Railways as Inner City Barriers

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Prologue
Thank you for reading this study on how railways have developed into the inner city barriers they often are today and on how cities, urban planners and architects have dealt with them as such. This study is part of my graduation project at the faculty of architecture of Delft University of Technology. The second part of this graduation project consists of a proposal for an architectural intervention at the Central Station location in The Hague. This study is meant to improve my knowledge on the barrier characteristics of railways and it has helped me in formulating a personal stand regarding present day railway station design and present day railway station area development.

This study has been realized with the help of others, whom I would like to thank. First of all the coordinators of the Explore Lab, respectively Dr. John Heintz and Ir. Robert Nottrot. Besides them, off course my tutors, respectively Prof. Ir. Thijs Asselbergs, Dr. Ir. Roberto Cavallo, Jeroen van de Laar and Dr. Reinout Rutte. Last but certainly not least I would like to thank the professionals from the field who were so kind to meet me and tell me about their expertise, respectively Jan Benthem (Benthem & Crouwel), Onno de Bever (project manager at Dienst Stedelijke ontwikkeling Den Haag), Wim Gideonse (Prorail), Earde Jepma (NS Poort), Peter Noordanus (former The Hague alderman of urban planning) and Koen van Velsen (Bureau spoorbouwmeester). I hope you will enjoy reading this study and that it contributes to its genre.

With kind regards,

Romy Berntsen
# Preface

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CHAPTER 1: INTRODUCTION
1. Introduction
This chapter will provide an introduction on the subject of this thesis. I will first of all explain why I chose this subject and what its purpose is in the form of a problem statement. After this I will give an overview on how the thesis is constructed and on how it should be interpreted in its context. Finally I will elaborate on which sources and methodologies I have used to come to this final result.

1.1 Motive
In February 2011 I have started graduating at both the departments of Architecture and Real Estate & Housing at Delft University of Technology. The architectural part of my graduation project is supervised by the Explore Lab, which allows me to choose a graduation subject of my own interest.

As I was born and raised in The Hague and as I have lived there my entire life, I love the city for its unique history, its appealing charisma and its vibrance. Nevertheless it is also a city with some major spatial impediments which are much too often just taken for granted. Therefore I found it logical to use my graduation project to look into probably the largest of these impediments: the The Hague Central Station Railway yard.

The main present day railway structure of The Hague disposes of two main train stations, respectively The Hague Central station and The Hague Holland Spoor. The last lays along the through route between Amsterdam and Rotterdam. This route is intersected by the railway that runs between Utrecht and The Hague CS. The railway Yard between this intersection and The Hague Central Station forms an unmistakable barrier in the The Hague urban fabric as it separates the historical and political centre from the business one. Therefore I would like to use my graduation project to investigate what architectural interventions could possibly counterbalance this barrier and how the vacated lands of the current railway yard could possibly be utilized.

1.2 Problem statement
The main question of this thesis thus is how the railway as an inner city barrier in The Hague, could possibly be counterbalanced by an architectural intervention. In order to provide this question with an answer, a number of sub questions are of main importance, respectively:

How and why have railways in the major Dutch cities developed into the inner city barriers that they often are today?
What interventions have already been applied in these cities in order to eliminate railways as such a barrier?
Which of these interventions seem to have been successful in (partially) eliminating the railway as a barrier?
Which of these interventions will I use to eliminate the The Hague Central Station railway yard as a barrier?

Figure 1: The Hague CS railway yard
1.3 Bookmarks
These questions will be answered by means of five chapters. The first chapter will give an overview on how the railways have originated within the Randstad area and how the railway system has developed itself into the system it is today. This chapter is of main importance because it will provide a proper, global introduction in the context in which the railways originated. It will provide insights into the presence of the many stakeholders that were involved which is of main importance to understand how each of the four larger cities developed their own railway system.

The subsequent four chapters will each treat one of the four larger cities in the Netherlands, respectively Amsterdam, Utrecht, Rotterdam and finally The Hague. Each of these chapters will provide a compact description on the city’s railway history. The focus on these chapters lies on how the city’s have coped with the increasing complexity of their railway system and on why certain decisions concerning their railways were made.

The thesis is concluded with a chapter which recounts the findings of the research and answers the research questions.

1.4 Methodology
This study is meant to provide insights on how the Dutch railway system has developed itself and on how it has established itself within the urban fabric. Change is of main importance here because the typology of the railway station and its relation to the city have drastically changed over time. The aim of this study is to find out what these changes have brought about and to discover why we built present day railway station in the way we do. All this should lead to the establishment of a personal stand regarding railway station design and the position of the railway station in the urban fabric.

The research for this thesis is mainly based upon literature studies. For these studies I have made use of the facilities of the Royal Library in The Hague and the library at the faculty of architecture in Delft. Next to this I have consulted the newspaper database Lexis Nexis in order to find background information concerning the decision making of certain project. Besides the Lexis Nexis Database I have also consulted the NAI/Bonas architectural database to obtain data on certain projects and architects. The consulted sources are indicated in the text by means of the Harvard referencing system.

Next to the use of literature, I have also spoken with subject related experts. Among these experts are Jan Benthem, partner and architect at Benthem & Crouwel Architectural Design, and Koen van Velsen, partner and architect at architectenbureau Koen van Velsen and the current Dutch State railway architect. Next to these two eminent players in the field of railway station design, I have also spoken with other experts which are also involved in the realization of the new railway station buildings, among which policy makers and project managers at ProRail (the Dutch railway manager), NS poort (Dutch Railway’s real estate department) and the municipality of The Hague. I also attended lectures of these experts during the symposium Station Centraal on September 21st 2011.

There has been written a great deal about the Dutch railways. Nevertheless I am of the opinion that I have been able to create a new composition of data which has a new focus and therefore contributes to the genre.
CHAPTER 2: RANDSTAD AREA
2. Railways in the Randstad

This first chapter will give an overview on how the railways in the Netherlands have originated and on how the railways have played a key-role in the establishment of the Randstad area. The writings of this chapter mainly consist of a summary of writings on the origination of the Dutch Railways by Jonckers Nieboer (1938), Faber (1989) and Veenendaal (2008). Next to this it contains an account on the current and future role of the railway station, based upon the visions of Bertolini & Spit (1998) and Bruinsma et. al. (2008). Any other sources will be indicated in the text.

2.1 First Attempt

In 1830, Belgium parted from the Northern Netherlands. As a consequence of this separation, the harbour of Antwerp got disconnected from the German industrial hinterlands because she now had lost her disposal of the all-important Dutch waterways. The Belgians found a solution to this problem by embracing a new technique which originated at the beginning of the 19th century in the British mining industry: the railway. With the construction of the Schelde-Rijn railway the Belgians hoped to preserve their trading position with the German Ruhr area. On the fifth of may 1835, the first Belgian train drove between Brussels and Mechelen.

At first the Dutch did not see any threat in this Belgian development. They saw trains as a new invention which travelled extremely fast and thus would damage your brain, unavoidably leading to insanity. Next to this they were presumed to often explode and to set towns on fire because of flying sparks originating from the device’s brakes. Furthermore the trains were supposed to cause devastating effects on the continuity of the employment of Dutch water transporters, the National mail deliverers and road constructors.

Apart from the opponents there were of course also the ones who did see the advantages of the new steel and steaming invention. One of them was a Lieutenant-Colonel of the Dutch Artillery called William Archibald Bake. He proposed to construct a railway which would connect Amsterdam to Keulen (the main city in the German Ruhr area) in order to maintain and reinforce the Dutch competitive position. In order to execute his plans he went in search for capitalists and industrialists who would want to invest in this venture. His vision however seemed hard to transfer and his hard needed money lenders seemed hard to convince.

On the 19th of February 1936, the Dutch King Willem I constituted a committee led by Minister of State Mr. A.R. Falck, which was to investigate the importance and feasibility of Bake’s plans. The committee investigated three separate sides of the venture, respectively its need, its route and its funding. Two months later the committee presented its findings to the king. They stated that a Dutch
railway track could not harm but would rather improve the Dutch economy, as it had proved to reinforce other counties’ economic positions as well. It would unburden the Dutch waterways and roads and therefore would allow for growth in trade by these two mediums.

Concerning the route of the railway track, they stated that Rotterdam did not face any economical threat by the construction of the Belgian railway. Its position was sound and the existing waterways were still able to amply cope with the goods to be transported from the Rotterdam harbour to the Industrial Hinterland. This was different for Amsterdam. Amsterdam had lost a substantial share in its trading position over the last two years. Next to this, its connections to the Rijn and thus to the Industrial Hinterlands had fallen into decline. Therefore the committee concluded that the first Dutch railway was to be constructed between Amsterdam and Arnhem. Arnhem would not only provide access to central Germany, but also to the German Hanseatic cities in the North.

