MERWEDE- VIERHAVEN

REDEFINING THE RELATION BETWEEN CITY AND HARBOUR IN THE CITY OF ROTTERDAM
De Rotterdamse haven
De Rotterdamse haven in een waas
En een goed gevoel bij het zien van de schepen die
varen over de Maas
Ik ben ontroerd en verward
Iedereen vindt dat trots en prachtig
Tenminste de mensen met een Rotterdams hart
Uren starend langs de kade kijken naar hetzelfde
Maar steeds iets anders ervaren
Maar toch een genot om naar al die schepen te kijken
die
varen over de Maas
De Rotterdamse haven is de grootste in het land van
klompen melk tulpen en kaas.

Danny van Strien

The port of Rotterdam
The Rotterdam port in a haze
And a good feeling at the sight of ships sailing across
the river
I am troubled and confused
Everyone find it proud and beautiful
At least the people with Rotterdam in their heart
Hours gazing along the quayside looking at the same
But something else always experiencing
But still a joy to look at all those ships that
sail on the Maas
The Rotterdam port is the largest in the country of tulips
clogs milk and cheese.

Danny van Strien
COLOPHON

MERWEDE- VIERHAVEN
REDEFINING THE RELATION BETWEEN CITY AND HARBOUR IN
THE CITY OF ROTTERDAM

MASTER THESIS

Department of Urbanism
Faculty of Architecture
Delft University of Technology

Name: Hidde Dirks
Studentnumber: 1372564
Email-address: h.dirks@hotmail.com
Date: 11-03-2011
Studio: Urban Acupuncture
(jan 2010-april 2011)

Mentors:
Ir. F.F. Colombo
Ir. D.D. Zandbelt

External Examiner:
Ir. C. Krebbers

© Copyright: Hidde Dirks, Delft, 2011
PREFACE

Dear reader,

In front of you lies my Master thesis, the product of a research that has taken place from February 2010 till March 2011. In the past year I learned a lot and I have improved my academic research, analyze and designs skills. But also as a person I’ve grown and learned a lot.

Stadshavens is a major harbour which lies close at the centre of Rotterdam. In the coming years Stadshavens will play an increasing important role for Rotterdam. The size of the Stadshavens creates opportunities for new residential areas, businesses and to attract and hold people in Rotterdam.

In my research is the main subject is the regeneration of the Stadshavens. Too make this regeneration happen the Stadshavens must be well connected. By connecting the area with its surroundings it will become an integral part of the city of Rotterdam. Because of the sheer size of the Stadshavens an area within the Stadshavens has been chosen. This smaller area is further developed.

Besides identifying and analyzing the Stadshavens, attention has been paid to the problems, opportunities and strengths of Rotterdam. All this different kind of research has created a well founded base of the design.

I’d like to thank Ir. Francisco Colombo and Ir. Daan Zandbelt in guiding and supporting me during this, sometimes, difficult research.

Hidde Dirks 08-04-2010 Rotterdam

Unless stated otherwise, images in this report are from own production
# CONTENTS

## 1 CONTEXT
- Motivation 9
- Relevance 10
- Aim 11
- Problems in Rotterdam 12
  - Enter the non-western immigrants 12
  - Populations in Rotterdam 13
  - Selective migration 13
  - Stagnant population 14
- Social groups in Rotterdam 15
- Strong points of Rotterdam 18
- Project KennisAs 19
- Mission of Rotterdam 20
- Conclusion 22

## 2 LOCATION CHOICE
- Why Stadshavens? 25
- Harbours of Stadshavens 26
- Relation city and harbour 27
  - Rotterdam until the 20th century 27
  - Rotterdam after WWII 28
  - Current situation in Rotterdam 29
  - Future situation in Rotterdam 30
- View of Rotterdam on Stadshavens 31
- Stadshavens North vs South 33
  - Stadshavens North 33
  - Stadshavens South 35
- Sound pollution 37
- SWOT 38
- Location choice 39
- Stadshavens North 41
- Area’s within Stadshavens North 42
  - Entrance 43
  - Western Yard 45
  - Eastern Yard 46
  - Piers 47
  - The Nose 50
- Conclusion 53

## 3 THEORETICAL FRAMEWORK
- The city 55
- What is urban regeneration? 55
- Need for urban regeneration 56
- Instruments for urban regeneration 56
- Negative side of regeneration 59
- Conclusion 59

## 4 DESIGN
- Introduction 61
- Principles / Preconditions 62
- Concept 63
- Design 64
- Connectivity on city scale 66
- Connectivity with public transport 67
- Flagship project Climate Campus 68
- Improving the connection 70
  - Eastern Yard (Dakpark) 70
  - Marconiplein 71
  - Western Yard 74
- Re-use and culture 76
  - The Nose 76
  - Vierhavenpark 78
  - Green Axis 80
- Icon project 81
- Piers 82
- Steps of regenerating the area 85
  - Current situation 85
  - Step one 85
  - Step two 86
  - Step three 86
  - Step four 87
  - Step five 87

## 5 CONCLUSION

Literature 90
MOTIVATION

Because of the construction of the second Maasvlakte the harbours in Rotterdam will shift towards the west. This movement will create open spaces in the most eastern harbour of Rotterdam; The Stadshavens. This harbour is the only active harbour left which have a physical relation with the city of Rotterdam. The open spaces in these harbours can be used and redeveloped for other functions, like living, working and leisure.

Rotterdam has a history of redeveloping old harbours; some were developed a long time ago, like the Oude Haven (Old Harbour) (fig 1.2) and others more recently, Kop van Zuid (Southbank) (fig 1.4). These harbours acted as holes in the fabric of Rotterdam. All companies in these harbours relocated to other bigger and newer harbour area which were constructed in the west. By this movement of companies the Oude Haven and Kop van Zuid became “Brownfields”

“Brownfield’s are abandoned, idle or underused industrial or commercial where expansion or redevelopment is complicated by real or perceived environmental contamination that can add cost, time or uncertainty to a redevelopment project.” (Davis, 2002)

As stated above, the Stadshavens will continue to function while certain functions in this harbour will be moved; this is the big difference between the Stadshavens and harbours like Oude Haven and Kop van Zuid.

The challenge in this project is how to fit new functions into a partially functioning harbour. What are the steps that must be taken first before a harbour area can function in such a way that people are willing to live in it? The needs and demand of the municipality of Rotterdam must be factored in as well. The Stadshavens might provide a answer for the urgent needs of the city. Besides the needs and demands, a look has to be taken at the current problems in Rotterdam and if the Stadshavens can be used too solve these problems.

The main question in this research is:
“How to redefine the relation between the Stadshavens and the city of Rotterdam by using the gradually available space in Stadshavens and a unique location in Rotterdam?”
The city of Rotterdam has lost population in recent years to the rest of the Netherlands. Since 1990 the city lost annually 1000-5000 residents. To turn the tide to the city wants to retain and attract a diverse, talented and well educated people. These people are attracted to facilities that are only provided in vibrant cities such as: neighbourhoods with high densities, culture and recreation, good public transport and differentiation in the population. Rotterdam has a disadvantage in this area, for years the city lost the educated people. In addition to solving problems, Rotterdam will also have to focus on his qualities and opportunities. (Architect 02-11)

Alderman in Rotterdam Korrie Louwes (employment and higher education, D66) explains in Trouw of 07-02-2011 what Rotterdam currently is doing to retain talented and well educated people and why it is very important to retain these people.

"Rotterdam educates more students than there are jobs, so a part of those students leave which is good. But the open jobs we have need to be filled with the students. For their first job, many highly educated people remain in Rotterdam; we do not walk behind compared to other cities. But the part of people that stay in Rotterdam for their second or third job is exceptionally low in Rotterdam. The living environment in Rotterdam is not attractive for these people. The economic crisis which occurred few years ago had its influence on Rotterdam but the city came stronger out of this crisis, next step is to maintain this situation. Now 27 to 34 percent of the residents have a college or a university education. Rotterdam wants to improve this to 40 percent. By comparison, in Amsterdam 50 percent has a college or a university education. We have already approached a group of employers willing to offer jobs. The town itself is of course a major employer."

Many other cities have harbours transformed into areas with new functions. Rotterdam has done it in the past. However the difference between the Stadshavens and the previous transformation areas is that most of these older areas were Brownfield’s.

Stadshavens are no Brownfield’s since the area will continue to function as harbour during regeneration. By using urban acupuncture the area can be transformed into an area with mixed functions.

Urban acupuncture is neither a discipline, nor a project technique, but a philosophy of approach to a few territorial and societal problems. Urban acupuncture is not related to scale but to strategy of intervention. It is seen from various viewpoints as a possible answer to the requirements of the bettering of the environment. Urban acupuncture by nature does not contrast with urban planning in the traditional sense, but urban planning by its own nature, requires complex decisional processes and long time frames. Urban Acupuncture instead is spawned by the necessity to achieve sensitive effects in shorter time periods and operates within structured contexts.

This kind of regeneration of harbours hasn’t happened much yet and this study can provide interesting outcomes. These outcomes can contribute to the body of knowledge of urbanism.
PROJECT AIMS

The aim in this project is to strengthen the relation between the Stadshavens and the city of Rotterdam. Currently the Stadshavens consist of harbours but with transformation an area can be created that can hold new functions as living, leisure and working.

Besides creating a connection with the city by new functions, a connection with infrastructure is necessary as well. Because of the current function the area is well connected for cars. The next aim is to connect the Stadshavens properly for pedestrians and public transport. More attention will be paid to public transport, especially on new ways of public transport, like the Water taxi.

The Stadshavens consists of 50% water which creates new ways of living. Second aim in this project is to embrace the water instead of fighting it, living and water can be combined too create new living conditions, never seen before in Rotterdam.
PROBLEMS IN ROTTERDAM

Rotterdam, the second city of the Netherlands, was subject to many changes in recent decades, especially in the field of demography and socio-economic composition of the population. An increasing proportion of the population is immigrants, average income is decreasing and the proportion of single households increases. (CBS: Bevolkingsdynamiek in de vier grote steden, 2004)

The government has since the sixties of last century encouraged suburbanization with various spatial policy and housing policy. There were new suburban housing estates in a number of established “growth centers”. So are places created as Zoetermeer near The Hague, Purmerend near Amsterdam and Houten near Utrecht. Because of these growth centers, the migratory flows to and from the (large) cities have significantly changed. From the mid-sixties the four major cities in our country suffered from population loss. (Fig 1.1)

To keep the middle class in the city, an attractive residential environment was necessary. In the eighties the compact-city policy was formulated. New residential areas were planned in or near the city. There were plans for large-scale urban renewal projects like the Eastern Islands in Amsterdam and the Kop van Zuid in Rotterdam, old port and industrial areas were transformed into residential areas.

Between 1985 and 1995 the decline of the population in the four major cities was grounded to a halt and the population increased again, although the population growth compared to medium-sized cities and suburban municipalities was modest. In 2003 only 13 percent of the population of the Netherlands lived in one of the four major cities. In 1960 this was 22 percent.

Enter the non-western immigrants

The demographic and socio-economic structure of the metropolitan population has also changed in the nineties. The growing group of immigrants ensured a change in the composition of the metropolitan population. The international immigration of non-Western populations focused mainly on big cities. The average disposable income of the population in large cities, visible from mid-sixties, in the eighties and nineties continue to decline.

In the fifties, the income in four major cities was well above the national average, in the sixties and seventies the cities lost their lead. Now years later of the four major cities, only the income in Rotterdam is lower than average. In
In Amsterdam, the average income was 900 euro above the national average. In Utrecht, it was nearly a thousand euro’s. One explanation for this large difference in incomes can be partly explained by the distribution of natives and immigrants. Utrecht in 2003 had 70% indigenous and 30% foreigners. (CBS: Bevolkingsdynamiek in de vier grote steden, 2004)

Compared to other cities, Amsterdam, 53-47, 56-44 Rotterdam and The Hague 57-43, the percentage of native is very high. If we take a look at Amsterdam and Rotterdam, the difference in income surprising given the fact that Amsterdam has a slightly higher percentage of immigrants. Difference of income has to do with people living in both cities. Amsterdam has many neighbourhoods where people with a high purchasing power lives (The Canal area, Old South). Rotterdam has a lot of trouble too attract and keep the people with the high purchasing power.

**Populations in Rotterdam**

Near Rotterdam there are many new residential areas, like Barendrecht, Capelle aan den IJssel and Berkel en Rodenrijs. These new municipalities had their influence on Rotterdam. In the top ten of fastest growing municipalities, are some municipalities that are located near Rotterdam. Like Berkel en Rodenrijs, Albrandswaard and Barendrecht, which is the fastest growing municipality of them all. The last recent years the wealthy audiences, including families with high income and newly graduated, have left Rotterdam because the city couldn’t provide the request of certain living conditions. It is therefore explained why proportionally the largest number of ex-Rotterdam live in Barendrecht and Albrandswaard, both 52 percent. (CBS: Bevolkingsdynamiek in de vier grote steden, 2004)

**Selective migration**

Rotterdam currently cannot manages keep the high educated people. People follow their education in the city of Rotterdam and often find their first job. From outside people settle in Rotterdam due to study or work. However, when the next step in life occurs, family life and professional career, many (young) people leave the city to settle somewhere else. Such population dynamics is not necessarily negative. The so-called escalator function of the big city is an important social mechanism, with positive effects for the region and the rest of the country. When the influx of this group is greater than the outflow, the city will improve. However with the case of Rotterdam the number of people with proper work, a good education and a middle or higher income leaving is so great that the influx and growth of promising youth is not enough to compensate. The result is a negative selective migration, leading to an unbalanced population structure.
2005, the average income in Rotterdam was 13 400 euro’s, nearly one thousand euro’s below the national average. Highly educated locals leave the city not because they do want to leave. They leave because they cannot find the preferred living environment in Rotterdam. Due these changes in the population of Rotterdam, the weaker groups are left behind in Rotterdam. These groups, often immigrants, mostly have a low income and low or no education.

