. This level does have high quality in greenery: many of them have a continues line and support routes to several public squares.

At smaller scale, public spaces in Moerwijk do have the quality and potential but they are not used because they do not have the features users require. Here again the case of design interventions in some long lines is of a small others or of a big modification that could be used vitalizing the smaller scale. Some times it could be just clarifying the route to a schoolyard, which will upgrade the potential of neglected spaces.
The previous chapters have brought up enough material to translate it into a vision plan for the project location. We have seen that there is a social problem concerning overweight and lack of exercise. We have discovered that urban design can make a difference in preventing overweight and that it can create new kind of environment that provides opportunities in being physical active, which is one of the important factors preventing overweight.

This chapter presents a vision plan on three different scales and a brief strategy how to start the design interventions.
Figure 4.1.1 | Vision on city scale
The municipality of The Hague has an on-going policy in creating qualitative bike lines going from city centre to the sea. These so-called 'sterfietsroute' (star bike lines) have at some points along these route connections to other districts. At some strategic points around these nodes there will be public facilities.

In order to facilitate physical activity at a long distance, it is important to have a connection with this route (see fig. 4.1.1). The idea of this route on one hand is leading people from A to B on a safe and convenient way. On the other hand, this route should also lead people to places where they invited and encouraged to participate in public space. To make this happen, at some strategic point along this route public facilities should be created.
Figure 4.2.1 | Vision on neighbourhood scale
4.2 | Neighbourhood scale

At the scale of the two neighbourhoods, the vision will be based on a concept of recognisable and continues routes to Zuiderpark as a connected element between Transvaal and Moerwijk. Via Moerwijk and via Transvaal there will be recognisable routes created that should facilitate soft-mobility, for example for daily trips with the dog, jogging, going to grocery store or just walking.

The vision is based on creating sport and recreational routes through both neighbourhoods. Routes like connecting Zuiderpark with Overvoorde Park via Moerwijk. Along this route there should be a link made to the inner neighbourhood’s sport facilities. These places should have integrated sport facilities with a combination of sport clubs as well as space for individual sport. That could happen in the existing sport accommodations or creating new accommodation that can facilitate this flexibility in sport (fig. 4.2.1). This will increase the usage of the public area but also giving public functions to open public spaces will encourage people to sport in their own neighbourhood.
Figure 4.3.1 | Actual situation public square
Source: Tashkent (2012-2013)

Figure 4.3.2 | Creating openness
Source: Tashkent (2012-2013)

Figure 4.3.3 | Continuous and recognizable route
Source: Tashkent (2012-2013)

Figure 4.3.4 | Link to other public space
Source: Tashkent (2012-2013)
At the moment many public squares have a hidden and closed image (fig. 4.3.1). At street level, public squares need to have an open character towards the neighbourhood (fig. 4.3.2). Keeping the vision of the neighbourhood scale in mind, these places should guarantee the continues and the recognizable routes (fig. 4.3.3). At last, these public squares need to have a connection with the surrounding smaller public spaces (fig. 4.3.4).
4.4 | General strategy

The design strategy for an active neighbourhood should be a gradual development through three different scales. The priority and the starting point should be at street level, moving to the neighbourhood and then to the scale of the city.

When people leave their home the first thing they encounter is the sidewalk. This is the part of the neighbourhood that people face daily. Especially for the elderly with a walker equal pavement is important. This sidewalk is part of the residential street. Mainly for children and the elderly is at this level safe environment vital for a lively street image. Moreover, this part of the residential area is for the very young the place to play because of parental supervision reasons. Interventions should start at this level because here is where people will benefit the most out of it.

This residential streets leads to existing or newly built neighbourhood squares. At this level amenities are becoming important. In order to meet the needs of the residents, the existing situation should be either improved or replacing. This should ensure a pleasant daily afternoon walk around the living area.