As to how the first railway was to be funded, no clear answer was provided by the committee. Nevertheless the reports were handed over to the government which discussed the new railway on February 28th 1838. Advocates of the project stated that the project could be funded with debts of oversea colonial properties which were funded by the Dutch Kingdom. These debts amounted 140 million guilder. It was proposed that 30 million of this debt could be spend on the construction of a railway from Amsterdam through Utrecht to Arnhem. In a second phase, Utrecht was to be connected with Rotterdam. Both tracks were estimated to cost respectively 9 million and 6 million guilders. The plans were outvoted 46 to 2 on the 2nd of april 1838 because of the same aforementioned reasons. The Netherlands still detached themselves from the new British invention and they would not yet get their first railway.

2.2 The H.S.M.

While these first attempts of William Bake and the Dutch government to construct a railway between Amsterdam and Arnhem poorly failed, three others seemed to be successful in constructing a railway elsewhere. The men, Mr. Serrurier, Mr. Le Chevalier and Mr. Brade claimed to be able to exploit a railway which would lead from Amsterdam through Haarlem to Rotterdam. The attempts of these three men to realize this venture has never been noticed by Minister Falck’s committee, nor has it ever explored the possibilities of such a railway. On June 1st 1836, by means of a test, the king granted the three men the permission to start construction on a single track railway between Amsterdam and Haarlem. The track would follow the canal between these two cities in a straight line, only interrupted by two shallow bends. Both ends of the track would be provided with temporary stations which were to be replaced by permanent ones if the railway proved to live up to its expectations. On march 10th 1837 it was imposed that, although it was initially decided other wise, the railway should consist of two tracks. On the 8th of August 1837, the H.S.M. (Hollandse ijzeren Spoorweg Maatschappij eg. Dutch Iron Railway Company) was established and provided with the right to use and exploit the railway, which was eventually completed on August 25th 1839. In the last months of this year the H.S.M. transported almost 78,000 travellers across the first railway. This number rose to 350,000 in 1840 and to 365,000 in 1842, after the railway was extended to Leiden.

2.3 Rijnspoorweg brought back to life

After the government had outvoted the plans for a railway from Amsterdam through Utrecht to Arnhem and while construction of the H.S.M. Railway was well underway, the king took matters into his own hands to realize the first proposed railway. He did this by providing a loan with royal funds of 9 million guilders (which in later phases could be extended with respectively 6 and three million guilders) for those who would be willing to construct and exploit the railway. This loan was provided in such a way that its user would be protected from any risks which made this endeavour quite fetching. However, in return for a limited risk, the railway would only become property of its operator after the loan was sufficed. Until that time, the railway would remain property of the kingdom.

Besides William Blake there had been another group of men, led by Mr. Alewijn, who had attempted to establish the Rijnspoorweg railway. Already on April
24th 1838, only 22 days after the rejection of similar plans by the government, they wrote the king to apply for his loan in order to construct the railway. The application was denied 4 days later because the king was not in favour of the by Alewijn proposed route. Only after some modifications, the king gave his permission on June 27th. The first 35 kilometre section between Amsterdam and Utrecht was finished in 1843. Expropriation of needed lands provided the project with some delays and financial losses. After the railway extension to Driebergen was completed on July 17th 1844, the Alewijn consortium faced a financial shortage of 2 million guilders. Although it was king Willem I himself who had made the construction of the initial sections of the railway possible in the first place, and although the exploitation of these sections proved to be profitable, he now decided that no additional funds were to be invested into the Rijnspoorweg and that the project had to rely on private funding instead. Off course this sent of a negative signal to private investors, because why would capitalists invest in a project in which the government had seemed to have lost faith. Eventually capital had to come from overseas, from the English Consortium of Mr. Enthoven who eventually finished the Driebergen-Arnhem tracing and exploited it. By the 16th of May 1845, the Dutch had successfully constructed and exploited railways between Amsterdam and The Hague and Amsterdam and Arnhem.

Next to the construction and exploitation of the last bit of the Rijnspoorweg, the Enthoven Consortium (eventually called the N.R.S. (Nederlandse Rijn Spoorwegmaatschappij eg. Dutch Rhenish railway company) was by concession also required to construct the railway from Utrecht through Gouda to Rotterdam, to connect there to the future station of the H.S.M. But although the English had taken the new initiative, the Dutch were still not convinced by the benefits of a railway and eventually were able to delay the project significantly. The N.R.S. had a dispute with the national government concerning the route of the tracks between Utrecht and Rotterdam and there was a dispute with the local government of Rotterdam about where the tracks would end. The H.S.M. completed its Rotterdam station on June 3rd 1847 near the Delftse Poort. The national government insisted on a connection to this station but unfortunately the local government of Rotterdam had reserved grounds for the N.R.S. station elsewhere in the city, near the Haringvliet. Because of a disagreement on this location between the N.R.S., the city of Rotterdam and its people, and the Royal Marine, eventually a temporary station was realized near the Oude Hoofd. The connection between Utrecht and Rotterdam was eventually established on July 30th 1855. The completion of this last section of the Rijnspoorweg meant that the circle of the four main cities of the Northern Netherlands were now connected to each other. This circle and its connection still remain today and is nowadays better known as the Randstad area. According to the dissertation of Cavallo (2005), it is because of the presence of the Haarlemmermeer, that by then was not yet filled up, that the development of the first Dutch railway went as it went. Would the Haarlemmermeer have already been filled up, then the men Serrurier, le Chevalier and Brade might have chosen for a more direct connection between Rotterdam and Amsterdam. Such a change in railway development might have invoked changes in the further development of the Randstad area.

Eventually it was the English N.R.S. who made the Dutch railways take flight. After the completion of the connection between Utrecht and Rotterdam they also founded and exploited the railway between The Hague and Utrecht (1870), and they eventually also exploited the railway between Leiden and Woerden (initially taken into service by the Spoorweg-Maatschappij Leiden-Woerden in 1878).

2.4 Rivalry and collaboration of the Dutch Railway enterprises
Most striking of the above mentioned is that in the early years of the Dutch railways both construction and exploitation of the railways were resigned to private parties. It was not until September 26th 1863 that the Maatschappij tot exploitatie van Staatsspoorwegen (eg. Society for exploitation of state railways) was established. From that moment on, the state funded the construction of new railways in the periphery of the Randstad area and subsequently the Staatsspoorwegen (hereafter SS) rented these railways from the state in order to exploit and maintain them. If the state would have relied on private investments and would not have come up with a system such as described above, probably the railways in the southern and northern parts of the Netherlands would never have been realized and probably with good reasons. The SS en-
countered some significant financial problems while exploiting its new lines. This almost made the state’s railway enterprise perish.

In 1881, the Netherlands had established quite a network of railways. The big problem of this network however, was that it had been realized by a multitude of enterprises and that an overall spatial coherence was missing. This led to short pieces of railway tracks that were disconnected from each other which led to inconveniences for the railway’s users. It was because of this confusing situation that the government decided to establish a parliamentary inquiry on how the exploitation of the Dutch railways could be re-organized in order to improve the facilitation of the railways for its users. The committee treating the inquiry proposed to divide the Dutch railways between the three main players on the market, respectively the H.S.M., the N.R.S. and the SS. This advice was adopted by the government. However, in 1886 the N.R.S. proved to be unable to reach a new agreement with the state on the prolongation of their original agreements concerning the exploitation of the railway descending from 1845. Therefore the State was permitted to dissolve the original agreement after which the N.R.S. was disembodied. Now, only the H.S.M. and the SS remained.

The H.S.M. and the SS agreed that all Dutch Railways would be assigned to the property of the State. Both would pay an annual fee for a licence to use the railways. Capital and material for the exploitation of the tracks would come from the enterprises themselves and the maintenance of the tracks and appurtenances would be financed by them as well. Next to this they were asked for a contribution of 1000 guilders per kilometre to newly constructed railways. Little changed in these agreements up to 1917. In this year the H.S.M. and the SS decided to carry on their railway activities as a joint venture in order to optimise railway exploitation. The name of this joint venture was the Nederlandse Spoorwegen or N.S. (eg Dutch Railways).

On July 31st 1914, because of the first world war, the Queen ordained that all Dutch railways and materials for exploitation were to be claimed by the government in the interest of the defence of the kingdom. To compensate the NS, the government instituted an arrangement that would indemnify both enterprises.

During this period, government intervention increased and the enterprise became more dependent on government funds. After the expiration of the arrangement however, exploitation of the railways became the sole burden of the NS again. Unfortunately things had changed. Because of the war, material and fuel prices had sky rocketed and the government had instituted new working conditions for railway employees. Next to this, the war had induced the development of lorries and eventually busses and automobiles, which slowly led to a loss of share in transportation of both goods and people. Eventually the financial crisis of 1930 killed the NS as a private commercial enterprise. Extreme wage and pension cuts (up to 40%), mass employee dismissal and reorganisation could not help the NS. On the 2nd of August, the N.V. Nederlandsche Spoorwegen was established and both the H.S.M. and the SS were liquidated. All debts of the N.S. joint venture were taken over by the state and because of the liquidation of the two last commercial railway enterprises, ill contracts could be terminated. The Dutch railways remained a company governed by private law with the soul purpose of exploiting the railways in the common interest of the Dutch. But from now on the company would be completely state owned.