Stagnant population
Around the year 2035 the Dutch population will shrink. In Rotterdam the past two years registered population declined. Part of the ‘leavers’ in Rotterdam will be retained for the region, which is still growing in population. However, without additional measures (compared to the indicative housing program, as formulated in the Regional Spatial Plan Rotterdam 2020), the population stabilizes over the next year at the low level of 580,000 to 585,000. Due shrinkage areas in the Netherlands are losing population; these people are leaving the rural areas and are heading towards the cities due the services and jobs. Fig. 1.14 is shows that three of the four major cities grown a lot in population size, only Rotterdam has a small growth in population. This is explained by taking a look at the attractiveness of areas in the Netherlands, fig. 1.15 clearly shows a lack of attractiveness, which leads to a low population growth in the Rotterdam area.

A stagnant or declining population with an unbalanced population structure means less prosperity. Less wealth means less support for the facilities in the city. Together with the negative selective migration, this development leads to the impoverishment of the city and damage to the Rotterdam region as a whole.
SOCIAL GROUPS IN ROTTERDAM

Introduction
To find out why people are leaving Rotterdam and settle somewhere else information is needed about the needs of these people. To exactly find out which groups of people are living in Rotterdam and what their characteristics and requirements are, the outcomes of the SAC Woontest 2008 are analyzed.

The test gives a quick insight into key trends and developments in the residential market of Rotterdam. Residents of Rotterdam and in the surrounding area were sent a questionnaire. With the questions a focus was created on the perception of people in Rotterdam.

The BSR model
The research creates a well founded view of the housing market in Rotterdam. The BSR model uses a coordinate system that is very useful to describe or predict several housing preferences. By completing the questionnaire the respondents gave themselves a place on this scheme.

- The vibrant community fits perfectly with the RED lifestyle: dynamic, freedom, depart from the standard. Social ambitions are not strong and there is not really a ‘society’.  
- Within the BLUE lifestyle, the focus lays on exclusive: high dignity, but also exclusion and isolation.  
- Typical YELLOW lifestyle are relaxed and friendly. People live in friendly society especially with each other along.  
- Opposite the casual society is the closed society, together with the domestic society it belongs with the GREEN lifestyle. Social control in a closed society means alertness and “our kind of people. “ (Sac. Woontest Rotterdam (2008))

It is obvious that within the four overall, very pronounced worlds, many more nuances can be found. Some people and neighbourhoods are not so much red, blue, green or yellow, but more orange, purple, aqua or lime. However for the workability of the model are the four basic colours are the starting points.

Rotterdam vs the region
The comparison between Rotterdam and the region is that there is no significant differences between the different lifestyles, only the red lifestyle is much higher which is due to size of Rotterdam and its dynamic population.
The main question in this SAC woontest is:

“In what kind of environment want the different lifestyles live?”

- The RED lifestyle seeks lively and high quality urban living.
- The BLUE lifestyles seeks spacious living environments, but also (high) urban locations.
- The YELLOW and GREEN lifestyles like multi-functionality on local level, for example living near a mall.

By doing research on request and demand of living conditions, a oversupply of lively urban environments appears and a lack of quiet urban living environments. This indicates a qualitative question in the urban area. Also in the suburban areas is a higher request for greater quality of living conditions.

Conclusions

In short: There is more demand for space, less demand in stone and high-rise. This means there is a demand for more relaxed and broader setup living areas. This counts for urban areas as for mono-functional (living) areas.

- Urban living areas remain popular, especially the quiet urban areas. There is a high demand for this living environment. It can act like a bridge between the lively urban areas and the mono-functional suburbs. Quiet urban living can be varied, multifunctional, green and spacious.

- Rotterdam and Schiedam both suffer from a surplus in lively urban areas.

- There is the great interest for high-quality and rural live, especially in Barendrecht. These living environments are scarce in the Rotterdam region.

- Good urban housing products really work in neighbourhoods like Delfshaven(east part of Rotterdam), Stadsdriehoek (city centre) and Cool(city centre). Urban
Young Potentials
Young Potentials are small households under the age of 35 years, with an education level of secondary or higher. In the Rotterdam region two thirds of this group is highly educated (higher vocational or university). The highly educated Young Potentials are strongly oriented towards urban living, a way of living that characterizes their student days. To the degree that their budget grows, this group lacks sufficient supply of quiet urban residential areas and urban houses. In short, especially for young people with higher incomes and aspirations of urban living, there are currently insufficient opportunities.

Elderly
In this group supply and demand are not in balance. There is much more demand than supply of serviced residences and other appropriate forms of housing specifically for seniors. The main residential areas are quiet urban living, living in a residential area or shops.

The social structure is very decisive for the quality of living of the elderly. That means a social environment in which they themselves recognize. Only a small proportion of elderly (<10%) opted for metropolitan living, the dominant housing in the centre of Rotterdam. The elderly who live here are very happy. The most promising products for seniors are provided housing, exclusive, and comfortable apartments.

A part of the elderly will certainly not move at this time and will postpone a eventual move as long as possible. The previous mentioned living conditions may increase the willingness of older people to relocate from their homes. This might free up more dwellings which can be used by other people from other groups. Luxurious living is currently limited offered to elderly, while there is a large potential demand (13%) mainly on ‘upcoming elderly (younger than 65 years). Houses are ground floor apartments or ground-level town houses and comfortable apartments.
STRONG POINTS IN ROTTERDAM

Introduction
Besides addressing the problems that are present in Rotterdam, it is necessary to address the strengths of Rotterdam. This is according the vision of Rotterdam, by strengthen the strong points the weak points can benefit from it. (Stadsvisie R’dam 2030, 2007)

Medical clusters and care clusters
Compared with the other three major cities in the Randstad, Rotterdam has relatively high amount of jobs in the medical industry and healthcare. With a 16% share of total employment, these sectors are among the major employers in town. The healthcare sector is also growing fast, with 14% growth over the period 2001-2005 (Economic Vision, 2005).

Rotterdam knowledge city
Rotterdam has knowledge of international excellence. The base is formed by the Erasmus University, TU Delft, which is in close proximity of the city of Rotterdam, colleges, vocational education, commercial education (such as the internationally acclaimed Rotterdam School of Management) and the business with his broad knowledge base. With 60,000 students Rotterdam is the number three student city in the Netherlands. (Stadswoonen: Kennisas, 2008). South Holland supplies the largest contributor to the gross national product in the Netherlands of all the provinces. If they want to maintain top position then knowledge and innovation is crucial. Therefore, in 2003 the Knowledge Alliance was established. The aim of this Knowledge Alliance is too organize knowledge; innovation and entrepreneurship so it can be further strengthen. (http://www.kennisalliantie.nl/)

The city of youth
Rotterdam is a city focused on the future, for people who are full of life. Young people are its core. Rotterdam is a rejuvenating city in an aging Europe. The city has many different groups of young people with different needs, customs and cultures. These differences do not always go together. Common however is that all the young people are full of energy. Rotterdam is working citywide to increase social cohesion, social cohesion and development opportunities of these groups. The guiding principle forms the energy and the will of the people to shape their own future. Rotterdam aims to the future prospects of these young people through training, internships, social, cultural facilities, leisure facilities and through specific housing. (Economic Vision, 2005).
**Creative Industry**

Rotterdam defines the creative industry as media, publishers, art sector and creative services. Rotterdam is de number two creative city in the Randstad, with Amsterdam the undisputed number one. (fig. 1.24) However the creative industry in Rotterdam is growing, especially the creative service sector.

With world renowned architectural firms as OMA and MVRDV, famous institutions as Dutch Architecture Institute and the Berlage Institute as well events such as the Biennales and the Year of the Architecture in 2007 the city of Rotterdam is the architecture city in Holland. Other big creative sector in Rotterdam is, because the Willem de Kooning Academy, the fashion industry,

The focus of the growth in the creative sector lays on the creative service, this sector includes technical and industrial design, architecture, urban- and landscape offices

The city of Rotterdam sees the creative sector as a major catalyst for gentrification (upgrading of existing neighbourhoods), the regeneration of former harbour areas and the revitalization of downtown. (Stadsvisie R’dam 2030, 2007)

---

**PROJECT KENNISAS**

Rotterdam has a project which combines all its strong points in a city wide boulevard. This boulevard is called the The KennisAs (KnowledgeAxis).

The KennisAs is a spatial concept what defines in one word the entire knowledge base and its housing. But it’s not just a concept, it really exists and runs from the Erasmus University Woudestein Complex in the east, through Oostplein, Blaak / Oude Haven, Hoboken towards Coolhaven on the west side. (fig 1.15) (Kennis-As, 2008)

There are five spots in the KennisAs that can be identified;

The EUR Woudestein Campus is a university campus where students from outside Rotterdam start their study and there is a growing flow of international students who seek comfortable accommodation complete with facilities;

Oostplein will focus itself on higher residential quality and public space. Currently there are several bars and cafes which are focussed on the students. This will be extended by adding new facilities;

In the Westblaak old and empty offices will be transformed too create space for starting entrepreneurs;

Around the Erasmus Medical Center a new campus will be created. On this campus academic medical research will happen. Health and technical education are close to well-programmed public space and residential area;

Coolhaven is suited to function as an creative laboratory where many creative types feel at home.
MISSION OF ROTTERDAM

Rotterdam has came up with a mission for the upcoming 20 years which can be described in one sentence.

“Build a strong economy and an attractive residential city. “

Rotterdam wants to stop with building new residential areas in the periphery and start building within excising city. (Stadsvisie R'dam 2030, 2007)

Building within the existing city:
If a good working and living environment is seen as an integral condition for a strong (er) city, then the evolution within the existing urban area lead to maximum advantage and is efficiently handling with the scarce space. Moreover, this will result in a optimal use of existing facilities while the countryside remains spared. The starting point consist the forces present in the city: the port, the promising economic growth sectors, modern and popular residential areas along the river. These strong parts of the city are the basis for the strategy of the ‘the oil slick effect’ in Rotterdam.
The mission: The strong points will be extended to the even bigger and stronger points; the weaker points can lean on these strong pillars.

The mission of Rotterdam rests on two pillars:
1. Strong Economy: More Jobs
2. Attractive residential city: balanced population structure

Strong economy
Creating a strong economy is focused on the transition from an industrial economy to knowledge and service economy and the development of medical and creative industries.

In the harbour area, in addition to the construction of the second Maasvlakte, the emphasis will lay on innovation in energy use and production as well as the minimization of CO2 emissions. The leisure sector - the third economic frontier will be developed and expanded on the already successful locations: downtown, Stadionpark and Stadium Zuidplein with Ahoy.

Attractive residential city
For an attractive residential town, proper homes are just not good enough. Therefore Rotterdam bets on good and complete living environments. In other words the city will pay great attention to public space and the necessary amenities (education, child care, medical / social, sports and games, etc). Within the existing city, Rotterdam itself gave an indication of compaction of urban locations by 56,000 homes.

Preconditions
A strong economy and an attractive residential city can only be achieved if a number of important preconditions are met. Therefore a good investment in additional public space and adequate water is needed. These constraints are particularly suitable for realizing attractive living environments. Architectural quality and the redevelopment of cultural heritage will be used as a catalyst for area development. Good accessibility is another important condition, which a sustainable way will be designed. Combined with a proactive environmental policy, the city of Rotterdam works as a sustainable city with a good quality of life.

International city on the river
Because of its location alongside the Maas, Rotterdam has a strong waterfront. This front in recent years changed dramatically. The Kop van Zuid and the Lloyd District were derelict areas and turned in the past years into urban areas which connect surrounding neighbourhoods with each other. Rotterdam now turns its attention on Stadshavens, a large area near the centre of Rotterdam. Rotterdam wants to develop the waterfront in the coming years into the face of Rotterdam.

The river Maas is an important part of Rotterdam, the city wants to improve the involvement of the Maas by linking the river to public transport. The river is excellent for water transport, as long as this public transport is linked to the existing public transport. Besides providing space for public transport the river offers recreational opportunities as well. Along the riverside areas occur where the port, river and city meet. These areas can be interconnected so that a route along the river is created.

The transformation of harbour areas into urban areas like the Kop van Zuid will be continued by Rotterdam. The city started redeveloping the Maas- and Rijnhaven. These harbours are both part of Stadshavens and are situated below the Kop van Zuid. The Rijnhaven will get a city function and Maashaven will be transformed into a quiet urban living environment.
Rotterdam hopes by redeveloping these run down harbour areas the surrounding neighbourhoods will benefit from the transformations and rise in quality as well.
International city on the river

Fig. 1.27 International city on the river
(Stadsvisie R’dam 2030, 2007)

Fig. 1.26 Strategy attractive city
(Stadsvisie R’dam 2030, 2007)
CONCLUSION

Rotterdam is a city that has suffered from the surrounding municipalities; these municipalities have drawn a lot of people with high purchasing power and high education away from the city. The danger for Rotterdam is entering a vicious circle, attracting low-skilled people and losing highly educated people, thus creating an unbalanced population structure.

It appears from the SAC test that ‘Young Potentials’ have a lot of potential for the city. This group are young, highly educated and have a high purchasing power. The character of their living area is quiet urban living. These area’s consist of living, green and services but not in a density as the centre of Rotterdam, they rather live close by the centre of Rotterdam instead of in the centre.

Their housing requirement corresponds to the view of the municipality by placing new program, living and working places near and in the centre of the city.

Rotterdam must use its current strong points, Rotterdam has a strong medical and knowledge sector, the population in Rotterdam is relatively young.

Because of the shrinkage of the nationwide population Rotterdam has to take action in attracting the much needed people with high education and purchasing power. If this doesn’t happen, the city will lose income, services, and companies and will start too decay.