This same residential street is part of a neighbourhood street. At this level connectivity between several neighbourhood squares is becoming important in order to stimulate walking but also at this level also cycling for a longer distance. Here is also where the greenery as in a line of threes becomes significant for the continuity and guidance of a route. Neighbourhood street leads eventually to city streets. At this level the focus should be on safety and on the continuity of bicycle and walking routes to major public environments like the bigger parks, shopping malls, city centre or the sea.
So far we have seen that the problem field exists of people facing health problems concerning obesity and lack of exercise. Through several example implemented all over the world we have seen that on this matter, urban design can provide a possible solution in tackling this social issue that encourages and invites people to lead an active life and therefore have a healthier lifestyle.

This chapter presents the translation from the findings from the previous chapters into a coherent design for the two neighbourhoods of The Hague: Transvaal and Moerwijk.
**Transvaal: De la Reyweg**

In the current situation pedestrians are only supposed to take their way on each side of the street. While the central part of the street - a green middle zone of 8.5 metres wide - does not facilitate pedestrians. At some points there are paths crossing this green zone in order to be able to pass the street. To facilitate walking on a longer distance, pedestrians need to have a qualitative route. Since this line forms a connection to other districts in the neighbourhood and with the Zuiderpark, this can happen in the central part of the street.

*Figure 5.1.1a | De la Reyweg existing situation*

Source: Tahery (2012-2013)
5.1 | City scale interventions

Because there is already a bicycle line at each side of the street, the intervention here will be based on creating extra space for pedestrians in the green central zone of the street. Here a path is created through the green with at some point possibility to take a rest. Especially for the elderly (as we know from research) this kind of qualitative routes and the possibility for a resting place will contribute in promoting walking among this target group.

Figure 5.1.1b | De le Reyweg new situation
Source: Takwry (2012-2013)
Transvaal: Kaapstraat

The current situation shows a stony street. The parked cars on the two sides of each street dominate the image. This way soft-mobility gets less attention. Since this line forms a connection between the neighbourhood park and the two smaller playgrounds in the south of Transvaal, creating a pedestrian network is important for this area.

Intervention will be based on adding trees on both side of the street. Doing this will add more greenery in the stony image of the street.
which will put less attention to the cars and this will highlight the continues of the route. Furthermore, the middle part of the street will be pedestrianized. One possibility is creating a green area with a path through it. A second solution can be a pedestrian path in a green zone and a path for jogging on the other side. The second solution will facilitate walking and will also promote sport in the neighbourhood.

Figure 5.1.2b | Kasapstraat new situation 1
Source: Tahery (2012-2013)

Figure 5.1.2c | Kasapstraat new situation 2
Source: Tahery (2012-2013)
**Transvaal: Schalk Burgstraat**

The parked cars dominate the street image here as well. This line, with a road of 7.6 metres wide, forms a connection between the inner neighbourhood of Transvaal and the district of Moerwijk and the Zuiderpark.

Although the first solution will not provide extra space for pedestrians, it will upgrade the road that eventually could have a positive effect on pedestrians. A second solution is widen up the sidewalks on both
side of the street. To promote walking, pedestrians need to have more space. Therefore a third and the more achievable solution is widening the sidewalk on one side of the street at the expense of the road, with the maintenance of the amount of parking lots. In this street profile we see a orange line that also appears in other streets through Transvaal and Moerwijk. This line is coming from the redesign neighbourhood square in Transvaal north going all the way to the sport accommodation in Zuiderpark (see also fig. 5.1, page 110-111).
Moerwijk: Aagje Dekenlaan

This avenue has a great potential for pedestrians because of the green middle road side. In the current situation pedestrians only use the sidewalks on each side of the avenue. At some points a path crosses the green middle road side in order to allow people to cross.

Intervention in this avenue is based on creating more space for pedestrians. A highly qualitative pedestrian zone in the middle road side provide people to walk through a green environment with a diversity in

Figure 5.1.4a | Aagje Dekenlaan existing situation
Source: Tahery (2012-2013)
pavement and resting places.
Figure 5.1.4c: Aagje Dekenstraat high quality walking area
Source: Takah (2012-2013)
Transvaal: Engelenburgstraat
An ordinarily street with parking lots on both side of the street. This line is important for the connection with the playground in the north (Jouberplantsoen) but also important for the continuity of the lines in order to create coherence through the neighbourhood of Transvaal.