2.5 Enduring the second war
Under the preamble of the second world war the railways were used extensively to mobilise the Dutch army and to evacuate half a million people from front line areas. But as soon as the German army invaded the Netherlands on the 10th of may 1940 the first damage was inflicted on the Dutch railway infrastructure. 15 of the 21 main railway bridges were destroyed, at strategical points the railways were obstructed in order to slow down the German advance and material and workshops were destroyed in order to prevent a fast recuperation of the railways. In Rotterdam all railway stations burned down after the bombardment that led to the surrender of the Dutch army. After the Dutch capitulation the NS restarted their original timetable on behalf of the Dutch people and their German oppressors. The Germans started reconstruction of the Dutch railways immediately in order to be able to supply their troops in Belgium and France. Around the end of 1940, most of the inflicted damage was repaired. During the German occupation the Dutch Railways saw their amount of
travellers increase drastically. Because of a shortage of petrol and rubber, cars became useless and many of the main waterways were obstructed. People chose to use the train instead. The amount of passengers increased with 188% within only two years time, while the quality and amount of equipment had decreased enormously. The same applied to the transportation of goods. For the first time since the Nederlandse Spoorwegen were taken over by the state, they were making a profit. However these were not the heydays of the NS. As is generally known the Dutch Railways were also involved in the deportation of Jews from and to labour camps. Next to this, the railways and their accompanying facilities increasingly became the target of allied bombings leading to the loss of lives among NS personnel and a near downfall of the rail infrastructure. In September 1944 the cooperation of the NS with the Germans ended after the government in London summoned an overall strike in order to sabotage the oppressing army. There were seven months of war left and the Germans made sure to destroy as much as possible of the Dutch rail infrastructure during these seven months.

After the war more than 500 employees of the NS had been killed during allied and German assaults on the railways. The material damage was large as well. Almost all bridges were destroyed and the steel tracks were used as material for the war industry, as had the electric wiring above the tracks. NS railway material would reappear all over Europe as it had been sold to other countries by the Germans. The total damage that the war had inflicted on the Dutch railway infrastructure amounted over 500 million guilders. Along with the financial support from the United States’ Marshall program, the Dutch government and the profits that were made during the war, the Dutch railways were able to restart their timetable gradually.

2.6 Post war

Despite the damaged infrastructure and the high costs for repairs, the Dutch railways were still able to make profits. These profits ranged from significant to negligible (3700 guilders in 1948). The company was able to hold on to these positive results until 1957. This was the point at which the government had to admit that not all promised funds for recovery and modernisation of the rail infrastructure were available, which disturbed the investment program of the NS drastically. To make matters even worse, the Dutch became less and less dependent of coal, of which the transportation always used to be one of the main sources of revenue for the NS. In 1950, 76% of the Dutch energy was produced out of coal. However, due to the advance of oil and gas this percentage decreased to only 10% in twenty years time. By 1973 the mining industry had almost completely disappeared and even the oil crisis of that time, which made the oil prices sky-high, could not seem to prevent this fact from happening. However, until that time the NS was able to maintain its position in the transportation of passengers. From 1950 onwards, passenger transportation had increased with 30%, but during the 60s the balance changed because of the advance of the car. Between 1960 and 1970 the use of the car increased with 45%. In 1970 the NS reached an absolute low point with a loss of almost 150 million guilders. A solution was sought in automation, a reduction of staff and the elimination of unprofitable lines. A proper vision for the future was highly desired. The NS based this vision upon the negative reactions that started to arise on the government’s policies to increasingly facilitate the use of motorized traffic. From 1950 onwards the population of the Netherlands had grown drastically and many urban expansion areas had been built which were poorly accessible by public transportation. As a reaction to this untenable situation, the government had placed its bet on the development of car oriented infrastructure in order to connect the old city centres with their peripheries and the countryside. However, around 1970 people started to question whether this had been the right approach. Would they really want that their city centres and green spaces would be consumed by the car?

Around 1970 the NS came with a highly desired vision on the future exploitation of the Dutch railways. This vision was not only based upon financial continuity of the enterprise, but also on the social value of public transport. The vision, going by the name “spoor naar 75” firstly introduced the timetable structure as we now it today. The new timetable knows two sorts of services, respectively the fast intercity train and the more metro-like stop train. The idea of this system was to increase traveller comfort by reducing travel times with up to 25% by introducing the fast intercity trains and by increasing the frequency.
this, the stop train would allow for a much more dense network of railway stations which would provide more people with access to the rail infrastructure. In order to carry through this change in service, major changes and additions would have to be made to the existing rail infrastructure. The higher frequency required (at some places) a higher capacity and new small stations would have to be built in order to connect smaller towns and peripheral areas to the network. The main examples of these changes and additions to the rail infrastructure are the Schiphollijn between Leiden, through the ever expanding airport Schiphol, to Amsterdam Zuid, and the Zoetermeerlijn between The Hague and its modern satellite town Zoetermeer. “Spoor naar 75” also brought about a new kind of railway architecture. New station buildings were designed from the range of thought that all modes of public transportation should be grouped near one another, in order to increase the comfort of travellers and to reduce travel times. Off course the NS had no money to carry out all these plans herself. Therefore the company established a marketing department which emphasized the social advantages of this “spoor naar 75” vision. The plans were received well, by both the public and the government. It changed the status of the NS from old fashioned to modern and public oriented. “Spoor naar 75” also introduced the today generally well known yellow and blue corporate design of the Nederlandse Spoorwegen in order to emphasize the enterprise’s change in conduct of business.

2.7 Privatisation

The Netherlands were not the only European country with difficulties concerning the exploitation of their rail infrastructure. According to Veenendaal (2008) it were most of all the aged railways and the persistent labour unions which put the European railway companies to high costs. This made it impossible to compete with other more modern modes of transportation. In 1979 the United Kingdom put into motion a new notion which would be adapted by almost the entire western world.

The new conservative government in the UK understood that state owned companies, such as railway companies, used up to much governmental money. The idea of privatising them meant that they would be transferred from public ownership to the private market. Public property then became private property. The argument in favour of privatising companies is that because they become part of the private market, they will have to compete with other private companies in favour of their consumers. This competition forces the company to establish a solvent and innovative conduct of business which is optimally synchronized with the wishes and demands of its customers. Private companies are regarded to be better in doing this than publicly owned companies because a private company is responsible for its own survival.

The situation that arose in the UK provides a nice demonstration of the arguments against privatisation. In a short period of time the subsidies for the British Railways were phased out. This led to a large scale reorganisation in the workforce with the consequence that service levels tumbled and tensions among employees reached sky-high levels. In 1996 the railway company was sold to a group of investors. All seemed to be fine and other countries in Europe, among which the Netherlands, followed the British example. However, soon it turned out that the new (private) owners of the British railways turned out nice dividends to their stakeholders but that they were neglecting to carry out the highly necessary maintenance on the tracks. Under the governance of Tony Blair, the British Railways were once more nationalised. The not so good example of the United Kingdom made countries like the Netherlands more aware of the possible negative outcomes that privatisation processes could bring about.

In the Netherlands the process of privatising the railways went less drastically. As stated before, in the Netherlands the railways were state owned but they were operated under private law. The only thing that truly changed were the terms which related the state and the railway company. This meant above all that the company would be split up into different branches with different objectives. First of all there is the branch which has the objective of operating the tracks. As this branch is not likely to be solvable on its own it has other departments to generate revenues from secondary sources such as the development of real estate near stations and the exploitation of retail and catering on stations. Next to the NS travellers division, NS real estate division and NS com-
merce division, there is also the branch which maintains, constructs and manages the tracks, which goes by the name ProRail and which operates under the auspices of the ministry of infrastructure. Basically the NS lost the responsibility of managing and owning the rail infrastructure. Next to this they lost the exclusive rights of operating the tracks which allows for competition on the railways. The privatisation process in the Netherlands has also led to a change in railway station building design. Railway stations are no longer a place to pass through but they also have become places to linger. Over time we see the advance of secondary functions within the station buildings which should provide the railcompany with secondary sources of revenues in order to enhance their financial solvability. Nowadays you can get almost everything at a station, which also adheres to the vision of providing comfort for the traveller.