The question now is which area in Rotterdam is suited for creating a new living environment which can attract new groups too Rotterdam? The area has to be large enough to accommodate several thousand houses, companies and services.
2 LOCATION CHOICE
WHY STADSHAVERNS?

Stadshavens is an enormous area, 1600 hectare, close at the centre of Rotterdam; this creates opportunity for the city of Rotterdam for new living and work areas within the square of Rotterdam. The square consists of 4 highways, A4, A15, A16 and A20. (Fig. 2.1)

The municipality of Rotterdam and the harbour company want to start an ambitious program to give Stadshavens two new purposes: The city and harbour get a re-enforcement in the economic structure and a attractive high quality live- and work environment. Rotterdam has designated the northern part of Stadshavens as an area with opportunities for quiet urban living. (Fig 2.2)

Currently Stadshavens is a very active harbour however to keep up with the other ports in Europe and the world, Rotterdam decided to start a second reclamation project to enlarge the port of Rotterdam. The main function of Maasvlakte II will be cargo storage and overhauling. Currently this is the main function of the south part of Stadshavens. Thus a part of these functions will be relocated towards the new Maasvlakte. This means areas within Stadshavens will become empty and this creates in turn an opportunity for the city of Rotterdam to regenerate this space for housing, businesses, and leisure.

Stadshavens offers besides space also quality, 50% of Stadshavens is water. This creates opportunities for new high quality living conditions, which are currently lacking in Rotterdam.
HARBOURS OF STADSHAVENTS

Stadshavens can be divided into two parts; North bank and South bank. Each side is different in size and functions.

Southbank
Maashaven/Rijnhaven
The Maashaven (80 ha) and the Rijnhaven (28 ha) were originally harbours where cargo was loaded and unloaded however present day they lost this function and are primarily used as berth for cargo ships. With the creation of a new metro station ‘Maashaven’ the city has started regenerating these two harbours with new functions as living, leisure and working. These two harbours will be the first harbours of Stadshavens which will be redeveloped. Rijnhaven will function as a lively urban area. Maashaven will get the character of a quiet urban area.

Waalhaven
Covering 310 hectares, the harbour is the largest excavated harbour basin in the world. The harbour is constructed in four phases, the first one started in 1872, and the last phase was completed in 1930. The Waalhaven was such a big area; it even had a small airport. This airport was constructed in 1919 and it served as a cargo line with England. After its destruction in 1940, the airport has never been rebuilt. In the centre of Waalhaven lays, Heijplaat, this small town was build early in the twentieth century and currently has around 1610 inhabitants. The function of the Waalhaven is acting as a transhipment port, especially in bulk and containers. There are many famous shipping companies located in the harbour. For example Smit International.

Eemhaven
Laying west of the Waalhaven is the Eemhaven. The construction started before WWII and it was completed after the war. One of the first water-related companies that settled in the Eemhaven was in 1955. This was a ship repair company. After the war it was decided that the Eemhaven would be, like the Waalhaven, a transhipment port. Before the containers, cargo was transported in boxes, crates, barrels or bales. However in 1966 the first containers were unloaded in the Eemhaven.
The handling of containers grew stormy after the establishment of Europe Container Terminus, now Europe Container Terminals. It has become the largest container company in Europe.

RDM
The RDM Campus is a campus on the former site of the Rotterdam Drydock Company (RDC) in the middle of the Stadshavens. The area is developed in stages into an attractive location for businesses and educational institutions focusing on sustainability.

Important part of the RDM Campus is this former RDC Innovation Dock. In February 2009 the first students of the technical training of the Rotterdam School started on campus. In March 2009 students also followed the Albeda College. Also available is over 12,000 m² for companies who wish to enter a knowledge relationship with the educational institutions.

Northbank
Vierhavens-Merwehaven
Vierhaven was the first harbour of Stadshavens to be completed at the north bank and is the most eastern harbour of the two. Construction began in 1912 and was finished in 1916. The main purpose of Vierhaven was to handle industrial- and general cargo.

The Merwehaven is a port on the right bank of river Maas in Rotterdam. The construction of the Vierhavens-Merwehaven started in 1923 and completed in 1930 both harbours kept the function as storing and distributing industrial cargo until the harbours of Rotterdam moved towards the west in the twentieth century. Both harbours were turned into Rotterdam Fruitport. Both harbours started storing and distributing vegetables, fruit and juices.

Fig. 2.4 Harbours in Stadshavens
(Stadshavens Rotterdam: Creating on the edge (2007))
RELATION BETWEEN HARBOUR AND CITY

Introduction

Before the Stadshavens is examined it’s important to find out how the harbours of Rotterdam grew during the last centuries and how the relation between city and harbour changed during these years.

Rotterdam until the 20th century

Rotterdam has had a harbour since its beginning, first these harbours were alongside the river Rotter, hence the name Rotterdam but as the city grew so did the harbours. In the sixteenth century the harbours of Rotterdam started to grow, not only size but also in importance. The reason for this happening was that Rotterdam offered deep berths where ships could unload their cargo. These deep berths lay close by the city centre of Rotterdam and lay safely away from the impetuous North Sea.

From the sixteenth century the city of Rotterdam experienced constant change in the spatial relationship between city and harbour. This happened due several ‘leaps in scale’. (Meyer, 1999). City of Rotterdam developed itself into a international trade- and transshipment port (Rotterdam Waterplan, 2035). While in Amsterdam and Antwerp the relation between city and port slowly weakened since both cities turned away from their harbour, both cities were laying back to back with their harbours. Rotterdam tried too orientate itself and embracing the river and harbours by creating functions and boulevards alongside the river Maas and the harbours. The harbours of Rotterdam lay all in the city itself, they were part of the city fabric and

During the industrialization which started in the 19th century, the situation changed rapidly, especially after the completion of the Nieuwe Waterweg (1872). The Nieuwe Waterweg is a man made connection through the dunes which connected Rotterdam directly with the Northsea. Before the Nieuwe Waterweg, every ship had to navigate through the shallow and treacherous Rijn Delta. This new waterline improved to connection between the Northsea and Rotterdam dramatically.

The completion of the Nieuwe Waterweg created a huge impact on Rotterdam. The harbour grew in such a rate that it developed towards the west on the north bank and it also crossed the river Maas and expanded on the south bank of Rotterdam.
The difference in these locations were that the south bank would be used for large-scale development, while the urban expansion area to the west was designated as a new residential and administrative centre of the city. (Meyer, 1999)

**Rotterdam after WWII**

During the Second World War parts of the inner city and the harbours were destroyed by bombings. This had a huge impact on the relation of city and it’s harbours. Before the war, the harbours were located within the city centre thus providing jobs for the people in Rotterdam and boosting the local economy in the city centre. After the war things rapidly changed in Rotterdam.

The new relation between city and river, which was the goal of those involved in the post-war reconstruction of Rotterdam, was based on two dualisms. (Meyer, 1999)

The first is about the position of the harbour within the cityscape. The new operational harbours were situated outside the city with the constructing of new big port areas such as Botlek and later Europoort. Alongside the relocation of the ports, planners were trying to combine ‘the image of work’ and ‘ships of the home fleet’ with the cityscape. The reason why they tried is to getting people involved with the port-related developments. An example what planners tried is the construction of the Maas Boulevard, this road runs alongside the river Maas and creates a view on the river with its ports and city of Rotterdam. However due a disastrous flood in 1953 water management laws were changed and the Maas Boulevard had to be much higher as planned so the relation between city and river weakened due this high dike. The second function of the Maas Boulevard, to create a view on the ports of Rotterdam, was soon obsolete since the harbours moved out the city towards the Botlek and Europoort.

The second dualism is about the location of the city centre itself and, more specifically, the main activities and functions of the city centre as they related to the river. (Meyer, 1999) Before the war, boulevards alongside the river Maas accommodated a series of inner-city functions which created a functional orientation of the city towards the river. After the war this function was destroyed during the post-war reconstruction. The riverbank was primarily reserved for motorized traffic, the heart of the city shifted towards the northwest. (fig 2.5). The city centre located itself on a place were there is almost no open water, the centre transformed from a harbour centre into a service centre with shops, offices and leisure places.

During the post-war reconstruction the operational harbours moved towards the west, leaving Rotterdam. As Meyer (1999) wrote in ‘City and Port” “The realization of the Euromast - built in 1960 for the Floriade, an event held in The Park- represented a final effort to create a visual link between city and port. (…) The Euromast symbolizes an attempt to stand in downtown Rotterdam - on tiptoe, squinting impatiently at the horizon - and to catch on last glimpse of the operational port.” (Meyer, 1999)

In 1973 the first Maasvlakte was completed to answer the needs of the harbour, this area is also the first area which was build entirely in the sea. At first the main function of the Maasvlakte was the rough oil and ore industry, however in 1985 they started with containers since the newest cargoships couldnt reach the harbours which layed inland.

**Fig. 2.9 Movement of Rotterdam centre. Left pre war right after the war (City and Port, 1999)**

**Fig. 2.10 Situation in 1980**

(Rotterdam Waterstad 2035, 2005)
Current situation in Rotterdam

The days which people from Rotterdam could see the working harbours are long gone. The city centre itself is relocated away from the river Maas and the harbours. The inner city harbours, like Oude haven, are transformed into living/work areas.

From the 1990 Rotterdam turned its attention on the neglected south bank of the Maas. This former harbour area was completely deserted. A master plan was made in which a second city bridge was proposed to connect the north and south bank directly, thus creating an opportunity to develop the south bank.

Till 2004 Rotterdam remained the biggest harbour in the world however after 2004 the cities of Shanghai and Singapore took over Rotterdams first place. The main reason for this is that the harbour of Rotterdam was near its capacity. There was no room for further growth. The older harbours, which lay in the east close too the city of Rotterdam, couldn’t be used as well since modern day ships are too big to for the Maas.

On September the first 2008 work began on the second Maasvlakte. The prognosis is that in 2013 the Harbor will reach its capacity (Maasvlakte2.com). By constructing the second Maasvlakte the city of Rotterdam makes sure that the harbour will continue to increase its leading role in Europe. Total size of this area is 2000 hectare (size of Schiphol)

Deep sea-bound container which now takes place in the Stadshavens will move towards the current Maasvlakte and the second Maasvlakte. Short sea container will move towards the Stadshavens.

Rotterdam is starting too redevelop old harbour area’s like de Kop van Zuid and Lloydpier. With these new residential areas alongside the banks of the river Maas, the river itself will become an integrated part of the city of Rotterdam.
**Future situation in Rotterdam**

Rotterdam is turning its attention on Stadshavens, and wants to redevelop this area in a living/work and leisure area. During an interview with Walter de Vries, who works at Ds+V, the planning department of Rotterdam, the future of Rotterdam was brought up.

The aim “being the biggest harbour in the world” is not important for Rotterdam anymore however being the biggest and most important harbour in Europe remains the goal. The current aim of harbours is to become a modern, smart, durable and environmental friendly harbour.

To achieve this, the city and harbour want to attract high class harbour related companies. Both the city and harbour agree that such companies are better located close by the city centre and not on the Maasvlakte II because such companies would rather be close by the city centre and its facilities.

By attracting such new companies results in a new movement of harbour activity. The old harbour activity will move to the west towards the second Maasvlakte, the new harbour companies will settle them self in the east close by the city centre.

The eastern part of the harbours in Rotterdam, like Stadshavens, will have to improve them self in such a way that they can accommodate the new harbour companies.

The city of Rotterdam lost a lot of high income due high quality living environments in the area around Rotterdam, like Barendrecht. Too prevent future loss of high income and even to turn the tide and attract such people, the city of Rotterdam wants to build new high quality living areas close by the city centre. This is already happening with areas like Kop van Zuid and Rijn-Maashaven. When these areas are finished the city of Rotterdam wants to start developing parts of Stadshavens.

---

Fig. 2.13 New movement of harbours towards the east. (Structurevision Stadshavens, 2011)

Fig. 2.14 Rijn and Maashaven (Structurevision Stadshavens, 2011)

Fig. 2.15 Concept Floating City by BGSV (Structurevision Stadshavens, 2011)
Stadshavens plays a big role in the future of Rotterdam. As previously stated, Rotterdam wants to develop the shores of the river Maas and create an international city on the river.

Rotterdam is very interested in developing the Stadshavens in the next decades. Stadshavens will be a project with multiple objectives. The first objective is to strengthen the coherence in the economical structure of main port Rotterdam and the second objective is to improve the residential areas in Rotterdam region. Themes like connectivity, safety, environment and multifunctional areas are connected with a comprehensive approach. (Stadsvisie Rotterdam 2030, 2007)

In the next 20-40 years Rotterdam is planning to re-develop the Stadshavens into a multifunctional area. By creating high quality living areas and areas which combines living and working the city wants to create a new identity within the square of Rotterdam.

Within Stadshavens there are several sub-areas, each with different strategies.

– Waal- en Eemhaven: intensification of short sea, renewal of harbour functions and attracting harbour-related knowledge and services;

– Merwehaven en Vierhavens: harbour transformation into urban area with residential homes and businesses (companies with little inconvenience and attract little amount of traffic); In 2025 there will be 5000 dwellings placed in this area. (Stadhavens Rotterdam: Creating on the edge, 2008)

– Rijn- en Maashaven: intensification of the urban area with homes, businesses and attractive facilities. (Stadsvisie Rotterdam 2030, 2007)
INTRODUCTION
To decide if the north side of Stadshavens is the correct location to be redeveloped into a multifunctional area, Stadshavens as a whole has been analyzed on different themes. These are; connectivity, function, public transport, view of municipality and running plans.

STADSHAVENS NORTH
Merwede- Vierhavens
The north part of the Stadshavens is the smallest part of the Stadshavens and is situated on the north bank of the river Maas. The harbour is surrounded by neighbourhoods as Delfshaven, Spangen and the municipality of Schiedam. The harbour itself lies outside the dike.