As it is the case in this part of the area, interventions are sometimes of a smaller scale, only to bring a visual change in the street image. By adding trees on both side of the street, the continuity in the line
will be ensured. This way a certain route will be emphasized using trees. Beside this, an orange running track will be implemented in the sidewalk. This line goes through Transvaal all the way to Zuiderpark's sport accommodation. This line is important for the continuity and for the promotion of sport on a higher level (see also fig. 5.1).
Transvaal: Joubertplantsoen
This neighbourhood playground in the north of Transvaal has an uninvited image, mainly because of the stony pavement and the fences around the soccer field. This area forms a starting point in creating a connection to the inner area of Transvaal.

Intervention in this area is based on upgrading the playground and creating continuity through this part of Transvaal. Continuity will be created by using the street profile as it is in Engelenburgstraat. This

Figure 5.2.2a | Joubertplantsoen existing situation
Source: Tahary (2012-2013)
means that the line of trees will continue through the playground. In addition, the road width of the street before this square will continue in the square as a running track (see also reference analysis fig. 2.5.12). As it is mentioned before, this running track continues through the neighbourhood, which eventually leads to Zuidersport’s sport accommodation. Furthermore, this playground will make connections to the west side of the area, towards the primary school. Upgrading the area will focus on creating high-quality meeting places for the elderly and more play facilities for the youth.
Figure 5.2.2c | Kloosterplaat School area
Source: Tahery (2012-2013)
Moerwijk: Jan Luykenlaan

Except some trees on both sides of the road, this area has a bare image that is dominated by cars.

In order to create a unity in the route through this area of Moerwijk, this avenue should provide a continues line, which is the greenery. This is done by adding a green middle zone in the street profile. Because this is a shopping area, the maintenance of parking lot is ensured.

Figure 5.2.3a | Jan Luykenlaan existing situation
Source: Tahery (2012-2013)
Figure 5.2.3b | Jan Laykenkamp new situation
Source: Tetery (2012-2013)
Transvaal: Pretoriusstraat

This street forms a connection between the playground described before and the primary school area at Smitstraat.

The goal at this level is to create a playful route to the school area. Using sidewalk jumpers (see also reference analysis) will make the daily trips to and from school more pleasant. To make the street challenging both sides (the second solution) has some playful features: on one side sidewalk jumper and on the other side coloured poles that indicate the

*Figure 5.3.1a | Pretoriusstraat existing situation
Source: Tahery (2012-2013)*
route to the square and to school. Since this route is nearby a primary school, the school children can paint those poles. This involvement will increase the responsibility and appreciation of the children for their neighbourhood.

Figure 5.3.1b | Pretoria Street new situation 1
Source: Takery (2012-2013)

Figure 5.3.1c | Pretoria Street new situation 2
Source: Takery (2012-2013)
Transvaal: school area
This school area has a hidden appearance. The buildings facing this area give a narrow sense. Children are limited by the gates and the poor pavement.

Intervention will be based on creating openness and attractiveness for children. Because it is a school area, this place is orientated to primary school children. Like it is used in the Red Square in Copenhagen (see reference analysis) the pavement in this area could be coloured to

![Image of school area](image1.jpg)

Figure 5.3.2a | School area at Smidtsvej existing situation
Source: Tehary (2012-2013)
create unity in a line but each coloured pavement segment could be seen as an unique part of the street that facilitate different kind of play activity.
Moerwijk: Cannenburglaan

This area is just green with trees. There is no space for children to play or a meeting place for the elderly. According to spatial analysis (see also fig. 2.2.13, section 2.2) there is a need for new kind of places for the target group in this area.

Interventions in this avenue are part of improving walkability on a neighbourhood scale and creating a new kind of environment for the very young and social meeting points for the elderly.