2.8 High speed

The Netherlands were not the only country with a railway company that seemed to have a lot of difficulties in competing with the fast advance of the car. All over Europe railway companies faced the same problems. However, the car became so popular that it consumed its own infrastructure. Traffic congestion became an omnipresent phenomenon and fuel prices skyrocketed. Consequently a demand arose for alternative ways of transportation. Railway companies all over the continent seized this demand to introduce a new sort of train that had been successfully put to work for the first time in Japan. The first High Speed Trains in Europe drove on existing tracks and due to their success it did not take long before the first high speed railway lines were constructed. Italy started construction on its own High Speed Railway during the 70s and between 1980 and 1995, France, Belgium and the UK worked on an extensive network of high speed railways together, establishing international connections between Paris and London (1994), London and Brussels (1994) (both by means of the Channel Tunnel) and Brussels and Paris (1995). Germany and Spain followed up with an
own high speed network. This new fast way of transportation, which reduced
the relation between time and space significantly, became a popular way of
moving around and consequently the old glory of the railways were to some
extent revived.

Besides popularity among travellers, cities became increasingly interested in
getting connected to the high speed network as well. The developments around
high speed railway stations during the last decades proved that areas around
these stations had the potential of attracting new economic activities. Next to
this, recent developments showed that railway developments could offer op-
portunities for larger cities experiencing periods of decline. Everyone in Europe
had perceived what the arrival of the high speed train had done for the city of
Lille, which because of its intermediate location between respectively London,
Brussels and Paris became the new place to be for multinational enterprises.

Because of recent ongoing changes in the economic structure of European
countries, which experienced a shift from industry based activities towards
service based activities, railway station areas were considered to posses the
potential of becoming high density, multifunctional land use areas in which
work, residential and shopping functions are combined with transport func-
tions, just as had happened in Euralille. Although the advance of modern ICT
facilities such as the Internet and teleconferencing would suggest a downfall
of personal interface, the new knowledge based economy proved to demand
an apparent and ever increasing desire for face to face contact in order to ex-
change ideas and establish new relationships. In order to support such new
forms of urban dynamics, well connected multi modal transport systems were
required. The areas around railway stations offered the opportunity to facilitate
these new urban dynamics.

The NS and the Dutch government had seen these advantages of a connection
to the high speed network and in 1988 it was decided that new high speed
connections were to be made between Amsterdam and Belgium, between Am-
sterdam and Germany and between Amsterdam and the northern part of the
Netherlands. Only the first connection has truly been constructed and it was
only completed in 2009. The second connection has been established but it
runs on existing tracks. The third connection has been cancelled. These new
high speed railways should improve the competitive position of the cities con-
nected to the new railways. The expectation was that railway stations with high
speed train stops would have to cope with an increasing flow of passengers,
partly with a high socio-economic status, which would bring purchasing pow-
er into the station buildings and their vicinity, thus reinforcing both the urban and transport function of the railway station (Bruinsma et al., 2007 p. 18). All this meant that railway related issues became important themes in policies to revitalize cities throughout the Netherlands. Therefore, the Dutch ministry of Housing, Spatial planning and the Environment appointed six cities to be connected to the High Speed network, respectively Amsterdam, Utrecht and Arnhem along the connection to the German network and Amsterdam, The Hague, Rotterdam and Breda along the connection to the Belgium Network. Subsequently the newly appointed high speed stations in these cities, including their surroundings, obtained the status of New Key Project.

The New Key project policy is a continuation of the first key project policy. This first policy was part of the fourth national policy document on spatial planning 1988 and prescribed additional financial support to inner city urban area developments and large infrastructural projects that could enhance the competitive position of Dutch cities within the international economic network. The additional impulses were required because a lot of Dutch cities faced depreciation of former industrial lands and a shortage of development space that could meet the establishment criteria of the new service based enterprises. Among the first generation key projects were the revitalization of part of the Rotterdam harbour (Kop van Zuid), the revitalization of The Hague’s city centre (Den Haag Nieuw Centrum), the revitalization of industrial lands in Den Bosch (Paleiskwartier), the revitalization of Industrial lands in Maastricht (Ceramique), expansion of the Rotterdam Harbour, expansion of Schiphol airport and the construction of the three High speed railways. In reality the list of projects is even longer, but these are regarded to be the most successful projects. Although not all projects on the list were executed, the key project policy was seen as a great success and was therefore continued with the new key project policy which was part of the fourth national policy document on spatial planning extra (VINEX 1991). The policy was executed from 1995 onwards and had the same objective as its predecessor: To provide an additional financial stimuli to these project in order to improve the competitive position of the concerning cities within the international socio-economic network (VROM 2006). The six new key projects are respectively Amsterdam Zuid-As, the Utrecht Central Station area, the Arnhem Central Station area, The Hague’s Central Station area, Rotterdam’s Central Station area and Breda’s stationskwartier. The construction of these stations and the urban developments in their near surroundings are well under way and should be completed within the coming few years.

2.9 Dutch railway station design until now

For many years and around the world, railway stations were the monuments around which modern cities developed themselves. According to Alessia Ferrarini (2005) it were structures that reflected their nature and embodied the identity of their location, containing the spirit of the city as they mirrored it. Nevertheless, early railway station design in the Netherlands did not comprise much more than a wooden platform and sometimes a wooden shed well outside the city boundaries. Only after the railway had proved to be a successful new mode of transportation, true buildings were erected to provide shelter and
comfort for waiting passengers and revolutionary structures were constructed to cover the platforms. Two main typologies could and still can be distinguished in railway station design, respectively the terminus and the through station. Railway stations slowly but surely became the modern city gates through which people arrived to and departed from the city and thus they were designed as such. Next to this they had to make an impression on the public in order to take away the fear for the railway as a strange novelty. Railway stations became the new modern monuments, often built in a neoclassicist or eclectic style. Because of the increasing popularity of the railway, the majority of the first true railway station buildings were replaced by bigger ones at the end of the 19th century. This renewal of the station buildings was often combined with the heightening of the tracks in order to create multilevel junctions between the railway and other traffic flows. Although grand in their own way, the Dutch railway stations remained quite modest compared to railway stations in other European countries. This mainly had to do with the fact that the development of the Dutch railway network had started quite late and was not yet as extensive as elsewhere. Large cities were provided with station buildings that included waiting spaces, a restaurant, hygienic facilities, housing for the station manager, offices, a goods depot and a railway yard where the trains could be supplied with water and fuel. At that time, travelling by train was more or less equal in experience as travelling by plane today. Plans were made to combine railway station facilities with functions such as a hotel as happened overseas in England, but these large scale developments never took flight. Smaller cities had to do with one of five small standardized station buildings funded by the state in order to save expenses on architect fees (Veenendaal 2008).

Between the period of renewal and the second world war not much changed in station building design. The amount of tracks and platforms were often expanded as was the number of station buildings within the railway network. During the 1930s the NS employed two architects to design these stations, respectively H.G.J. Schelling and S. van Ravesteyn. Together they were responsible for the designs of stations like Amsterdam Amstel, Amsterdam Muiderpoort and Utrecht CS. However, during the second world war a lot of station buildings were destroyed and these two men were appointed to design the new stations. As the war had just ended, little resources were available to construct and fund these new station buildings. As a result, the relatively cheap concrete was applied repeatedly as the main building material instead of natural stone and brick. Next to this the station building designs were stripped down from all their expensive and unnecessary items such as ornaments and luxurious functions such as restaurants, kiosks and restaurants.

After the period of reconstruction, Schelling and van Ravesteyn were succeeded by K. van der Gaast who focused on the renewal of the remaining dilapidated station buildings. Until 1965 the NS remained able to sufficiently fund the realization of these new stations but from then onward economizing became the main notion in Dutch railway station design. For the smaller stations a small standardized building was designed. For the larger railway stations a solution was found in combining the railway station with other functions. For example the new The Hague Central Station was combined with a 15 storey high office slab and in Utrecht the Central Station was combined with a large shopping mall.

Due to the financial instability of the NS, many stations built after the war proved to be unpleasant places to be. Financial cut-backs had led to the disappearance of NS personnel from the station buildings, service points had been replaced by ticket machines and there was nothing else to do at the station but to wait for your train. This had transformed the stations into unsafe places which were repeatedly the target of vandals. However, during the 80s, after the NS had successfully launched the “spoor naar 75” campaign, this all changed. The Dutch rail company had understood that she needed secondary sources of revenue in order to maintain its solvability and thus once more introduced kiosks and other shops within her stations. Next to this, in order to improve the feeling of safety and reduce the amount of vandalism, they introduced a new type of architecture for new station buildings. This new architecture comprised of large, comprehensible spaces with a lot of light and waterproof materials. Next to this the new stations had to become visible as such once more and therefore they were provided with a strong own identity once more. Furthermore it became policy to turn railway stations into inter modal hubs in order
to increase transfer comfort for the travellers, which was in line with the aim of “spoor naar 75” to attract more people into the train.