The main function of both harbours is the storage and distribution of fruit and juice. Most of the fruit industry is located in the Merwede harbour; the juice industry is located in the Vierhavens.

Connectivity
The harbours are surrounded by several main roads. The main road in the east, Vierhavenstraat, runs towards the north and connects with the highway A20. The main road, Schiedamseweg, which runs north of the Merwedehaven is connected with the A4. Both main roads cross each other close by the metro station Marconiplein.

Alongside the main road a tramline is situated which connects the metro station Marconiplein with the train station Schiedam Centrum. Schiedam Centrum gives the travellers opportunity to travel towards The Hague and further up north but also towards the west, the coast, towards Hoek van Holland.

Besides a tramline and a metro station close by, a third public transport is present in the harbours, the watertaxi. This public transport uses the river Maas to travel. There are many stops in Rotterdam and besides as acting like ferries, people can also reserve a water taxi for a specific time.
View of the municipality of Rotterdam

North part of the Stadshavens will become an area in which pilot projects can be placed. Think about new ways of living and durable public transport. Too create the space for these new functions; the current fruit industry will be relocated towards the south part of Stadshavens. This movement will happen in fases. The industry in the Merwedehaven will first make the jump in 2020. The industry in the Vierhaven will have to wait until 2025.

PROCESSES IN STADSHAVENS NORTH

Dakpark

Dakpark (Roofpark) is very unique project in the Netherlands due the size and shape. The park is 1 kilometre long, 80 meters wide (80,000 m2) and the highest point is 9 meters. The park well be easily accessible from the surrounding neighbourhoods. It will give space for restaurants, theme gardens and facilities for children. The park is accessible via several staircases and a lift. With Dakpark a connection will be created between the harbours and the surrounding neighbourhoods. The project will be finished in 2014-2015.

Climate Campus

The Climate Campus will ensure that companies and scientific institutes join forces in the field of energy transformation and water management. There are also connections with the Erasmus University, TU Delft and the University van Wageningen, it will be a place for scientific research and education. Currently there is no location chosen for the Climate Campus. However the Haka building is available. Haka building is similar as the Van Nellefabriek, a huge building which lost its original function and can create space for other functions such as, architects, ICT sector or in this case the Climate Campus. The Haka building is located in the Vierhaven. (Stadshavens Rotterdam: Creating on the edge, 2008)

Europoint towers

These towers are characterizing for the area. Main function of these towers are offices and Urban Planning department of Rotterdam is situated here. This will change in the coming years. Some functions will leave the towers and settle somewhere else. This creates opportunities too attract small companies to the Europoint towers and a mix of different types of activity can develop.

Marconifreezone

The Marconi Tri is a long narrow zone on the border of port and city. Until recently this was an enclosed yard that had a weak relation with the water. Rotterdam want to develop a mix of functions in this area.
STADSHAVENS SOUTH
Waal- Eemhaven
The main part of Stadshavens is situated on the south shores of the river Maas. The harbours lay east of the neighbourhood Charlois and west of the small town Pernis. In the centre of this part of the Stadshavens lays the small village Heijplaat.

Connectivity
Compared with the north part of Stadshavens the connectivity with public transport is bad. Tram and metro are both far away and both play no significant role for the area. Unlike the north part does this area not have a train station close by. To reach a train station people must use the metro, which is too far away. The north part does have many Watertaxi stops and this public transport does improve the connectivity of the area but a Water taxi doesn’t have the capacity of a metro or tram.

Connectivity with the car is much better. The Waal- and Eemhaven are connected with several main roads which run towards the A4 and A15. Besides the A4 tunnel, there is also the Maastunnel which connects the Waal- and Eemhaven, with inner-city roads, with the north part of Rotterdam.

View of the municipality of Rotterdam
North part of Stadshavens will undergo a change in functionality. Part of the current companies will move to the second Maasvlakte. The Eemhaven will be intensified by placing companies which are currently in the Waalhaven. This will create space in the Waalhaven which will be filled by the fruit/ juice industry from the Merwede- Vierhaven and new harbour companies. These new companies will be different from current. The harbour company want to attract new high class harbour companies and head offices from harbour related companies.
STADSHAVENS SOUTH

Running plans in the area

RDM AREA
The former site of the Rotterdamse Droogdok Maatschappij (Rotterdam Drydock Company) RDM will be a center of education, research and innovative companies. Rotterdam University, the Albeda College, housing association Woonbron and Development agency Stadshavens teamed up for the redevelopment of the site near Heijplaat.

The abbreviation RDM gets a different meaning in the plans: Research, Design and Manufacturing (research, design and production). What students think can be made locally. RDM drydock, as the project is named, is aimed at companies active in renewable energy, (auto) mobility and floating construction.

According to the initiators, the RDM site become “a breeding ground for innovative companies and entrepreneurs. They assume that the direct collaboration with two schools, the gap between education and business can fill. Currently there are almost seven hundred students at the Drydock RDM site.

The area will be divided into four different sub areas.
1. Eastern part of RDM area. Cargo handling and marine (make) industry
2. Western part of RDM area. RDM campus education cluster, innovative companies around the special Dokhaven ensemble, innovative shipbuilding on the most western part of the RDM site
3. Heijseharbour. Waterways and recreation along the waterfront moorings for yachts in outfitting and testing phase
4. Quarantine area. Creative activity in a park setting

Fig. 2.22 RDM AREA Current

Fig. 2.23 RDM AREA future
(Structurevision Stadshavens, 2011)

Fig. 2.24 RDM

Fig. 2.25 Inside RDM
SOUND POLLUTION

Because of its function as an harbour area there is a lot of noise pollution in and around the Stadshavens. If areas within the Stadshavens will be redeveloped into residential area’s it must be clear which areas have the least noise pollution.

There is a difference in noise pollution between Stadshavens North and Stadshavens South. This can be explained by the functions. Stadshavens South is mainly used for container storage and distribution. This kind of activities happens day and night, every day of the week. This means that there is a constant noise pollution in the area.

Stadshavens North doesn’t have a 24 hour economy. This area is mainly used for storage and distribution of fruit and juices. Because the noise pollution is very low in Stadshavens North it creates a good opportunity for redeveloping the open spaces into residential areas.
## SWOT NORTH

**STRENGTHS**
- Available space
- Close by public transport node (Marconiplein)
- Lot of free space when companies move

**WEAKNESSES**
- Image of area
- Energy plant
- Industry will remain active for several years

**OPPORTUNITIES**
- Strong relation with water (quality)
- First signs of regeneration
- Dakpark improves connection with neighbourhoods
- Climate campus

**THREATS**
- Outside a dike so higher chance of flooding

## SWOT SOUTH

**STRENGTHS**
- Enormous amount of space
- Unique location
- RDM area.

**WEAKNESSES**
- Not close at a public transport node.
- Second project on south (Stadion area)
- Connection with surrounding is very poor.
- Harbour company has the ground till 2050

**OPPORTUNITIES**
- Strengthen surrounding areas.
- Special living environments

**THREATS**
- Sound pollution
- Densify of harbour area
LOCATION CHOICE

The analysis of the entire Stadshavens created a clear view of the possibilities within the area.

The south side of Stadshavens offers many opportunities for new (port-related) businesses. Because of the noise pollution and bad connections, this area is less suitable for dwellings. The present RDM site is a strong point of the area and this strength should be maintained and where possible expanded.

The north side of Stadshavens offers many opportunities to transform from a harbour area into a living / working area. The companies will not only be harbour related industries but can be anything as long as they are live friendly. The north side is easily accessible by car and public transport, it is also partly due to the small size, compared with Stadshavens south, of Stadshavens north (140 hectare of which is 27 hectare water).

Furthermore, there are several projects that are involved with the regeneration of the area. Because there is potential for the current industry in Stadshavens north to move towards Stadshavens south, it will create large open spaces in Stadshavens north. This displacement may take place as early as 2020 with the relocation of businesses in the Merwedehaven. The companies in Vierhaven will have to wait until 2025.

Now it's the task to create a more detailed survey and analysis of the Merwedehaven-Vierhaven. A look will have to be taken at the precise functions, problems, strengths and structuring elements of the area.
STADSHAVENS NORTH

The character of the Merwede-Vierhaven is typical for a harbour; big buildings, vast amount of space and the straight and wide roads create a clear structure. The entire infrastructure in the area is focused on the car.

The area lies entirely outside the main dike which means that this harbour lies higher than the surrounding neighbourhoods, which all lay behind the dike. Alongside the Merwede-Vierhaven are main roads situated which ensure a good connectivity with its surroundings. In the north located next to the Merwedehaven is the Schiedamseweg which runs from Schiedam towards the east. In the west the Vierhaven is connected with the Vierhavenstraat which runs from north to south. Both Schiedamseweg and Vierhavenstraat intersect at the metro station Marconiplein.

Functions in Merwede-Vierhaven

The Merwede-Vierhaven houses several functions. (fig. 2.30) Main function is the fruit and juice industry. In big storage halls the fruit and the juice are stored before its distributed. All these storage buildings are located along the quays. In the north, lies Marconiplein with the Europoints towers, these three towers, each 80 meter high, are filled with offices and educational functions.

There are some creative industry activities in the area, few artists use the empty buildings in the north as studio and there is an architectural office in the Vierhaven. The most notable buildings of the Merwede-Vierhaven are the two factories which are in the middle in of the area. One of these factories functions as an energy plant.
Area’s within Stadshavens North

The Merwede-Vierhaven can be simplified into five sub areas. The border of the area consists of the Western Yard, Entrance (Marconiplein) and Eastern Yard (Dakpark). The Nose area has the largest surface of all sub areas and it’s connected with all of the three border areas. The piers are the last sub area; both Merwede-Vierhaven piers have a connection with the yards. For every of this sub area the present situation is analysed as well for some areas a look will be taken into comparable areas in other cities to see what’s possible for that particular area.
Because of the present public transport node of tram/metro and bus, Marconiplein (Marconi square) plays a significant role for its surroundings. People from the surrounding neighbourhoods use Marconiplein primarily for transport. Marconiplein is characterized by big roads and the three 90m high Europoint towers. These Europoints towers mark the beginning of the Merwede-Vierhaven however currently do not act as entry point for the area.

Marconiplein can be seen as a square which main function is to accommodate traffic flows. This is not only because of the presence of a metro station but also due the presence of several roads which lead too Marconiplein thus increasing the connectivity. The relation between Marconiplein and the Europoint towers is at this moment weak. This weakness is caused by the present roads which both run between the metro station and the Europoint towers.

Because Marconiplein lays on top of the primary dike it lays higher than some of the surrounding neighbourhoods, which lay behind the dike. These neighbourhoods lay 7 meter lower compared to Marconiplein thus several stairs are made too create elevation points towards the square. Merwede-Vierhaven lay outside the primary dike however the height difference isn’t that big, only 1.5 meters.

Problem of Marconiplein

The Vierhavenstraat and Schiedamseweg lie between the Europoint towers and the metro station Marconiplein and create because of their enormous size a barrier. The pedestrian has a subordinate role compared to the motorist on Marconiplein and until this problem is solved Marconiplein cannot link itself with Merwede-Vierhaven.
Rotterdam Central Station area
Acting as an entrance point to an area, but on a higher scale, is train station Rotterdam Central. Currently the central station area is under redevelopment. One of the prerequisites is a clear route from Central Station to the inner city of Rotterdam by this clear route the central station area will link itself with the centre of Rotterdam. In the old situation the square in front of Central Station was filled with bus and tram stops. When pedestrians were passed these busses and trams and walked towards city centre they had too cross the major road Weena. This road is vital for the connectivity of Rotterdam but it was a major barrier and consisted with only a tunnel but it also had 2 three lane roads above ground. Much like the current situation in Marconiplein did the pedestrians have a subordinate role compared to the motorist.

In the future situation this subordinate role will change. In front of Central Station the bus-tram stops are removed and the Weena in front of Central Station will be placed underground so above ground a connection can be made with the boulevard at the other side. This boulevard runs from Central Station to the centre of Rotterdam. This route will be accentuated by trees and sight lines.
The Western Yard, in the past used for trains too (un)load their cargo, is currently a fallow area which has all its rails removed. The area is roughly the same size as the eastern yard (1000 meters long and 90m wide) and like the whole Merwede-Vierhaven this area lays 1,5m below the adjacent Schiedamseweg. There are some neglected buildings present in area; most of them are used as studio and workplace for artists. The western yard acts like a missing link in two ways. The first one is in the structure of the Schiedamseweg. Along the entire Schiedamseweg a urban character is present except when the road passes the western yard, the urban character disappears due the current fallow character of the eastern yard.

The second way the area acts like a missing link is that in its current state the area acts like a 90 meter wide barrier between the Merwedehaven and the Schiedamseweg. The present tram line runs along the entire area however currently there is no possibility to enter western yard from the Schiedamseweg. The neighbourhood behind the dike lays 9 meters below however due some stairs the people can reach the tram very easily. As previously described in the future the municipality wants to turn this area in a culture zone.
The Eastern Yard is an area which is already in development. It will be developed into a multifunctional park and is completed in 2014. This park will be 1km long and 80m wide. Beneath the park there is room created for commercial functions like a supermarket, big shops and companies. Dakpark will start at Marconiplein and will have a relation with this square due a building called the “Head Building”. This 18,000 m² building will create space for educational functions and companies. The end of Dakpark will be accompanied with a building which will have a culture function, theatre.

Dakpark is very important for the area, it will create jobs and several functions will help the people in their daily needs. Dakpark will also play a big role in connecting the neighbourhood, Bospolder with Vierhaven. There are several places along the park where it's possible to descend from the park to the street.