Figure 5.3.3a | Cannenburglaan existing situation
Source: Tahery (2012-2013)
As it is illustrated in figure 5.3.3c this area provides four different kind of environment. A social meeting place for the elderly (impression 2) with the possibility to play *jeu de boules* or do some physical exercises. For the very young a new kind of playground with a combination of playing games and doing sport is designed and a soccer area for the youth.
CONCLUSION and RECOMMENDATION

During this master's thesis the central question has been: How can the design of public space create conditions for a healthier lifestyle of citizens? In order to contribute to people's health through the design of public space, interventions in an urban area need to generate new kind of public spaces that meet the needs of the users. Creating challenging environment for the very young, but also for the elderly, can stimulate a healthy behaviour and therefore a healthier lifestyle.

What is important to mention is that urban designers have to be aware that by only making attractive public spaces we cannot prevent overweight and obesity. But what we can do is improving the spatial conditions in urban environment that will counteract this societal problem.

The main research question has been supported by four sub-research questions, each of them involving a different research method in answering it. This leads to the finding that different elements in public space and different kind of interventions in public space can contribute to vitalizing a neighbourhood. But this study has not only been focusing on a neighbourhood but on street level as well as on the city as a whole. Hence the title of this master's thesis: Active Cities.

With literature study, it has been found what the link is between people's health and public environment. It seems that urban environment has a positive effect on people's well being. Attractive public space and greenery are one of the important features that can contribute to this matter. Having safe and interesting walking and cycling routes through the neighbourhood that lead the users to qualitative public squares enhance physical activity among people. Here, the presence of amenities and the accessibility of a public facility in urban environment contribute in stimulating a healthy behaviour of people.

With spatial analysis of the project area, it has been found what the structural elements of a place are that can make a route interesting for leading an active life. It seems that project areas Transvaal and Moerwijk in the city of The Hague have enough public spaces. But what is evident is that people are limited in their movement in the area by infrastructure. The green structure is sprawl and hinders people's walking behaviour. The amount of public squares in both areas should have these green connection lines in order to motivate active life.

With interviews, it has been found how to redesign the spatial environment in a neighbourhood in order to create conditions for an active and healthy lifestyle. It seems that the current situation does not facilitate the needs of the different users. The mono-functional image of the area has to make place for a vitalizing area that allows different
activities for different age groups. The many school playgrounds and sport accommodations that are gated need to be opened up to the residents. Furthermore, the route to these public facilities has to give people a safe feeling, in particular from traffic.

With the last research method, reference study, it has been found which characteristics of public space create conditions for an active urban life. It seems that an active city has to provide conditions on three different scales. Characteristics on the scale of the city have a green network of bicycle lines. This will stimulate healthy movement at a longer distance. At neighbourhood scale there is a need for attractive public squares that allow different activities: a place to meet, a place to play and a place to work out. At street level the challenging environment is the most important characteristic. Places that are playful for the very young and for the elderly, but also places that provide people their daily piece of exercise.

As it is discovered during the research, for this graduation project, the design interventions are based on three different scales: the city, the neighbourhood and the street.

City scale
For Transvaal and Moerwijk interventions on the scale of the city are aimed at creating conditions that can facilitate healthy physical activity at a longer distance. Clarifying a green route for cyclist that goes from each neighbourhood to either the city centre or towards the sea has done this. Furthermore, a pedestrian network has been created that provides pedestrians more space on the sidewalks. Besides this, the quality of certain existing routes is improved. This will increase the use of that area but it also creates qualitative connection between public squares in the neighbourhood.

Neighbourhood scale
In Transvaal and Moerwijk the design interventions on the neighbourhood scale have been focusing on upgrading the existing public squares in order to create a more attractive public space.

In Transvaal north a playground is redesigned in order to meet the users demand. This square creates new possibilities for playing and is a meeting place for the neighbours. Beside this, the square is a transition area between the city scale and the neighbourhood scale.