This last renewed vision of Dutch railway station design is still exerted today. At this moment we find ourselves in a new round of railway station renewal which according to Bertolini is triggered by three different factors. The first one comprises the new development opportunities provided by transport innovations such as the high speed train and light rail facilities. These may affect the regional economy in two ways by either acting as a catalyst or by having a facilitating role. A catalysing role is achieved when the connection to such new networks draws new activities to an urban region in transition and thus causes the economy to develop. In a facilitating role it affects cities with a prosperous local economy which requires new infrastructure to accommodate their economic growth (Bruinsma et. al., 2007 p. 61)

A second factor triggering railway station area redevelopment evolves from the desire to boost the competitive position of cities as places to live, work and consume through new large scale urban projects. Many of these projects, typi-

![Diagram](Figure 5: NS Real Estate division, travellers' requirements)

...cally show a dense mix of office, retail leisure and housing and are most of all meant to utilize the potential that railway station areas have, as they are often deprived and neglected parts of the city (Bruinsma et. al., 2007 p. 36).

A third factor is the ongoing privatization process, or at least the shift towards greater market orientation of transportation and railway companies. One consequence of privatization is that railway companies are still increasingly seeking ways to compete with other transport modalities and to become profitable organisations again. Characteristically, this implies that they focus on the development of lucrative commercial activities within railway stations and the redevelopment of land near or above the railway yard in order to compensate the low yields of transporting travellers. At the NS real estate division they combine this need for secondary sources of revenue by anticipating on the traveller’s experience of the journey. Research by the NS real estate division has shown that travellers find travelling per train a very uncomfortable undertaking. This means that when they are waiting for their train they don’t mind to be entertained or to spend their time in a more useful way. This means that a station building should provide in much more of the travellers’ need than just the need to get on a train. What started with a kiosk and a small scale restaurant has now almost turned into what you could call a small scale shopping centre which provides in food, beverages, travel goods, goods for daily use, groceries, books, movies, music, meeting facilities and more (NS Real Estate Division 2011). By introducing such functions into the station building, the NS also seized this opportunity to provide the railway station with an own identity. There no longer are standardized railway station designs and each location is reviewed on its own.

However, both the decision making process concerning railway station re-development, and the actual implementation of the redevelopment take a long time. Bertolini and Spit (1998, p. 50) state that the institutional setting in which this development takes place is of utmost importance to understand its dynamics. Railway station developments have both commonalities and elements that are very specific for each case. These specificities can be explained by referring to the structural and cultural characteristics of the multiple levels
of government involved as they can respond in different ways to similar planning problems. Efforts to develop railway station areas become more and more complicated by the relatively large number of actors involved, in particular local and national government, the railway company, investors, other business firms and residents. Jan Jacob Trip (2007, p. 53) categorizes these actors in four different arenas of decision making which are respectively labelled “public administration”, “transport”, “design”, and “real estate”. All actors involved have certain resources that are necessary to develop railway station areas. These are the means with which actors can contribute to railway station development. Resources can be divided into four categories: Finance, land, knowledge and proceedings. The power that they can exercise during railway station development mainly depends on these stakeholder resources (Bruinsma et. al., 2007 p. 62). Next to their resources they also have their own interests in the development of railway station areas, and goals they aim to accomplish by the railway station development. Their interests may coincide but may also just as easily generate conflict. To make matters even worse, the Dutch privatization process led to the splitting up of the formerly integral railway company which creates a new complexity in and around railway stations. In the new key project developments, NS stations, NS Real Estate, NS Commerce and NS Travellers are often separately involved in the decision making process, while Pro Rail is responsible for construction, maintenance and management of the rail infrastructure. NS is still a publicly owned company based on private law. Pro Rail is a separate organization under the auspices of the ministry of V&W. So the question of who owns and manages what in and around the new railway stations is a complicated matter. The demerging of the Dutch Railways marked the beginning of a new dynamic in railway station areas in which the interest of the railway company is not one sided, as all the different above mentioned branches of the company have different aims when it comes to railway station area redevelopments (Bruinsma et. al., 2007 p. 18, 61, 119). Bertolini and Spit (1998, p. 60) state that such a large number of actors will lead to an increasingly complex process which will cause the divergence of interests and the lengthening of the process and implementation of the development. All this will diminish the chance of a successful redevelopment. In order to overcome this, Bruinsma et. al. (2007, p. 62) state that a sound comprehensive vision of the future of an urban area is a necessary requirement for the development of a consistent strategy for railway station development. This vision is a prerequisite for the integration of different aspects and the prevention of inconsistencies in development strategies. Such a vision should be based on a rigorous analysis of the problems and opportunities of the area. Next to this, in view of the shared public private development, the new railway station area development necessitates a collective action which lasts long after the immediate development phase in order to en-

![Figure 6: Arenas of decision making (Trip 2007)](image-url)
sure a lasting quality of the area. Self evidently, most development around the railway station is undertaken by private actors who are not naturally interested in investing in less profitable omnipresent parts in the projects. Nevertheless key project policy is a new way to combine the efforts and funding of different government branches and layers with private development of real estate. The most important condition is that the process be integral, where public and private parties work together to realize goals in both infrastructure and urban revitalization around the key projects. (Bruinsma et. al. (2007, p. 105-108)

Knowledge on the complexity of the above mentioned process, derived from almost fifteen years of new key project railway station design in the Netherlands, has been gathered and joined together in the new so called Spoor Concept (2011). The NS and ProRail appointed a Spoorbouwmeester (state railway architect) in order to advice the NS and ProRail about railway related design and to join together all design experience that has been gathered during the last two decades. According to this first concept, all railway stations are different. But although all railway stations have been designed as individual and specific objects, they also have generic characteristics which form the essence of the building typology. Railway stations always form a link between one place and the rest of the country. Railway stations process leaving travellers, but also arriving ones. They are places full of movement and they are always visited by a dynamic crowd which provide railway stations with a distinctive public character.

The railway station concept provides a description on how these public spaces should be experienced. Most important is that users of the railway station can move freely and independently through the building. The building is accessible and conveniently arranged. Although the visitors obviously experience a railway station, it should have a distinct own identity. The experience of the railway station is provided by a standardized formal language for information provisions and Dutch Railway’s branding. The individual character can be provided by local retail brands and within the design of the station building itself. A good mix of the familiar elements of the railway station, and the surprising elements of each individual railway station is of main importance for travellers to recognize where they are.

The most distinct feature of the railway station concept is that it provides a guideline for the spatial arrangement of railway stations. The concept distinguishes four so called railway station domains, respectively the arrival domain, the reception domain, the travel domain and the leisure domain. These four domains are mutually connected by the so called “connection zone”. Each of the above mentioned domains will be set forth in the following paragraphs.

Arrival domain
The arrival domain of the railway station is first of all meant to receive departing travellers. These travellers arrive by means of a multitude of different modes of transportation, such as by bicycle, by car or by public transportation. Important is that all arriving travellers are in essence considered as pedestrians and therefore the arrival domain is always designed as a pedestrian zone. The arrival domain should facilitate the traveller in his transition from for example cyclist to pedestrian or the other way around. Therefore the arrival domain holds several accompanying functions to do this, such as a bike park, parking facilities, a kiss and ride lane, a taxi stand and bus, tram and metro platforms. Self evidently,
information and orientation provisions are part of the arrival domain as well.

The arrival domain could have multiple appearances, such as a square or a pedestrian zone in front of the railway station. The arrival domain is clearly the stage change point of routes from and to the city centre and has a local charisma. For travellers arriving per train, the arrival domain forms the first encounter with the city they are visiting. Therefore the arrival domain should appeal to enter the city.

**reception domain**
In the reception domain travellers are received and welcomed into the station building. This is the place in the building where travellers buy their train ticket or tickets for other modes of transportation and where they are able to meet their travelling companions. The reception domain should be conveniently arranged and it should provide a supple transition from the arrival domain to the travel domain by providing travel information and waiting space. For travellers arriving per train, the reception domain should provide information about the near surroundings of the railway station and other modes of public transportation. Functions such as a tourist promotion office, travel services and a currency exchange office should be located here as well. It is a logical place for meeting people. According to the size of the railway station, the building can dispose of more extensive traveller services and multiple reception domains. One for each entrance.

**Travel domain**
The travel domain should facilitate movements from and to the train and other modes of transportation. This is the place where travellers get on and off the train, transfer and wait. The travel domain provides travelling information, waiting space and small scale retail facilities. The retail facilities focus on travellers who want to quickly buy something for on the way, such as magazines, food and beverages or items for personal hygiene. The right of access of this domain is limited and with the coming of the public transportation chip card in the Netherlands, access is permitted to travellers only. The domain is separated from the reception domain by means of an access control barrier. According to size of the railway station, the building could have more than one travel domain, depending on the number of modalities accommodated in the building. If the railway station houses more than one modality then it is called a public transport terminal.