The profile of Vierhavenstraat will change as well; the current character of the road is very hard with a lot of stone. The future profile will be greener due the placement of trees on both sides of the road.
The Merwede-Vierhaven has total of 5 piers, each with different measurements. Main function of these piers are acting as a docking place for ships. These ships can unload their cargo which is stored at one of the many present storage buildings on the piers. The two piers in Merwedehaven are property of one company. Both piers are not publicly accessible. The piers in Vierhaven are a bit more fragmented. One company uses almost 50% of the surface of the piers. The remaining 50% is used by several companies. In the near future the piers of Vierhaven can play a bigger role for Rotterdam since Dakpark will improve the connectivity between the Vierhaven and the surrounding neighbourhoods.

Since most of the buildings on the piers consist of storage buildings they add no architectural quality to the surroundings, there however are some exceptions. Some present buildings have certain architectural qualities or functions like "architectural" offices, which can be preserved and used in the future. Multiple types of piers, with different types of road connections, create opportunities to develop each pier with a different identity and function.

Besides the piers, the water between the piers is important as well. The water between the piers has roughly the same surface as the piers. Currently used by ships, when the companies are moved, opportunities emerge for the water basins too hold new functions like living and working.
Inspiration project:
Eastern Harbour Area (Amsterdam)
The several piers in the Merwede-Vierhaven create opportunities for new residential areas but also it creates opportunities for different type of living environment on each single pier. This has been done before, for example in Amsterdam in the Eastern Docklands. With the use of different building typology, road network and re-use of buildings each of four piers has a different character.

The upper two piers lie back to back and both have a different character. The western part, Java Island, consists of five residential blocks where each apartment has its own architectural character, the pier itself is monofunctional. The infrastructure lies around the building blocks alongside the quay. The building blocks create a green character on this pier.

The eastern part of the pier, KNSM Island, has an different character. On this pier there are old buildings which have been re-used and there is some kind of multi-functionality because of some present offices and bars. Main typology are apartments as well but not every apartment is situated in a building block. The infrastructure is different as well; the main road doesn’t run along the quay, it runs in the middle of the pier. This creates a stronger relation between the buildings and the water since is easier to reach.

The two piers below Java and KNSM, Borneo-Sporenburg, are again completely different. The main building typology on both piers are single family houses, there are 3 building blocks which consist of apartments. In these building blocks are some offices and services located which are needed for the area. There are many one-way roads on these piers and because of the many single family houses these two piers have a very stony character.

What all the piers have in common is that there is a very high architectural quality present. Most of the buildings have their own identity and characteristics which improve the overall quality of the area.
DIFFERENT TYPE OF ROADS

- Road along the QUAY JAVA
- Green Main road KNSM
- One-way street Borneo Sporenburg

ARCHITECTURE

- JAVA
- KNSM
- Borneo sporenburg

REUSE OF BUILDINGS

- New function in old harbour buildings
- Living in old harbour building
- New function in old building
THE NOSE

The Nose is the biggest area in the Merwede-Vierhaven and plays a significant role in the harbour. The area is an extension of the entrance and there is a mix of companies present. The most prominent companies are the energy plant of Eon, which lies in the middle of the Nose, a bit south of this plant, is a factory from Ferro. Around the plants are several small scale companies. Along the quays there are several storage and cooling buildings placed.

The factories provide a rugged appearance of the area and the preservation of these buildings even offer opportunities for regenerating the area into a new living / working area. To fit within the future residential area the current functions of both factories must change.

Although the Nose doesn’t have many roads, the present roads make sure that this area is proper connected with its surroundings. Keeping these roads are vital during the regeneration since they help the connectivity.

Because of the good connectivity and the size of the Nose, 1100 meters long and 565 meters wide on average, chances emerge for not only living functions but also working and leisure. The size of the area also creates opportunities for urban mass and high densities.
**Inspiration project:**
**Haveneiland IJburg (Amsterdam)**

Haveneiland (Harbour Island) is part of the extension of Amsterdam called IJburg. This area consists of several man made islands which are placed the lake IJ. Haveneiland is the biggest island of all and can be divided in Haveneiland West and Haveneiland East, the whole island is currently in development. Haveneiland West is roughly the same size as the nose (fig. 2.67/2.68).

Haveneiland West is characterized by a clear linear structure, because of this structure there are everywhere clear views on the water. The relation between the island and water is further enhanced by adding canals which run through the island. The space between the roads is filled with buildings, facilities and parks. The island is accessible by a main road which also provides room for the tram. Alongside this main road multi-functional buildings are placed which hold companies in the ground floor, above these companies are apartments situated. Because of the grid structure the main typology on Haveneiland are apartments in building blocks. These building blocks however are very versatile so within these building blocks are apartments, facilities and single family houses mixed. (Fig. 2.73)

The relatively dense housing consists of buildings of four-six floors on a few places the height goes up to twelve floors. This makes Haveneiland west a typical urban neighbourhood. When finished Haveneiland west will have around 3600 houses, combined with Haveneiland East the whole area (150.6 hectare) will create room for 7062 houses and 263500m2 companies. (IJburg : Haveneiland en Rieteilanden, 2001)
CONCLUSION

Stadshavens has much potential for attracting and holding new features. There is also being a big difference between north and south. South will focus on knowledge, such as the RDM area, and attracting and holding new businesses.

North will develop itself in the coming years into a living / work area that will act as an integral part of Rotterdam. There are some problems to be solved before this can happen. Linking the area with the current structure will be a challenge but Rotterdam already started solving this challenge with the construction of Dakpark. Marconiplein and Western yard must be changed to create connections with the surrounding neighbourhoods. These connections will be focused on pedestrians and cyclists. The connection by car is already good.

The analysis of the different areas has revealed some problems such as barriers to Marconiplein but also opportunities, like the water between the piers. By combining the important infrastructure running projects and special buildings a map has been created which shows the structural elements. These elements may function as a guide in the design.

The regeneration of the Merwede-Vierhaven will be a long process and the question is whether there are rules and tools that have a positive impact on the regeneration of the area.

The theoretical framework will try to answer this question.
3 THEORETICAL FRAMEWORK
INTRODUCTION

The current function of the Merwede-Vierhaven will disappear and opportunities will emerge for placing new functions. The challenge is to create certain preconditions which ensure a good outcome in the regeneration process of this area. For the theoretical framework a look has been taken in the regeneration process and if there are "rules of thumb" which can be used in the regeneration of Merwede-Vierhaven.

Cities undergo constant change. They are never static, never finished, always adjusting to new circumstances. (Couch, 2003) The regeneration of old city neighbourhoods and industrial areas is the answer for the ongoing sprawl of the city. Cities tend to grow beyond their borders. New residential, commercial or office areas are built on the periphery. By doing this the boundaries of the cities keeps shifting away from the city centre. In this situation less and less attention is being paid towards the city centre and older neighbourhoods which results in decline. (Buchel and Hogervorst, 1997) Regeneration is a process which is dynamic. Since the regeneration process is often shaped by the policy in a city and policy is made and carried out by city officials, process is subject to political change. (Buchel and Hogervorst, 1997) Also every city has its own problems and policies, which creates a different regeneration process every time. In this theoretical framework an attempt is made to find out if there are any 'rules of thumb' for the regeneration process. In other words, too find out if there are similarities between the different books written about regeneration. During this review I will try to find out what regeneration exactly is and why it is so important. After establishing the need of regeneration, the theoretical framework will lead to an overview of aspect of the regeneration process which appears in several books. But not only the positive side of regeneration will be explored, the negative side of the process will be discussed as well to give a balanced view of the pros and cons of regeneration.

1 The city

The city is a self-regenerating organism. And not only the buildings, streets, harbours and districts are part of this process but also its inhabitants, the local government, commerce and its urban policy. This organism comes into being, grows or deteriorates but seldom dies; a city can repair itself and embark on its second or third life through business, industry and culture. (Buchel and Hogervorst, 1997).

As Kevin Lynch stated, city forms, their actual function, and the idea and values that people attach to them make up a single phenomenon (Lynch, 1981). A city rarely dies, for example there have been cities in the past that were abandoned or have fallen into decay because of draught and even when a city, for example Hiroshima or Nagasaki, is razed to the ground, people tend to return and breathe new life into these cities. (Buchel and Hogervorst, 1997).

In contrast with the 'immortality' of the city, the buildings and district in a city are 'mortal'. Buildings for example have a life expectation of about fifty years (Buchel and Hogervorst, 1997). Districts can disappear because the spatial environment of that part of the cities changes. The city is eroding; a process which is often caused by policy-makers (Buchel and Hogervorst, 1997) Policy is a thing which is subjected too much change. A policy determines the city's appearance, whether people are free to live and work and whether it has a pleasant atmosphere (Buchel and Hogervorst, 1997). As Jonathan Barnett states: Neighbourhoods are not created by planners or builders, but by networks of people who know each other, share some of their social life, help each other out in emergencies, and get together to manage community projects (Barnett, 2003).

This paper will take a look into the processes involved with regenerating old area's within a city. What persons are involved and which certain 'rules' are applied in regenerating.

2 What is urban regeneration?

The term urban regeneration cannot be explained with one single definition. Roberts and Sykes (2006) define urban regeneration as: comprehensive and integrated vision and action which leads to the solution of urban problems and which seeks to bring about lasting improvement in the economic, physical, social and environmental condition of an area that has been subject to change. This definition encompasses essential parts of other people views on urban regeneration like Lichfield: 'a better understanding of the process of decline' and 'agreement on what one is trying to achieve and how' (Lichfield, 1992). A part of the view from Hausner is used. He emphasises the inherent weaknesses of approaches to regeneration that are 'short term. Fragmented, ad hoc and project-based without an overall strategic framework for city-wide development' (Hausner, 1993) and finally Donnison: 'new ways of tackling our problems which focus in a co-ordinated way on problems and on the areas where those problems are concentrated' (Donnison, 1993). Buchel and Hogervorst, (1997) describes regeneration as a tapestry of interwoven structures, trends, visions and developments of the most diverse nature. It mirrors the city's complexity. Ian Colquhoun states that urban regeneration is not just a matter of renewing the housing stock. In addition, a whole new range of facilities (welfare, school, shops, urban parks, pay areas, etc) have to be residential environment, local businesses, industries, and social and cultural amenities. (Colquhoun, 1995)
Roberts and Sykes (2006) developed a scheme in which the process of Urban Regeneration is shown, this scheme is made by evidence from the history of urban change and policy.

Economic analysis
- e.g. structure of local economy, income flows, employment and output, economic linkage

Social analysis
- e.g. analysis of social stress, deprivation, skills and capabilities, community facilities, ethnic and other minority issues

Environmental analysis
- e.g. urban physical quality, environmental resource use, waste management, pollution, designed features, landscape

External drivers of change
- e.g. macro-trends in economy, European and national policy, strategies of competitor cities

Neighbourhood strategies
- e.g. community action, inner area renewal, local social facilities, community led planning, local environmental schemes

Application to an individual urban area
- city wise analysis
- neighbourhood characteristics
- existing plans and policies
- specified goals and aims
- future requirements

Internal drivers of change
- e.g. existing strategies, availability of resources, preferences of residents, status of partnerships, leadership and champions

Training and education
- e.g. skills enhancement, community training, enhanced research and development, support for schools and school-based facilities

Physical improvements
- e.g. city-centre improvement, estate action, housing improvement, enhanced urban design and quality, heritage

Environmental action
- e.g. waste management, energy efficiency, urban greening, company based action, stimulating green growth

Economic development
- e.g. support for new existing firms, improved infrastructure, innovation, economic diversification

Fig. 3.1 The Urban Regeneration Process (Roberts and Sykes, 2006, p20)

3 Need for urban regeneration
Urban regeneration is used when areas suffer from some level of urban decay. Urban decay exist in an area when the environmental standards have sunk to a level which does not support an acceptable quality of life and which fails to attract new investment of industry or commerce. (Institution of Civil Engineers, 1988) Urban decay mostly starts when the local economy goes into decline; this typically starts in the manufacturing or mining sectors. (Institution of Civil Engineers, 1988) In other words, the people who have a low education and income are affected the most and tend to leave the areas, which lead to depopulation and disinvestments in the area. According to Colquhoun (1995) sparked in 1970 the movement of industry from the West towards the Far Eastern, due lower manufacturing costs, the urban decay in cities. People with wealth left the inner city areas and moved towards the sub-urbs. These rapid new development in the suburbs opened up good urban apartments and houses to people who had been living in the worst housing (Barnett, 2003) These sub-urbs had too grown rapidly to accommodate the flow of people. This was especially in the USA an issue since people got more and more mobile due the car.

Jane Jacobs (1962) describes this situation as ‘the endless new developments spreading beyond the cities are reducing city and countryside alike to a monotonous, unnourishing gruel” (Jacobs, 1962)

If nothing happens with derelict areas within or close by the city centre they will create holes in the city structure will appear, weakening the city and creating social problems. (Institution of Civil Engineers, 1988)

Also city are high dense areas with not only a lot of buildings but also work-space, services, public transport and it creates a lively community. As stated by Colquhoun (1995) suburban areas cannot support these functions, since those areas are thin and dispersed the people will have to rely on their cars, creating not only more pollution but also congestion and all those roads eats up valuable green spaces. Rogers and Fisher (1992) supports the importance of a city: “urban density provides the best setting for the easy, face-to-face interaction and communication that generates the scientific, technological and cultural creativity that is the engine of economic prosperity in the post-industrial age. Economists and urban planner once thought that telecommunications would render redundant the dense, with its downtown financial district, now know otherwise” (Rogers and Fisher, 1992). The deteriorated areas serve both as a tragedy and an opportunity. The tragedy is that the people with the least resources have been concentrated into badly deteriorated neighbourhoods and public housing projects. The large amount of vacant land and buildings (...) is the opportunity (Barnett, 2003)

4 Instruments for regeneration
Regeneration is a process which is very flexible, there are no standard rules stated in a book. Every city has its own problems and opportunities. However there are certain ‘rules of thumb’ which can be used in regenerating old residential areas, derelict business parks or harbours. Successful urban regeneration cannot be achieved in a vacuum. It requires cities to produce a comprehensive strategy based on local needs and opportunities. It also needs commitment and flexibility of approach to respond to new opportunities and changing circumstances as they arise. (Colquhoun, 1995)
4.1 Removing constraints
Besides the well known constrain of high contamination and derelict sites. Roberts and Sykes (2006) describe some other less obvious constraints. An area where the land is held in many small sites, which creates a problem for current development, for example businesses wants to expand but don’t have room for it, and is very difficult and costly to assemble. These kind of areas which are made up by small sites are usefully found in older industrial areas and are called ‘brownfields’ “Brownfield’s are abandoned, idle or underused industrial or commercial where expansion or redevelopment is complicated by real or perceived environmental contamination that can add cost, time or uncertainty to a redevelopment project.” (Davis, 2002)
Connectivity is another useful instrument for regeneration. Many regeneration areas are inaccessible and therefore a key response is to open up areas with new connections (Roberts and Sykes, 2006) What the government should do is obtain money to repair these problems, using money from federal programs, as well as local funds (Barnett, 2003) With the money sound barriers can be constructed to lower sound pollution, brownfields can be cleaned up and parks and other green can be revived.