In Moerwijk southwest a new kind of environment is created that facilitates different activities for different age of groups. The very young are accommodated with play facilities, the youngster have their soccer area and the elderly have their own meeting place that also
provides facilities in order to be active and socialize with peers.

Street level
In Transvaal as well as in Moerwijk design interventions at street level will create conditions for a challenging environment during daily activities. For children using sidewalk jumpers or hopscotch are examples of interventions that will contribute in a child's daily physical exercise. These elements can also be used by the elderly to activate the child in them, but simple equipment like a stationary bicycle bench can contribute in their daily physical activity.

Recommendation
The aim of this thesis was to develop spatial design interventions for public space in Dutch cities that enhances the use of soft-mobility. This can be used to stimulate an active lifestyle. This master's thesis has considered public space as an environment that can be seen as an added value to people's health. As mentioned in the problem statement, health problems concerning obesity and lack of physical exercise are not only the case in The Hague; many other cities in the Netherlands and other countries in Western societies face this problem as well.

The findings of the different research that has been done have been of great input for the design interventions in The Hague’s Transvaal and Moerwijk. In the line of the many examples that have been found around the globe, the interventions have showed solutions that creates urban environment for promoting walking and cycling on the scale of the city, the neighbourhood and at street level.

When cities want to promote soft-mobility, they have to act on these three different scales. If we want to tackle overweight problems and contribute to physical activity through urban design, street level should be the starting point. This is the level where the priority is higher than other levels. People will have the most benefits because at this scale all the daily activities take place. This lower scale is especially important for children and the elderly, mainly because they have a limited range in their neighbourhood.

This can be extended to the neighbourhood scale, which is about improving the route to public spaces. At this level providing extra space for pedestrians is the important aspect. This will be the link to the higher scale of the city.

At city scale it is about improving the network of public space spread around the city. Here green connections between different public squares are important elements that can set up several clear routes between public squares around the city. Improving the bicycle network
is the element that needs attention. In addition, safety from traffic is, as well as qualitative routes, a significant aspect.

The important issue in the strategy should also be participation between different actors. Among the actors, residential participation is one of the important ones. Participation refers to the interactive processes between the residents and the municipality in which for example a playground has to be realized. Someone who indicates that there is a need for a certain facility can initiate the process. That someone could be the residents of the neighbourhood. They are the ones who should inform the local authorities that there is a need for a certain matter. This participation results in a greater user appreciation of the area realized. The spatial translation of residents' need can lead in this way to a meaningful neighbourhood and a high user quality.

Beside this, in the strategy it is important to create a network that offer potential to all age groups. None of the residents should be excluded from taking part in the network of public spaces. This should include sport accommodations as well. Sport should be linked to schools and community centres to promote the use of the environment.

Sport can also be use as an emancipation medium, especially in deprived neighbourhoods like Transvaal and Moerwijk. This kind of place has a lot of residents from the ethnic minority population whose participation in the society is very limited. Using sport as a tool can bring people together and increase this participation.

Furthermore, public spaces do not always have to be filled in with sport facilities. There has to remain a possibility for residents to give their own interpretation to an area.

The research presented in this report has known some limitation. Additional research is needed on the behaviour of people in urban environment. More analysis is required in the way in which residents move through their neighbourhood and how they experience certain spatial characteristics. Furthermore it is important to gain an understanding in time-space use, about the combination in how people go to and come from several destinations, like commuting, doing daily groceries, taking children to school or walking the dog.
DISCUSSION

During this study the organizational part of creating the active city has not been discussed that much, while this part is one of the essential segments of the whole design implementation process.

As we have seen, creating active and sportive environment can influence people’s behaviour. We have seen that sport has changed during the years. Sport accommodations should get the chance to come forward instead being put away behind bushes or between building blocks. Sport is becoming multidimensional and needs to seek interaction with other functions in the surrounding. This way sport can and should be used to create attractive meeting places. Using sport as a catalyst to increase the attractiveness of the city should be one of the starting points for creating an active city.