**Leisure domain**
The leisure domain can not be found at every railway station. It is mainly allocated at larger railway stations and public transportation terminals. The leisure domain is separated from the other three domains and aims at the lingering traveller and not so much on transferring travellers. Waiting for a train is by many experienced as an uncomfortable activity. The leisure domain provides the opportunity to spend this empty waiting time valuably. The leisure domain is experienced as a comfortable waiting area. The domain provides extensive retail facilities, services and comfortable waiting spaces. The leisure domain is accessible to non-travellers as well. Nevertheless the supply of retail and services is adjusted to the demands of travellers. The Dutch Railways’ real estate division has thought up different themes that can be realised within the leisure domain, such as a media theme, a beauty & health theme, a fashion & sports theme, an event theme, a ToGo theme or a mix of different themes. The leisure domain is the only domain that preferably is not crossed by the connection zone.

**Connection zone**
This zone should facilitate a supple flow of travellers from the arrival domain through the reception domain to the travel domain and the other way around. The zone should be recognisable and it should provide a safe and quick transfer. Next to this it should connect properly to pedestrians routes in the near surroundings of the railway station. One should not have to look for the connection zone: it should present itself to the traveller. Because of its importance, the zone is the first element in the layout of the station building to be established.

**2.10 Railway station of the future**
On June 23rd, 2011, consultancy firm ARCADIS presented their vision on the
future of the railway station. ARCADIS is an international enterprise which provides advice, design, engineering and management services in the field of infrastructure, water, sustainability and the built environment. They state to improve mobility, sustainability, the quality of life and the quality of the built environment by establishing a new balance between culture and nature. This enterprise develops, designs, maintains and exploits projects for governments and private companies, among which the design of rail infrastructure and railway station buildings.

In their vision “Railway Station of the future”, ARCADIS calls for a higher level of ambition concerning the design of and accommodations at railway stations. They state that increased comfort levels within the station building will lead to a more enjoyable travel experience. Comfort, clarity and accessible travel information are the new key words when it concerns railway station design. ARCADIS introduces comfort into the railway station building by introducing shops and catering that will meet the needs of waiting travellers. By introducing a comfortable place to wait and by re-introducing monumentality into the railway station building. An architectural masterpiece is a much nicer place to linger than a mere hutter-proof shelter. The choice of material, lighting and climate all contribute to this increased experience of comfort.

Clarity interlinks with travel information. The current omnipresent yellow boards with travel information on the Dutch railway stations can be replaced with interactive digital media which, for example scans your train ticket and provides the traveller with a customized individual travel advice. Lighting can be used to indicated that a train is delayed or cancelled and the colour of the floor can help people find their way. By using interactive media, obstacles can be removed and information can be provided to the individual traveller more efficiently, thus contributing to the concept of transfer machine.

2.11 Railway station in urban context
The times when trains carried the majority of the travellers are a distant memory. After its peak around 1900, railway transportation has only seen stagnation and decline. After the second world war the train has been rapidly caught up by other modes of transportation, such as the car and the airplane. Nevertheless there are slight signs of recovery due to the saturation of the automobile centred infrastructure and the emergence of the aforementioned high-speed train and new light rail solution. Even so, railways are generally still unable to solve the dilemma of how to increase economic efficiency while also satisfying wider political goals such as sustainability and equity. The essential condition
for growth of rail transport is intermodal integration. The railway station is to be seen as an urban exchange complex where both infrastructure and services are to be offered. Railway stations are to become a place to be, instead of a place to pass through. They are increasingly perceived as urban districts with more than a transport function alone. According to Bertolini and Split (1998, p. 9), the present day railway station has two basic, sometimes contradictory identities. On the one hand they are nodes within both transportation and socio/economic networks. However, at the same time they are places. Specific sections of the city with a diversified collection of buildings, infrastructure and open spaces of which the perimeter is defined by a walkable radius of which the railway station is the centre point. The unique challenge of the development of such Node-Places is to deal with both the transport issues and the urban issues at the same time. This entails two distinct and partly autonomous and often conflicting sorts of markets, policies, technical domains and management structures which translate into what Bertolini and Spit (1998, p. 17) call development dilemmas. Nevertheless they can also contribute to each other’s potential.

This notion is reinforced by the theory of the Space of Places and Space of Flows by Manuel Castells (1998). According to him there is a growing tension between these both spaces. The space of flows links up electronically separate locations in an interactive network that connects activities and people in distinct geographical contexts. It increasingly represents the scale, uniformity and homogenization of the society while the Space of Places is more of a historic manifestation. It relates to the spatial organization of our common experiences which relates to characteristics of a place such as history, urbanity, durability and identity. The Space of Flows is a new world which no longer has anything to do with the Space of Places. Castells hypothesis is that the Space of Flows has become the truly dominant form of the network society and that architecture and design are likely to be redefined according to it in their form, function and value in the near future. The new architectural monuments of our time will be the “communication exchangers” such as airports, train stations and other internodal transfer areas (Wigmans, 2007). More recent treatise on the network society however warn for urban fragmentation on a local and global scale. Graham and Marvin (2001) state that urban infrastructure networks, once developed by and maintained by the public sector, have been opened to private competition. This shift has a wide range of consequences for politics, culture and society. The most notable of these consequences are the forms of segregation occurring within urban areas if the access to certain areas becomes limited to populations of elite political or financial means. In short they describe the juxtaposition of different realities and chances, caused by either having access to or being blocked from infrastructure networks. Where infrastructure was always seen as a means of interconnecting different groups and places, nowadays infrastructure networks tend to become devices to separate places and people which sometimes leads to isolation (Burgers, 2002). Thus according to Castells, places such as railway stations will become the new monuments of our days as they are our connection to the Space of Flows and thus our connection to the global network which stresses the potential of railway station locations. On the other side Graham and Marvin argue that increasing privatisation and the functioning of the free market will lead to an increasing fragmentation of the Space of Flows which will lead to the isolation of the less important nodes in the network, both globally and locally. In order to prevent this the development of internodal locations, such as railway station areas, will become increasingly important. Nevertheless, an article from the Economists (2011) warns us to not invest to much money in the high speed rail, as not all high speed rail stations can be transformed into vibrant and attractive places to establish high end businesses like happened at Euralille. At some critical point it becomes a waste of money to transform a station area as the market is already saturated. The big question is at what point does the market reach this point of saturation?

Railway station areas always have been seen as objects of property investment. The property development prospects will depend on many external factors related to both node and place features. It is not so much the absolute performance of the location that will be important but rather the performance relative to alternative locations, both in the same city and elsewhere. Next to this, railway station areas can only be developed if various conditions are met. The main strengths of such areas are considered to be their excellent accessibil-
city by public transport, the associated high flows of people, in most cases the proximity of the historic city centre and the support of public policy. The main drawback is to be found in the high development costs and the comparatively low revenues. This means that the market feasibility of railway station development plans remain controversial which often leads to insufficiencies in urban design and inadequate differentiation (Bertolini and Spit 1998, Ch. 3).

The node place model introduced by Bertolini in 1999 provides an analytical framework to penetrate the dynamics of railway station area development. The underlying idea is that improving transport provision in a location will, because of improved accessibility, create conditions that are favourable for further intensification and diversification of land uses around the railway station. In its turn, intensification and diversification of land uses around the railway station, because of the growth in the demand for connections, will create conditions favourable for further development of infrastructure there.

Five typical situations can be distinguished in the model of Bertolini. Along the middle line are balanced situations, where node and place values are equally strong. At the top of the line are situations under stress. Here the intensity and diversity of both mobility flows and urban activities is maximal. This indicates that the potential for land use development is highest and that it has been realized. At the bottom of the middle line are the dependent situations. The demand for transportation services from local residents, local workers and other users, and the demand for urban activities from travellers are both so low that supply can be held in place only by intervention of other factors such as external subsidies or other supports.

Finally two unbalanced situations can be identified. On one side, at the top left of the diagram are the unbalanced nodes where transportation supply is relatively much more developed than the urban activities. On the other side, at the bottom right of the diagram, are the unbalanced places where the opposite is true. These unbalanced situations are particularly interesting as they will tend to move towards a more balanced state naturally. An unbalanced node could either increase its place value or decrease its node value to reach such a state (Bruinsma et.al., 2007 p. 39).

The node-place model can be an indicator of which station areas possess the potential of becoming high end nodes and places within the model. A station area under stress will be expensive to redevelop as there is little space for the development of space and there is little space for the development of the node. Space for development has to be created. Whether such a station area actually will be redeveloped depends on the demand from the market or the willingness to pay by governments. Cities like New York, London, Paris, and Tokyo all have station areas under stress which have been redeveloped. But in their cases either the market was willing to take up the additional expenses.
or the government was willing to invest in a railway station area that could potentially be transformed into a high end node. The point is that making a high speed train stop at a station does not make a difference on its own. It is interrelated with a number of external factors and sometimes it is just wiser to develop and underdeveloped node instead of further developing an area in a stressed position.