4.2 Culture as an instrument for regeneration
Culture is playing more and more an important role in regeneration. Buchel and Hogervorst states that policy makers consider too use culture as an instrument to survive the competition with other cities. Culture is more than simply upgrading the buildings and other facilities associated with the consumption of art and culture. (Buchel and Hogervorst, 1997) In the past it seemed that producers of culture are responsible for stimulating climate that attracts other trend-setters. This so called creative class is useful instrument too kick start regeneration. Creative class can be described as a class which consist of people who add economic value through their creativity (Florida: 2002, 68). According to Florida many occupations fits in the creative class, like scientists, university professors, poets but also artists, actors, designers, architects. Ian Colquhoun describes the way how the creative class can regenerate a neighbourhood as follow. The magic recipe for urban revitalization (...) seemed to consist of a new kind of creative partnership (…) between the city government and the private sector. (…) Yuppies or Your Urban Professionals- would gentrify the bighted Victorian residential areas close to downtown, and inject their dollars into restored boutiques bars and restaurants. Finally encourage the regeneration of the derelict area west of the inner city. Due this flagship the area reconstructed the image of the city, both nationally and internationally, as a centre for business tourism (Loftman and Nevin, 1996) In this case a big building uses culture to start regenerating not only itself but also the surrounding areas.

4.3 Flagships projects
When regeneration starts in a certain area some cities tend to let this know too the world. This can happen with flagship projects. These very visible new developments can play a significant role in establishing a changed image for an area. (Roberts and Sykes, 2006) In Birmingham is a classic example of a flagship project is explained by Loftman and Nevin (1996). In Birmingham the Birmingham Symphony Hall and Convention Centre was build too support and encourage the regeneration of the derelict area west of the inner city. Due this flagship the area reconstructed the image of the city, both nationally and internationally, as a centre for business tourism (Loftman and Nevin, 1996) In this case a big building uses culture to start regenerating not only itself but also the surrounding areas.

Flagship were characteristic of the approach to urban regeneration and their key feature is that they are large enough to have a major visible impact on the immediate area and so change the context for further investment by reducing the negative image and run-down nature of the area. (Roberts and Sykes, 2006)
Another example is the Hotel New York on the Kop van Zuid in Rotterdam. The Southbank was a deserted area and Rotterdam wanted to develop this area. Hotel New York was one of the first initiatives to make the area more involved with the city. Because Hotel New York people already started too use the Kop van Zuid before the Erasmusbridge connected it with the city centre.

There is a difference between the two flagship projects. Hotel New York was small, privately while the flagship in Birmingham was a very expensive project that the regeneration of the area started. It is therefore important to choose what type flagship is chosen. This choice will also depend on the area. If the area is now not part of the urban structure small-scale projects may be better than a huge project where success is not guaranteed.

4.4 Mobilize the community

According to Steven Tiesdell, the responsibility to revitalize obsolete areas of cities lies with the public agencies, major land owners, residents, businesses and local amenity groups that have a stake in their revitalization. (Tiesdell et all, 1996) When land owners or public agencies start revitalize areas most of the time this will result in massive projects, however sometimes it's very efficient to mobilise the community, when they live in poor housing estates, to begin improving the physical condition of the housing itself (Roberts and Sykes) A positive side of this approach is that it gives the local people a opportunity to get directly involved with the development plans and with this small scale approach the same results can be reached as massive renewal.

Buchel and Hogervorst agree with the improving the participation of the inhabitants of the city. The inhabitants create the city through their behaviour. Staying at home has as much influence as participating in city life. The inhabitant's behaviour can work against a city’s decline and promote regeneration.

(Buchel and Hogervorst, 1997) There is a big difference between the approach of the authorities and city inhabitants. Authorities generally approach an area which has to be regenerated in a conscious and large-scale manner. By contrast, when the city’s residents set developments plan in motion, their approach is mostly spontaneous and intuitive. (Buchel and Hogervorst, 1997) The city of Rotterdam has 22 separate designated regeneration areas and since 1974 a total of 45000 pre 1914 housing units have been either renovated or replaced. The way Rotterdam tackles this problem? The organization of the regeneration problem: half of the members of each project team are officials and half are local people appointed by the neighbourhood groups. (Colquhoun, 1995) With this strategy the local people actively contribute to the upgrading of the rundown areas. Most of the time they know their own neighbourhood better then the professionals which task is too improve the neighbourhood. Thus they can identify problems much faster.

4.5 Re-use as instrument for regeneration

Along with the construction of culture temples and culture complexes, policy-makers are adopting a great many other measures to increase the city’s cultural importance and to make it more attractive to tourists. (Buchel and Hogervorst, 1997) By re-using old buildings the identities of neighbourhoods are preserved. First and foremost it includes not only a number of historical monuments of architectural merit, but also the majority of 19th and 20th century harbour buildings. (Buchel and Hogervorst, 1997) Problem with re-using old buildings is that a lot of time such buildings are in a bad. It can be difficult to find investors (...) because they involve ‘all that old rubbish’ (Buchel and Hogervorst, 1997)

4.6 Experimental zones

Finally too stimulate the regeneration of a area is to create special ‘enterprise’ or ‘experimental zones’(Buchel and Hogervorst: 1997, 20) A ‘enterprise zone’ is an area with objected of stimulating industrial and commercial activity by giving substantial financial advantages to developers within the zone. (Roberts and Sykes, 2006) Positive side of this instrument is that companies and private individuals can be attracted to certain areas by giving them tax benefits and easing of laws and regulations.
According to Roberts and Sykes (2006) these so called ‘enterprise zones’ can create some dangers. First, there is a danger of clustering activity and consequently distorting land and property markets in favour of certain area. Second, in the absence of a co-ordinated strategic approach, competition can arise between different agencies which are promoting different parts of the urban region. (Roberts and Sykes, 2006)

5 Negative side of regeneration
Regenerating a derelict neighbourhood or industrial areas has a positive influence on the total looks of the city. There can be however a negative side of urban regeneration which can be very devastating for certain people.

This negative side is called ‘gentrification’. Sociologist Ruth Glass defined the term gentrification which is described by Neil Smith (1996) ‘One by one, many of the working-class quarters of London have been invaded by the middle classes- upper and lower. Shabby, modest mews and cottages – two rooms up and two down- have been taken over, when their leases have expired and have become elegant, expensive residences. Larger Victorian houses, downgraded in an earlier or recent period –which were used as lodging houses or were otherwise in multiple occupation – have been upgraded once again (...) once this process of “gentrification” starts in a district it goes on rapidly until all or most of the original working-class occupiers are displaced and the whole social character of the district is changed.’(Smith, 1996)
This long definition and description can be simplified by Barnett’s (2003) statement.
‘Gentrification is a wry description of a process that improves the neighbourhoods but displaces the poorer tenants.’(Barnett, 2003)
Gentrification mostly happens in old neighbourhoods, when an old industrial site/harbour is being regenerated, the areas mostly consists of old empty buildings. If there is a company present, its relatively easy to relocate the company to a other industrial area, or create a space in the new regenerated area.

6 Conclusions
Reviewing the term regeneration was not an easy task. As said before the term is very broad and a lot of people have their own view on the subject of regeneration. However I did filter some ‘rules of thumb’ when reading literature. Issues as connectivity and removal of constraints, like sound/air/brownfields, are a pre if you want to regenerate the area. If an area suffers from a bad image, or the city itself wants to reinvent them self, sometimes a statement is necessary. This statement can come in form of a big building or the creat-
INTRODUCTION

During the research several tools has been found which can help in the regeneration of the harbour area. First tool are the elements of quiet urban living. This living environment is needed in Rotterdam thus the elements of this living environment must be used in order to create this environment.

Besides the elements of the quiet urban living, there are a number of important elements in the Merwede-Vierhaven present. These structural elements can help in development of the area. During the theoretical research several tools appeared which has been described in the previous chapter. From these tools three tools has been selected for this area. These are the tools; removing constraints, flagship project, re-use of buildings and culture.

Removing constraints has been chosen because the Merwede-Vierhaven currently acts as a separate part of the city, mainly because of its current function. If the area wants to attract houses and offices, connections with the surrounding neighbourhoods and the city must be made.

Flagship project can act as a kick-off project for the regeneration, currently there are already several projects in and around the Merwede-Vierhaven in process and these projects can help in the regeneration.

Re-use of old buildings can create a link between the current function of the area and the future function. By keeping old buildings it can help in creating a new identity for the area as a whole. Furthermore re-using buildings will create opportunities for new companies to enter the area. From these new functions the surrounding area’s can be regenerated, which will eventually create a regenerated area.

Culture as an instrument for regeneration can work for this area when its combined with re-use of buildings. By re-using old buildings companies from the creative industry may enter the area and help with starting the regeneration process. This tool will over time lose its value because of the rising ground prices. The creative companies will move away and make room for other permanent companies.

The tool mobilize the community isn’t necessary because the Merwede-Vierhaven is an industrial area and not a residential area which need to be regenerated. Experimental zones are not needed since there are already several projects in process which will ensure new companies and jobs.
PRINCIPLES
Analysis provided several principles which the area must meet. Too create a quite urban area, Merwede-Vierhaven must transform from a industrial area into a area which combine working/living and recreation.

Too help regeneration process the Merwede-Vierhaven must improve its connection with the surroundings, not only by car but also for pedestrians and cyclists.

Climate Campus can help putting Merwede-Vierhaven on the map and create a new knowledge centre.

PRECONDITIONS
Several preconditions are developed which will help the process of design.

Clear structure
People always need to see, feel and smell the water also when they are in the middle of the Nose. This can be achieved by a clear structure.

Multifunctional
To achieve a quiet urban area a certain grade of multifunctionality must be present in the area.

Marconiplein entrance point
Marconiplein acts as an entrance point for the Merwede-Vierhaven but it is also vital for connecting and continuing structures like the urban structure, which runs west-east, and the green structure going from north to south.

Re-use of buildings
Several buildings in the area provide opportunity too be re-used for other functions. Re-using these old buildings can be the first step in regenerating the area.
CONCEPT

Functions
Merwede-Vierhaven will hold different types of functions and living environments. The nose will, because of its size, be used for multifunctional buildings which combine living with working and leisure. A green park will create a connection with Marconiplein and Dakpark across the Nose towards the Merwedehaven. The piers will be mostly monofunctional area’s which will combine water and living creating living environments which are currently not present in Rotterdam. The Tip of the Nose is special places which can be used to create a ‘icon project’ not only a icon because of its function but also a icon by using special architecture.

Combining the structural elements
By continuing structural elements, like the urban character of the Schiedamseweg and the green character of the Vierhavenstraat, the Merwede-Vierhaven will start acting more as an integrated part of the city. This will be more improved by creating proper connections between the harbour and its surrounding neighbourhoods. Reason for the location of the park is that in its current form it will start at the beginning of Dakpark, so the Head building will not only mark the start of Dakpark but also of Vierhavenpark. Second reason is that the Vierhavenpark because of routes and sightlines the park will be easy accessible from Marconiplein. The park continues to run through the middle of the Nose but also in between the two factories which will be kept in the new structure. This way both factories will be linked with the adjacent main road but also with the public space. The piers won’t be an integrated part of the main structure, by doing so the character on the piers will be quiet living and only attract local traffic.

Connecting Special places
A connection between Marconiplein and the Tip of the Nose is needed because the tip of the Nose will be filled with several services which can function on the scale of the city. Too create enough opportunities for the services to function properly; several types of connections have to be created. Two roads (3 and 4) will run towards the tip of the nose. However there will be a difference between them. Connection 3 will also create a pedestrian link between the Tip of the Nose and the tram on the Schiedamseweg. The park (5) will create a link with Marconiplein and Dakpark and at the end the park will cross and link itself with the connection 3. These different types connections will ensure a proper connection between the remote tip of the Nose and the borders of the area.
DESIGN

PIERS
3200 houses
52,3 hec
61 woningen per hectare

WESTERN YARD
Commercial/horeca - 22500 m²
895 houses
9,5 hectare
94 woningen per hectare

EASTERN YARD
Commercial - 25,000 m²
Office - 18.000 m²

MERWEDE-VIERHAVEN
8695 houses
140 hectare
62 houses per hectare.