For maintaining an active city, the local authorities like the municipality in particular, are responsible. When they decide that there is a need for it, they should take the initiative and start the process. Most of the time this should consider the residential participation in the process.

There are several aspects that need attention in the organization of the plan: the target group, the use and the management/maintenance. The target group during this study has been the very young and the elderly. But the middle group (aged 20 – 55 years old) should not be forgotten. Because the lack of physical exercise and overweight are less prevalent among this group than the very young and the elderly, this target group has not been mentioned so explicitly. One could say that they are on the move all the time, but the movement does not happen on foot: they move in traffic jams in their car. Their only concern is going form A to B as fast as possible and they worry about having a parking lot. Nevertheless this middle group, also as user of the city, should also be taken into account in an active city.

For the use of the area, the focus should not be only on one element. There has to be combination of sports, playing games, leisure time activities and culture. For the maintenance good management is needed between the different users. Sport associations, schools, community centres (and so on) need to respect each others wishes and have to work together to guarantee the success of the area.

Another important issue is: who is going to pay for implementing the design? Again the initiative will be in hands of the municipal government. When they acknowledge the positive effects of an active city, they should invest in their city or look for other stakeholders who can take a part of the investment on their account. Stakeholders could be some sport associations or the Stimuleringsfonds Creatieve Industrie (Encouragement fund for creative industry). They should
think about the value an active city can bring. Creating active and healthy environment can have several values for the society. The societal value will be healthier inhabitants. The economical value will be in the lower medical expenses. The money that will be saved in this way can be used for other purposes. The last added value will be on spatial environment that will create higher qualitative urban environment and even improve the city as a whole.
REFLECTION

This chapter reflects on the research and the approach that has been done for this graduation project. This reflection will focus on aspects that have been set by the graduation studio.

Aspect 1: the relationship between research and design.
The combination of the different research methodology has been the base for this graduation plan. The research started with reviewing literature about the topic of active and healthy cities. This way a clear problem statement and research questions are defined. Beside this, an idea is formed about possible interventions that can be done in order to stimulate soft-mobility.

Literature study has put some themes forward on which spatial analysis of Transvaal and Moerwijk and reference study where based. In combination with interviews with residents and some key actors, the findings have been translated and implemented into spatial design intervention in both neighbourhoods.

What was regarded interesting and useful, was reference study. These real life examples present ideas that have been used elsewhere and it forms a prove that the design principles work in the reality.

Aspect 2: the relationship between the theme of the studio and the subject/case study chosen within this framework (location/object).
This graduation has been part of the graduation studio Urban Regeneration in the European Context. This studio is concentrating on methods of public intervention, urban design, sustainable development, heritage preservation, and strategic planning that contribute to urban regeneration strategies. It includes cases from the Netherlands, the UK, France and Spain and is also connected to global developments. Urban Regeneration is aimed at improving the physical environment and provides social and economical opportunities for citizens.

The subject of the graduation project fits to this studio's profile because it is aimed to improve the physical conditions of public space and therefore provide new opportunities for the inhabitants in the neighbourhood. The project area (two deprived neighbourhoods in The Hague) is a typically regeneration area that faces environmental, social and economical problems that needs to be improved.

Aspect 3: the relationship between the project and the wider social context.
The starting point of this graduation project has been contributing in people's health through the design of public space. Health issue is becoming more and more important, it becomes a socially desirable image having a healthy life.
Research has proven that the physical environment is one of the aspects that influences people's behaviour in their daily activity. This activity can contribute to people's daily physical exercise. Everybody benefits from changes in urban environment that will activate motion in people. People who are regularly physical active will have less health complaints and less doctor visit. This ultimately will reduce the cost in health care insurance.

In one way the interventions in the neighbourhood could activate people's behaviour, but it can also bring change in the area, the city and the country. With the interventions a neighbourhood will be upgraded. This will increase the value of that neighbourhood. In this line, when other neighbourhoods and cities notice the positive effects these interventions bring, they will also consider interventions in a same way. The social value of a neighbourhood, a city and even of the country will increase.