2.12 Contemplation
This first chapter shows that the Dutch were initially not overjoyed with the concept of the steel railways and the steaming monsters that they would bring about. They clung to much to their conventional ways and means of transportation which before then mostly happened by water and barge. The fears concerning the railway covered all layers of the Dutch society, from the poorest peasants, to capitalists, to representatives of the Dutch national and local government. Eventually two entrepreneurs, by means of a test, succeeded in successfully constructing and exploiting the first Dutch railway which ran between Amsterdam and Haarlem. However, this hardly meant that the fences were down for railways in the Netherlands. Eventually it required a loan from the king himself to warm up capitalists for new railway ventures. A second consortium went up to the challenge but found themselves opposed by difficulties in expropriation and financial shortages. The second Dutch railway remained unfinished and eventually the venture was adopted by English capitalists and engineers. It was them who eventually made the Dutch railways take flight.

Because of the ever increasing chaotic organisation of the first Dutch railways, the task of constructing new railways was transferred from the commercial enterprises to the state and only two enterprises remained to exploit these railways. In 1917, because of financial hard times, these two enterprises joint hands and formed a joint venture called the Nederlandse Spoorwegen. In 1930, because of the financial crisis, this joint venture was taken up by the Dutch state which turned the Nederlandse Spoorwegen into a completely state owned enterprise which continued to operate under private law. It was from this moment onwards that the NS continuously encountered financial problems. At first because of the expensive maintenance to the tracks and material, later because of damages inflicted by the second world war, the decline of the Dutch coal industry and the advance of motorized traffic. Although the company has known its ups, such as the introduction of “spoor naar 75”, it mostly has known downs which inevitably led to the privatization of the railway company. It was split up, relieving the railway company from its obligation to construct and maintain the Dutch railways.

Over time, the Dutch railway station as a building typology has been prey to a lot of change. At first the railway stations were positioned well outside the city boundaries where they wouldn’t bother anyone. During the second half of the 19th century the stations developed into the new modern monuments which represented progress, innovation and prosperity. However, as the railway company endured rough times, the station buildings were stripped down from everything that was regarded to expensive, making the new post war railway stations as poor as they once were majestic. During the 1980s the Nederlandse Spoorwegen realized that this approach had led to unsafe and uncomfortable buildings which repelled potential travellers. A new architecture was implemented for new railway station buildings, which was light and provided the traveller with additional amenities to enhance the feeling of safety and comfort. This concept has evolved over the years, leading to modern railway stations that nearly resemble shopping malls.

Despite the century long struggle of the Dutch railways, during the last decades the Dutch government has put a lot of faith in its rail infrastructure by investing a lot of money in the high speed network. Expectations are very high and it is only the questions whether dreams come true. Theories made up by Bertolini and Spit, Graham and Marvin and Manuel Castells all predict that a connection to the European high speed railway will improve the competitive position of the cities which allow access to the network. But how does this count for six cities in such a small country as the Netherlands?
Railway station outside the city

Railway station as part of the city

Railway station encapsulated by the city

Railway station as barrier for urban development and city as barrier for node development

Railways: dominant mode of transportation, own identity

Cars as dominant mode of transportation, railways lose identity

Multi modal railway station design

Providing in secondary traveller needs

Bringing back identity

Original network

Densified network
CHAPTER 3: AMSTERDAM
3. Railways in Amsterdam

This chapter provides insights into how Amsterdam struggled with its harbour in decay and how it found a fragmented solution to its problems in the railway. Next to this it will show how the city put a lot of efforts in redeveloping its former harbour lands near the central station into a vibrant international office location and how this role was stolen away by other locations in the city. The writings of this chapter are mainly based upon the writings of the last two parts of the city’s monograph, respectively edited by Aerts & de Rooy (2007). For the account on the station area developments I have made use of a number of journal articles.

3.1 City in decline

At the beginning of the 19th century, the city of Amsterdam still deemed itself to be the centre of the world. Internationally however, her status had perished and the city was now considered to be the fourth biggest city in Europe. This was partly due to the size of her population and partly due to her grant past. But the Netherlands, and thus Amsterdam, had lost their grandeur due to separation of Belgium and the occupation by France. Next to this, Amsterdam’s role as the financial centre of Europe was taken over by London. Furthermore the city lacked the presence of the royal court and she failed to develop into an international traffic junction. All in all, Amsterdam proved unable to keep up with other large European cities such as London, Paris, Vienna and Berlin, which unlike Amsterdam were developing and growing rapidly. Amsterdam was considered to have lost the energy to participate in the new and modern world which developed around her.

3.2 Amsterdam as harbour

The size and shape of the city of Amsterdam had not changed since the mid 17 hundreds. At the beginning of the 19th century the land-side of the city was still shut of by a city wall with eight city gates and twenty six strong-holds. The north side of the city was open to the waterfront and the Amsterdam harbours. According to Aerts (2007), the city must have invoked an impressing sight when approaching it from the IJ river.

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Figure 11: Railway development in Amsterdam (by author)
The IJ river still was Amsterdam’s lifeline. It was the only connection to the other cities in the North of Holland, to the cities on the other side of the Zuiderzee and of course to the sea. In order to keep the IJ accessible for the increasingly large ships, the city constantly operated 94 dredge barges and five mud-mills. Each year still sixty to seventy thousand ships called upon the Amsterdam harbour. With the amount of silting the harbour had to cope with, it was almost miraculous that the city was able to maintain one of the largest harbours in Europe for so long. It was mainly because of the monopoly on the transit of goods to the German industrial hinterlands that both Rotterdam and Amsterdam were able to maintain this position. The coming of the railway however made the Industrialist in Germany far less dependent on transport over water and thus the Amsterdam and Rotterdam harbours were deemed to become obsolete. Especially for Amsterdam this was of great concern because she was not as well connected to the German Industrial lands by water as the harbour of Rotterdam.

With the coming of steamships and the increasing immersion of all ships, Amsterdam became harder and harder to reach and it was losing ground rapidly to the harbours of Rotterdam, Antwerp and Hamburg. In order to save the Amsterdam harbour from wreckage, the national government agreed with a rescue plan which consisted of the construction of the North Holland canal and the construction of a dike structure which should create a new harbour secluded from the silting of the Zuiderzee. On the 13th of December 1824, at a price of eleven million guilders, the North Holland canal, which ran from Amsterdam through Alkmaar to Den Helder, was completed. At that time it was the biggest man made canal in the world. Initially the canal proved to be a tremendous financial failure. Only twenty percent of shippers chose to pay for using the new waterway while the remaining 80% preferred the old route across the Zuiderzee. It was not until 1840 that this number significantly increased because of the upscaling of ships. However, in 1850 the locks at Den Helder, which provided access to the canal, proved to be too small for these ever growing vessels and as a result Den Helder slowly took over the position of the Amsterdam harbour.

3.3 Amsterdam railways
In this first half of the 19th century, the city of Amsterdam and the national government invested a lot in maintaining Amsterdam as a waterfront city. But as much as they invested in the water, as little did they invest in connections by land. The city wall had slowly fallen into decline from the beginning of the 19th century onwards and it had lost its military function. After the...
example of ventures in other cities, plans were made to create a green zone on the place of the old city walls but they were only partially executed. The decline and demolition of the city walls preluded a new era of Amsterdam as an open and freely accessible city which was no longer an island on its own, but which was to become part of network. The first step in this process was the arrival of the first railway in Amsterdam.

Amsterdam had always been in favour of the plans to construct a railway between Amsterdam through Utrecht to Arnhem because it would provide the city with a sound connection to the German industrial lands. However this first plan for a Dutch railway stranded because the national government simply feared the new English invention and did not wish to invest in the project. Eventually it were three Amsterdam merchants, Mr. Serrurier, Mr. Le Chevalier an Mr. Brade who took a second initiative. They proposed, by means of a test, a railway between Amsterdam and Haarlem which would follow the same route as the canal between these two cities. If successful, they would extend the railway through Leiden, The Hague, Delft and Schiedam to Rotterdam. The city of Amsterdam had no interest in this railway at all and saw only disadvantages in a direct connection with its main harbour rival. Only as a new means of public transportation the railway between Amsterdam and Rotterdam was deemed to be interesting. The first train departed from Amsterdam on the 20th of September 1839 from a small wooden platform as there was no station building yet. For public transport, the railway to Haarlem proved to be an enormous success which led to the extension of the railway to Rotterdam and the construction of a classicist terminus station near the Willemspoort by design of Cornelis Outshoorn who besides the initial stations for Haarlem, Leiden and The Hague also designed the Amstel Hotel and the palace for industry in Amsterdam (Saal & Spangenberg, 1983). Soon the tow barge, which had transported people over the canal from Amsterdam to Haarlem for centuries, had become obsolete.