CLIMATE CAMPUS
Normal offices - 92500m²
Floating offices - => 950m²

MARCONIPLEIN
Europoint towers - 150000m² x 3
Horeca - 5000m²
New office space - 247688m²

NOSE
4600 houses
48 hectare
95 houses per hectare

Companies/commercial - 3000m²
Eon Factory - 28000m²
Ferro Factory - 18000m²
Pool + Hotel -112500m²

The area has an average density of 62 dwellings per hectare. However each sub area has its own density. The density on the piers is around the average mainly because the water between the Piers is now used as well thus bringing down the density. The density on the Nose and Western Yard are respectively 95 and 94 dwellings per hectare, well above the average. In quiet urban living is reasonable amount of green one of the preconditions, in order to achieve this. The main building typologies in both areas will be building blocks. These buildings blocks can hold a lot of houses and still have room left for (private) green.

Fig. 4.17 Borneo-Sporenborg vs Java Island (A’dam) Same density, different amount of green

Fig. 4.18 Design extracted
CONNECTIVITY ON CITY SCALE

Currently the Merwede- Vierhaven area is separated from the city by the dikes. The analysis showed that there are several commercial companies at the edge of the area alongside the main roads which are used by the people. However the people won’t go any further into the area because, with the current functions in the area, they don’t have any reason to do so.

Disconnecting the Vierhavenstraat with the Schiedamseweg and putting it underground will lower the amount of barriers between metro station Marconiplein and the Vierhaven. This means however that it won’t be possible to change directions from the Vierhavenstraat to the Schiedamseweg and vice versa. This is not a big problem since the main roads of the Merwede-Vierhaven provide a suitable connection between the Vierhavenstraat and Schiedamseweg, in this new situation the Merweden-Vierhavenhaven will linked with the city structure and stops functioning as an outsider.
Besides a good connectivity by car a good connectivity with the public transport is important. Currently the borders of the area are well connected by trams and metro. The main roads on the nose create a good connectivity for the car but also offer opportunities for public transport. Types of public transport which can use these main roads are either a tram or bus. Bus has been chosen because this type of public transport is much cheaper than a tram. Furthermore by relocating the tram line it would mean that a lot of people which travel towards Marconiplein would have a big increase of travelling time because the tram must travel through the whole Merwede-Vierhaven. By connecting the bus with Marconiplein the same good connectivity is created but with a much lower cost.

Second type of public transport which will be used in the Merwede-Vierhaven is the water taxi. This transport uses the river Maas too connect the harbour areas with each other and with the city centre. Several stops will be created in the Merwede-Vierhaven. The most special one will be a stop in the Nose close at the two factories and in walking distance of Marconiplein.
FLAGSHIP PROJECT

Climate Campus

The Climate Campus will be one of the major players in the Merwede-Vierhaven. The location of the Climate Campus will be situated around the HAKA-building. By acting like a ‘Flagship Project’ it will help in kicking off the regeneration process of the area. Climate Campus will help by strengthening the image Rotterdam: city of knowledge but it will also help in creating a new identity for Merwede-Vierhaven. Main pillars of the Climate Campus will be renewable energy, building with and on water and it will have a relation with the RDM area, which is located on the other side of the river Maas.

On the city scale an opportunity for the connectivity of the Merwede-Vierhaven with the city appears. The Climate Campus is located in the extension of the Kennis-As. By creating a connection between the Kennis-As and Climate Campus a boulevard is created which runs from the Vierhaven all the way towards the east of Rotterdam. This axis connects several important knowledge centres with each other.

Because Climate Campus is all about water, durable and renewable energy the campus will be situated not only alongside the water but also on the water. By excavating the soil the water will reach the Vierhavenstraat again, like it did when the Vierhaven was constructed thus bringing back the old structure of the harbour. This new situation also makes sure that the Climate Campus has its own identity, a mixture of traditional offices and offices that float on water.

Floating offices creates a grade flexibility, by adding more floating offices more workspace for the Climate Campus emerges, its possible that the Climate Campus starts with two or three floating offices and when the Campus grows more floating offices can be placed in the water.
Fig. 4.25 Vierhaven in 1973
Fig. 4.26 Current situation
Fig. 4.27 Fase 1 of climate campus
Fig. 4.28 Fase 2 of climate campus
Fig. 4.29 Floating buildings
Fig. 4.30 Floating Office Almere
Fig. 4.31 Floating Offices
Fig. 4.32 Floating buildings
Fig. 4.33 Profile climate campus
IMPROVE CONNECTIVITY

Eastern Yard

Dakpark is part of project Parklane. In this project the aim is to create a continuous connection from the A20 towards the city centre of Rotterdam. By improving the flow of traffic, the connectivity of Rotterdam West will improve as well. The neighbourhoods surrounding project Parklane will benefit dramatically from the improvement in connectivity, traffic congestion will be reduced and the road safety and air quality will be improved.

Several parks, Dakpark, Euromastpark are connected with Parklane and a boulevard appears which runs from east to west. This boulevard runs for a great deal alongside a other citywide project, the previously mentioned Kennis-As.

By combining both projects a route appears through Rotterdam which connects both the Climate Campus and Vierhaven with the city of Rotterdam.

On a lower scale Parkstad will improve the connectivity between Vierhaven and Bospolder by several routes which runs across Dakpark and Vierhavenstraat.
**IMPROVE CONNECTIVITY**

*Marconiplein*
First objective is reducing the barriers between the metro station and the Europoint towers. This is accomplished by disconnecting Vierhavenstraat from the Schiedamseweg and putting a part of Vierhavenstraat below the ground. By doing so the main idea of Parklane is still intact, a continuous route from the highway towards the city of Rotterdam. Above ground without the Vierhavenstraat the amount of barriers has been reduced by 50%. Because Schiedamseweg doesn’t have a direct connection with the Vierhavenstraat, the profile at Marconiplein will be narrowed down too decrease the barriers even more.

*Removing barriers*
First objective is reducing the barriers between the metrostation and the Europoint towers. This is accomplished by disconnecting Vierhavenstraat from the Schiedamseweg and putting a part of Vierhavenstraat below the ground. By doing so the main idea of Parklane is still intact, a continuous route from the highway towards the city of Rotterdam. Above ground without the Vierhavenstraat the amount of barriers has been reduced by 50%. Because Schiedamseweg doesn’t have a direct connection with the Vierhavenstraat, the profile at Marconiplein will be narrowed down too decrease the barriers even more.

*Routes*
To create a logical route between Marconiplein, Europoint towers and Dakpark the difference in heights is used too create routes. Part of Marconisquare lies 1,5m below the Schiedamseweg. By creating stairs on strategic places people will be guided towards the important routes, instead of giving them infinite solutions. Where there is no stair a green taluut will be created.

Marconiplein acts as hub of the area and is also very important in the continuation of not only urban structure but also of the green structure. To link Dakpark and park, which lies 7 meters below Dakpark, an avenue of trees has been designed. This avenue will guide people from Dakpark towards the metro station and from the station towards the northern park. This park will be accessible by a large staircase.

*Entrance (Euro)Point.*
Creating sightlines and routes between the Europoint towers and Marconiplein will ensure that the towers will start acting as a real entrance for the Vierhaven. The routes which run from Marcoplein will go between the towers towards the Vierhavenpark. Behind the towers new offices and cafe’s will be placed too accentuate the routes and create a clear border between square and park.

*Creating small spaces*
By putting the Vierhavenstraat below the ground a big area in front of the Europoint towers emerges. The size itself is in relation with the big Europoint towers however too create a lively square two big bins (15x30m) are placed. One of these bin will be filled with green and trees and people can sit alongside the green and enjoy the sun. The other bin is filled with water, people can also sit alongside this bin however with winter, when most squares are deserted, this bin can be used for ice-skating. Through these bins the open space, is divided into smaller areas and provide space for people to relax.
Fig. 4.41 Current Barriers

Fig. 4.42 Barriers in new situation

Fig. 4.43 Present situation view from metro station marconiplein

Fig. 4.44 Future situation view from metro station marconiplein
METRO EUROPOLITAN

Fig. 4.45 1 Profile marconiplein current

Fig. 4.46 2 Profile marconiplein future

Fig. 4.47 3 Connection between spangen and marconiplein

Fig. 4.48 4 Section of tunnel
IMPROVE CONNECTIVITY

The Western yard will act as a unifying factor between the Schiedamseweg and the Merwedehaven.

The tram which runs alongside the Western yard provides an easy access to the area. The analysis showed that the entire Schiedamseweg has an urban character until the road passes the western yard. Therefore the western yard will be developed into an area with a mix of living and working; several existing buildings will be preserved and fitted in the new structure. The structure is formed by several important pedestrian routes which either run from the tram or from several present main routes in the Oud-Mathenesse. By lifting these routes from Oud-Mathenesse over the dike to Merwedehaven a connection will be created. This is also the case with the routes from the tram to the Merwedehaven.

Currently there is a difference in height between the Schiedamseweg and the western yard, this height difference will be solved by heighten the western yard with 1,5m along the whole 80 meters.

The ground floors of the buildings which are situated alongside the Schiedamseweg will be available for offices and retail, because of the presence of a tram these facilities can serve more than only the people who live near these offices and retail. The buildings which are already present in the western yard will be integrated in the new structure and will hold different types of creative industry or catering.

There are two entrance points to the Merwedehaven for the car, one in the east and one in the west. The reason why there is no connection in the middle of Western Yard is that the flow of traffic from Schiedam Rotterdam will have minimal interruption. Also the buildings are already between two roads, a third road which runs across the western yard will only increase the inconvenience.
Schiedamseweg

Combining urban character towards Rotterdam

Old and new buildings

Fig. 4.52 1 Profile western yard current

Fig. 4.53 2 Profile western yard future

Fig. 4.54 4 Combining old buildings with new
RE-USE AND CULTURE

The Nose will function as an multifunctional area in the Merwede- Vierhaven. The much needed “quiet urban living environment” will emerge here. The size of the nose makes it possible to place large building blocks in a grid structure. With this grid structure a clear structure appears in the area and the buildings which are preserved, such as the factories, will fit in this new structure. For inspiration I decided to take a look at the grid structure of Barcelona (fig 4.52), London (fig 4.53) and IJburg (fig 4.54) this was also use full since the building blocks in the Merwede- Vierhaven will be in different sizes and shapes. By creating different sizes of blocks there is smaller chance of creating a monotonous character. A big advantage of using buildings blocks is that these buildings are suited for holding multiple kind of functions. Ground floors are suited to house commercial functions. Certain types of offices can be placed between apartments as long as these offices are quiet enough. The multifunctional sides of the building blocks will be situated alongside the two main roads which run through the Nose, the side of the building blocks which don’t face the main road will be monofunctional.

The Factories

Two of the most controversial buildings, the two factories, in the Merwede- Vierhaven will remain in the new structure and both will be redeveloped so they are suited too hold new functions and fit in the residential area. Redeveloping old industrial complexes is not new. In Germany they redeveloped whole industrial areas like IBA Emscherpark in North Rhine-Westphalia. This old industrial area is redeveloped into an area which mixes culture, recreation, high quality landscapes and living. Also the city of Duisburg redeveloped factories in its harbour. For example the Küppersmühle which is redeveloped in a building which combines a museum, bank and restaurant.

In the case of the Merwede- Vierhaven the factories can be used for (creative) companies, museum, exhibition room or restaurants.
Fig. 4.62 1 Profile green axis

Fig. 4.63 2 Profile main road

Fig. 4.64 3 Profile roads between building blocks
VIERHAVENPARK

Vierhavenpark runs from Dakpark, between the two factories, towards the Merwedehaven. Function of Vierhavenpark is to create a boulevard which connects Dakpark/Marconiplein with the west part of the Nose. Combined with the Green-Axis, which runs from Schiedamseweg, it creates a slow-traffic connection with the Tip of the Nose. A connection with Dakpark is created with stairs which connects the top of the park with the groundlevel. The Headbuilding of Dakpark will not only mark the start of Dakpark but also function as startpoint of Vierhavenpark. With the newly designed Marconiplein it will be a lot easier too acces the Vierhaven.

The 75meter wide and 950m long park is devided in 3 parts.

The start of Vierhavenpark is marked by a open green area with offices and a cafe at the edges. The open character of this part creates opportunities for events and other neighborhood activities. The parkinggarage, which currently lies west of the Europoint towers will be removed and placed under the first part of Vierhavenpark. This new parking garage offers place for 864 cars. Because of this size the parking garage will function not only for people who work in the office area but it can function as a transferium because of the close proximity of Marconiplein. The parking garage is accesable by a road above ground and a connection below the ground with the Vierhaven-tunnel.

Second part of the boulevard lies between the mainroad and green axis and has a luxerious character. This has been achieved by creating a mix between water and green. The water canal is connected with the Merwedehaven and creates opportunities for small ships entering the Nose also its possible for the waterni to enter the nose thus creating a good public transport connection with the middle of the nose. Second reason for creating space for water is too minimize the change of a boring character. The boulevard is a long straight line and with only grass and tree it wont create a attractive green boulevard (fig XXX).

Third part of the Vierhavenboulevard lies between the Green-Axis and the Merwedehaven and creates space for a square alongside the water. Services as bars, restaurants can be placed in the lower floors of the adjacent buildings. The adjacent road currently ends on a small island which gives space for two appartmenttowers however it is possible too extend this road in the future through the Merwedehaven.
Fig. 4.72 1 Proff first part of Vierhavenpark

Fig. 4.73 2 Proff second part of Vierhavenpark

Fig. 4.74 3 Proff third part of Vierhavenpark

Vierhavenstraat going underground
Water in middle of Nose
Water in middle of Nose
Square
GREEN AXIS

The Green axis creates a connection between the Schiedamseweg and its trams and the Tip of the Nose, the axis connects halfway through with Vierhavenpark. Shortly after this connection with the Vierhaven there is a little offset in the Green axis. This has several reasons; first the axis follows the shape of the Nose, the other reason is that due its length, 700 meters, there is a change of a repetitive character in the Green axis. The offset makes sure that people cant see all the 700 meters through. However the buildings on the tip of the Nose are due their height still visible. Since the Green axis is part of the main structure in the area, the buildings alongside this axis will hold services, companies and shops in the ground floors.
ICON PROJECT

Tip of the Nose

The tip of the Nose is the most remote area in the Merwede- Vierhaven. It lies far from the edges and it must rely on its connections to act as a part of the area and the city. These connections will be created and consist of several types. Both main roads connect with each other at the tip of the Nose. The Green-Axis creates a pedestrian route which runs from Schiedamseweg towards the tip of the Nose. Because of its location along the river Maas the tip of the Nose will be connected with the water taxi.

The connections and its special location create opportunities too hold functions which rise above the level of the neighbourhood and connect with the city. Besides creating space for these high level functions, special and high quality architecture is needed to really create an iconic area.

Several types of functions can be placed in the area. For example; a tropical recreational resort. Rotterdam had this type of function before and was it very popular but was closed a few years ago. This recreational resort consisted of a swimming pool, wellness centre and a disco. Since the old resort was closed there hasn’t been a successor for function.

Second function will have to fit into the large building that will be placed in the area. This building mass will make a statement and will fit alongside other special buildings which have been placed in regenerated harbour areas.

A hotel would fit in the large building. The good accessibility of the area ensures that people can stay a night in this unique piece of Rotterdam and see the true face of Rotterdam which consists of the harbours, the river and the architectural quality of Rotterdam. The base of the hotel will house several restaurants to create a lively atmosphere.

The last two towers will be luxury apartments in the high segment. These apartments will be comparable to Montevideo, in the base space is created for companies.
PIERS

The piers will be primarily used for living. Four out of five piers will be monofunctional, only the pier which hold several re-used buildings will get a multifunctional character. This is because of its direct relation with the Climate Campus and the already present companies.

By creating monofunctional areas quiet residential areas will appear. This quiet character will be strengthen by creating no multiple connections with the main structure. By creating only one connection between the roads on the piers and the main roads only local traffic will use the piers.

Similar as the Eastern Harbour Area in Amsterdam each pier has its own identity. Some piers are filled with apartments while others are filled with single-family houses. Architecture will play an important role for the piers, because the piers are straight, the visitors can see all the way through. With standard architecture this will create a monotonous character. That’s why every building block must hold several types of architectural appearances.

Apart from the piers, the water between them will be used to place houses. These new houses will be placed on new piers, which are created between the old piers, and directly on the water by creating floating houses. By using this water a new living environment will appear which Rotterdam is currently missing. This new living environment will consist of a mix between apartments, single-family houses and floating houses.

An additional advantage of floating homes is that once the houses berths are created each house can be sold individually and is not dependent on a certain percentage of homes sold before actual construction can begin.

The position of the road on the piers is important. If the road runs alongside the quay it will create a good connectivity however the relation between the houses and water will be weaker. If the road runs in the middle of the pier it will create a stronger relation between water and the buildings. It will furthermore create opportunities for boulevards and promenades along the water.
Fig. 4.83 1 Profile pier

Fig. 4.84 2 Profile pier

Fig. 4.85 3 Profile pier
Houses at water (IJburg)
Floating Houses (IJburg)
Different types of architecture (Java)
Floating houses (IJburg)
**STEPS OF REGENERATING THE AREA**

**Current situation**

Due to the size of the area it is necessary to create an action plan for the development of the area. This action plan will be focused on creating the main structure. By making the main structure conditions will be created which will ensure the development of the surrounding areas.

**First step**

First step in developing the Merwede-Vierhaven is finishing the current projects. Dakpark is very important because it will not only develop itself in a multifunctional building, it will also create a connection between the neighbourhood Bospolder and Vierhaven. The Europoint towers currently hold several big companies which will move out in the upcoming years, this will create opportunities for attracting small/starting companies, which can result in a wide range of different types of businesses. Eastern Yard will keep its present buildings and use them for new (temporary) functions. The last project is the Climate Campus which can be situated in the HAKA building. The HAKA building itself is currently in a state of renovation and will offer space for companies.
Second Step

To create the ideal opportunity for attracting the first group residential into the area, the Merwede- Vierhaven must be properly connected with its surroundings. It appeared from the analysis that the present companies in Merwedehaven will be the first to move towards Stadshavens South. Both piers are owned by one company thus by movement of one company a lot of free space is created.

By developing the Western Yard connections between the Schiedamseweg and Merwedehaven will be created. The Western Yard will also create space for services and businesses, which will in turn create the first steps of a multifunctional area.

All around the Merwede- Vierhaven several buildings will be redeveloped for holding other functions, like businesses, ateliers or student housing. By adding new functions, new traffic flows will appear towards and from the Merwede- Vierhaven making the area more integral part of the city.

Third Step

The new functions in the Western Yard will ensure the start of the redevelopment of the Merwedehaven. During the last step the Climate Campus will develop and grow. Soil around the Campus will be excavated creating more surface for water and possibilities for floating offices. To redevelop the Nose, the function of the two present factories must be changed. If they don’t change they cannot fit in the future character of the Merwede- Vierhaven.

The tip of the Nose is the most remote part of the area so connections towards this area must be made. The first city wide service will be placed, in form of a tropical swimming park. The reason why this swimming park is placed is because this service fits in every type of landscape. Visitors come to swim inside the building, the surroundings are less important as long as the connectivity is good, people can come.

Creating the Green-Axis will ensure a connectivity. The swimming pool will not only be connected by roads but also a direct pedestrian link which runs from the tram on Schiedamseweg towards the tip of the Nose.
Fourth Step

By redeveloping the factories with new types of functions, areas on the Nose can start to be developed. The edges of the Nose have a high potential to be the first areas to be developed. One side of the edges lays alongside the water, thus creating an opportunity for quality living with water, the other side of the edge lies directly alongside the main routes.

Besides the start of development on the Nose, Vierhaven will be transformed from a harbour area to a residential area. This development will be less problematic since there are almost no negative factors present. Movement of current companies to the south of Stadshavens will happen after the movement of industry in Merwedehaven.

Too develop the middle of the Nose the current lack of quality must change. This change will start by creating the Vierhavenpark. This park will not only raise the quality of the public space but it will connect with the Green Axis and Dakpark. Too ensure a good connectivity of the Nose, Marconiplein will be redeveloped, Vierhavenstraat will go partly underground and the new found space above ground will turn into a square. By creating sightlines and pedestrian routes the Europoint towers will start acting as gates of the Merwede-Vierhaven.

Fifth step

The main structure is complete and the final step is filling the last open places with the permanent buildings. The final step in this area can mean the first step for the business park adjacent to the west. Extend the road to the west will create a better connectivity for the business park and can function as starting point for a new redevelopment project alongside the river Maas.
CONCLUSION

Stadshavens is the last big area within the city fabric which can be redeveloped. The size and current function ensures that this area is easier to develop than an established residential area. Redeveloping harbour areas is a task which is not new for Rotterdam. The city has done this numerous times before. Big difference between Stadshavens and these older harbours is that Stadshavens will remain functional during this regeneration.

When this project started the problem statement stated that within the Stadshavens open spaces will appear because of the movement of industry towards the newly constructed 2de Maasvlakte. However during the research process this problem statement was replaced by another problem statement; Rotterdam is losing high educated people too surrounding municipalities. The open spaces in the Stadshavens can help in creating new living environment which will hold these much needed people.

By research and analysing present government reports the requested living environment and its requirements, was found. By analysing the Stadshavens the most promising area, Stadshavens north, for this new living environment was found.

Stadshavens will become multifunctional on different scales:
Scale of the city: The Stadshavens is a whole is a mix between living, working and harbour related companies.
Scale of the area. Stadshavens south will function as a harbour with old and new harbour functions. Stadshavens north will transform in a residential area.
Scale of the neighbourhood. Stadshavens north is a multifunctional area which combines living with working, leisure and commercial functions.

Key issues in this project were connecting the area, knowledge and water. The borders of the Merwede-Vierhaven must be redeveloped too ensure connections with the surrounding neighbourhoods. These connections are mainly pedestrian routes because the connection with the car is already very strong.

Knowledge is a important and strong sector in Rotterdam. By creating a new knowledge centre in the Merwede-Vierhaven it will ensure a flow of new type of knowledge companies towards the Stadshavens. Also now both sides of the Stadshavens will have a knowledge centre. South has RDM and north will get Climate Campus and this creates an opportunitie for both sides too work together.

Last key issue is water. Water is abundant in the Stadshavens and water creates a certain quality which cannot be found in a normal neighbourhood. That is why the water has been used too create new living environments which Rotterdam is lacking at the moment and is helping with creating a new identity for the Merwede-Vierhaven.

The size of the Merwede-Vierhaven creates opportunities too accommodate several living and housing typologies. Each sub area in the Merwede-Vierhaven has its own identity. The piers have each a own identity, one pier is fully build with apartments while the other pier is build with single family houses. Four out of five piers are monofunctional; only the pier which has a mix of old and new buildings has offices and houses mixed.

The Nose consists mainly out of apartment blocks and has a high density; the area is multifunctional, combining living, working and leisure with each other. Western Yard is focussed on creating connections between two areas; by combining apartments and single family houses a multifunctional area is created which also creates connection between the Schiedamseweg and the Merwedehaven.

Although every sub-area has its own identity the main living environment Quiet Urban Living will remain visible and it’s the main identity of the whole Merwede-Vierhaven.

The current character of Marconiplein will be changed so it will start functioning as an entrance point for the Merwede-Vierhaven. This character of an entrance point will be further enhanced by using the Europoint towers as gates. This is achieved by creating routes which run between the striking towers into the Merwede-Vierhaven.
LITERATURE

BOOKS:


Claus, F and Dongen, F and Schaap, T., 2001, *IJburg : Haveneiland en Rieteilanden*, Uitgeverij 010, Rotterdam


Greef, P de., 2005, *Rotterdam Waterstad 2035*, Episode publishers, Rotterdam


Tiesdell, S., and Oc,T and Heath,T., 1996, *Revitalizing historic urban quarters*. Hartnolls Ltd., Cornwall


GOVERNMENT REPORTS:

CBS (2004). *Bevolkingsdynamiek in de vier grote steden*

City of Rotterdam (2007). *Rotterdam Waterplan 2*
Available at: www.waterplan.ROTTERDAM.nl/ [accessed at: 10 march 2010]

City of Rotterdam (2007). *Stadsvisie Rotterdam 2030*
Available at: www.ROTTERDAM.nl/stadsvisie. [accessed at: 08 march 2010]

City of Rotterdam (2008). *Stadshavens Rotterdam: Creating on the edge*


City of Rotterdam - Structuurvisie Stadshavens, 2011
Available at: http://www.stadshavensrotterdam.nl/ontwerpstructuurvisie-stadshavens-opgesteld [accessed at: 12 march 2011]

Province South Holland (2005). *Ruimtelijke Plan Regio Rotterdam 2020*
Available at: www.rr2020.nl. [accessed at: 05 march 2010]


Available at: http://www.degrotewoontest.nl/?section=rotterdam&page=samenvatting [accessed at: 12 september 2010]

Available at: http://www.stadswonen.nl/website_new/20080421_-_Boek_KennisAs.pdf [accessed at: 14 februari 2011]

**INTERVIEW:**

Walter de Vries, Ds+V 10-05-2010

**PICTURES:**

Fig. 1.2

Fig. 1.4

Fig. 1.5
www.laan-op-zuid.nl (offline) (Accessed 04-03-2010)

Fig. 1.6
www.community.enormo.nl (Accessed 04-03-2010)

Fig. 1.8, 1.9, 1.10
PDF: CBS (2004). *Bevolkingsdynamiek in de vier grote steden*

Fig. 1.14, 1.15

Fig. 1.16, 1.17, 1.18, 1.19
PDF: De Grote Woontest Rotterdam (2008)

Fig. 1.20, 1.21
http://www.parkkwartierkatendrecht.nl/

Fig. 1.22, 1.24
PDF: Stadsvisie Rotterdam 2030 (2007)

Fig. 1.25
PDF: Stadswonen: Kennis-As 2008

Fig. 1.26, 1.27, 2.2
PDF: Stadsvisie Rotterdam 2030.

Fig. 2.4
Stadshavens Rotterdam: Creating on the edge (2007)

Fig. 2.5, 2.6, 2.7, 2.8, 2.9
Meyer, H., 1999, City and Port

Fig. 2.10
Rotterdam Waterstad 2035

Fig. 2.11
PDF: Maasvlakte 2 Ruimte voor de toekomst.

Fig. 2.12
Fig. 2.13, 2.14, 2.15
PDF: Structuurvisie Stadshavens
Fig. 2.16
PDF: Rotterdam 2020
Fig. 2.23, 2.24
PDF: Structuurvisie Stadshavens.
Fig. 2.25
PDF: PDF: Structuurvisie Stadshavens.
Fig. 2.26
http://www.alpharailkoker.nl/?s=projecten&project=82 (Accessed 26-02-2011)
Fig. 2.27, 2.28
http://www.dcmr.nl/nl/cijfers/geslachtskaarten/index.html
Fig. 2.41, 2.42, 2.43
http://www.rotterdamcentraal.nl/smartsite229.dws?goto=765035&style=6704
(Accessed 12-03-2011)
Fig. 2.73
Claus, F and Dongen, F and Schaap, T., 2001, IJburg : Haveneiland en Rieteilanden.
Fig. 3.1
Fig. 3.2
http://img.findaproperty.com/library/new/symphony_hall4.jpg
Fig. 3.3
Fig. 3.4
Fig. 4.11
PDF: De Grote Woonertest Rotterdam (2008)
Fig. 4.31
http://www.rotterdam.nl/GW/Contentimages/Projectcommunicatie/Vier-havensstraat/Parklane.jpg
Fig. 4.55
Fig. 4.56

Fig. 4.74
Fig. 4.75
Fig. 4.76
Fig. 4.77