On the other side of the city, where the River Amstel penetrates the city boundaries, near the Weesperpoort, a second though smaller station arose. This station was to serve the railway between Amsterdam and Utrecht which because of interference by the king himself got completed in 1844. Although this railway was originally meant to transport goods it seemed to be more popular among travellers as 75% of its revenue came from public transportation. The station building was also a terminus but was much less monumental than the station at the Willemspoort. Both stations however were situated across from a remaining city gate. Because of this disposition,
both stations acted like modern city gates (Saal & Spangenberg, 1983).

With the coming of the railways Amsterdam acknowledged that the city could no longer solely rely on the network of waterways. The harbour’s future lay in an integral improvement and extension of both waterways and railways.

3.4 Amsterdam Central Station

The modern life had finally reached Amsterdam. However, a lot of the city’s residents still clamped on to their old ways. Nevertheless they were confronted with the “new” and they had to find their own balance between conservatism and progress. Some of the city’s residents were, for that time, true visionaries, like Samuel Sarphati. He pointed out that Amsterdam’s future lay with industrialisation. His palace for industry, designed by Cornelis Outshoorn after example of the Chrystal Palace in London, should demonstrate this. It was meant to demonstrate new inventions that would compose the modern age. Inventions like the first refrigerator in 1864 and the hot-air balloon found their way to the palace.

Another visionary was C.P. van Eeghen, an Amsterdam merchant. He was of the opinion that the Dutch capital could do with some more allure. Amsterdam was not only lacking behind in city development with the major European cities, but even with its Dutch neighbours like Haarlem, which from the 1820’s onwards had planted fine parks on the location of the old city walls. Amsterdam did not have the financial means to do this because all funds were invested in the maintenance of the harbour. Eventually it were a number of prestigious Amsterdam residents that funded both the design and plantation of the Vondelpark. The first part of the city’s first true park opened in 1865, despite the expressions of other residents that the park was a mere waste of money and that Amsterdam should not have the desire to look like other major European cities. The public opinion still was that Amsterdam was special and unique for its canals and harbour and therefore did not need any finery. In the mean time however, outsiders compared Amsterdam with smaller extinguished cities along the Zuiderzee such as Hoorn, Medemblik and Enkhuizen or even with Venice in Italy. Aerts & de Rooy (2007) impute the lack of progress among the majority of the city’s residents mainly to the desire to become grand once more. The city once had become the prosperous centre of the world because of its harbour and trade with the East-Indies thus the final decline of the harbour would mean that a revival of the old days would definitely be ruled out. This thought seemed hard to be accepted by the people of Amsterdam.
With the increasing silting of the harbour and the outdated capacity of the North Holland canal the Amsterdam city council opted for the construction of a direct connection between the IJ and the North Sea. The main question was who would have to pay for this endeavour. The Amsterdam city council ascribed this charge to the national government as in these days (after 1863) they also paid for the construction of new railways. However, after investing in these railways and also in the Nieuwe Waterweg, a canal between Rotterdam and the North Sea, the national government was unable to also pay for the North Sea canal. Eventually a consortium of well doing Amsterdam merchants paid for the venture with a subsidy of the Amsterdam city council. After eleven years of financial and technical misery, the North Sea canal was finally opened on the 1st of November 1876 and the IJ river was indefinitely closed off from the Zuiderzee to prevent the harbour from silting.

Now that the desperately desired canal was finished, the city realized that she had to update her connections with the hinterlands in order to revitalize the harbour. The Amsterdam city council understood very well that the best way to re-establish these connections was by means of railways. Although the city had two stations at its disposal, this was hardly sufficient to serve the docks. The national government, who at that time was responsible for the construction of new railways, was willing to connect the two railways but also had the desire to make a connection to the north through Alkmaar to Den Helder. The engineers of the national government proposed to connect the railways from Haarlem and Den Helder near the Leidsche Poort. From there on a new heightened railway would run north of the city, through the IJ river, along the plantation area to the Weesperpoort. A new central station would then be built on an island in the IJ river.

The Amsterdam city council had two major objections against these plans. First of all the railway connection to the north would require a bridge which would undeniably damage the shipping on the new North Sea canal. Second and way worse was the idea of constructing a number of islands within the harbour as the space for manoeuvring large ships was cramped even as it was. It proved to be useless to protest against the plans as prime minister Thorbecke and his administration had already agreed on them. Thorbecke was fed up with the stubborn and opposing attitude of Amsterdam and forced the city onto the modern path and in 1869 the city council officially agreed on the plans. Three artificial island were constructed within the open harbour front, the railways were connected and
in 1882 construction was started on the station itself by design of Pierre Cuypers and engineer Adolf van Gent. In 1889 the new traveler’s palace was officially opened.

The Amsterdam Central station is still the biggest station in the Netherlands. It was built in a Dutch Renaissance style and its facade stretches 307 meters. The station consists of a centrepiece with two wings which are ended by two pavilions. The eastern pavilion contains the royal waiting room. The remainder of the building contains waiting rooms for 1st, 2nd and 3rd class, offices for the railway service, meeting rooms and a restaurant with beer- and wine cellars (Romers, 2000). The coming of the new Amsterdam Central Station evoked a lot of complaining but also effectuated some major changes for the city. The central station had transformed the Damrak into a new entrance of the city. The oldest harbour of Amsterdam was filled up which cleaned this part from the city from noisy market traders and harbour activities. Next to this, the H.S.M. built their new main office by design of Posthumus Meyjes and D.A.N. Margadant (NAI/Bonas). Directly opposite the station the Victoria Hotel was built by design of Johan Friederich Henkenhaf to accommodate weary travellers. With the coming of the central station and also the new Rijksmuseum (also by the design of Cuypers) Amsterdam had finally given in to new developments and the city had slightly caught up with its major European competitors.

3.5 City expansion

After the completion of the Amsterdam Central Station in 1889, hardly any large-scale alterations were made to the Amsterdam railway system. In his urban extension for the southern part of the city from 1915, H.P. Berlage already proposed an extension of the railways and a new station for the so-called Plan Zuid. It was not until 1978 that similar plans for such a station and its accompanying railway were realized.

In 1921 Amsterdam annexed a great number of nearby municipalities in order to be able to expand the city so as to cope with the increasing population size. Until then, Amsterdam had grown uncontrollably and the new expansions were quite a mess. In order to gain control, architect and urban designer Cornelis van Eesteren was appointed the task of designing an Algemeen Uitbreidingsplan or AUP (eg. General city Expansion plan). The plans of van Eesteren were a display of how a city should function and how traffic could be integrated within city planning. In 1934 van Eesteren’s final plan was accepted by the city council. The plan also incorporated the construc-
tion of a railway south-west of the city. With the construction of this railway, Amsterdam would obtain a ring railway. These plans only became reality in 1981, with the completion of the Schiphollijn which lead from Leiden through Schiphol to Weesp. The ring railway as a whole was completed in 1986 after construction of the western connection from Amsterdam Central Station to Schiphol. The Schiphollijn with its branch to Amsterdam Central Station is a proper example of a railway that has been thoroughly incorporated within urban planning. The tracks are heightened in order to let traffic pass underneath and the railways are part of the urban fabric which allows it to serve a bigger area of the city.

3.6 Amsterdam metropolitan
Although quite a success, the design of the ring railway by van Eesteren was outdated by the time it was finally completed, thus other means of transportation were required in order to provide public transportation to the more remote urban expansions as well. As early as in the 1950’s proposals were made to create an urban railway. With the completion of the Bijlmer in the south-eastern part of Amsterdam in 1968 it was decided to construct such a metro line between Amsterdam Central Station and the Bijlmermeer, the so called east line. At the 27th of August 1970, construction on the line was started at the same location where the Weesperpoort station once stood. The decision making concerning this eastern metro line went rather smooth and no hard resistance had appeared yet. This was until demolition within the Amsterdam historical city centre commenced in order to build part of the tunnel which would connect to Amsterdam Central Station. The enormous political tension that arose made that the city council decided to cancel the construction of a second metro line which would run from north to south.

3.7 IJ-Oevers
At the start of the 1980s, the major part of the Amsterdam harbour had lost its function due to the ever increasing size of ships. The harbour lands had
gradually started to fall into decline and crime and prostitution dominated the streets. Therefore in 1982, a symposium was organized to discuss how these former industrial lands could become part of the city once more. It took up to 1989 to establish a master plan for the area. Because of its proximity to the historic city centre and its proximity to the Amsterdam Central Station, the Amsterdam city council regarded the area as an excellent location for, among other things, high end office development. By developing the IJ banks into a high end service oriented office location, Amsterdam would be able to establish its position within a network of competing cities. In order to provide in enough office space, a number of 100 meter high office towers were proposed along the banks of the IJ river. Besides becoming a modern high end office area, the location was to become an extension of the city centre, disposing over a large number of cultural amenities, a large scale movie theatre, leisure, retail and off course dwellings. It was to become the ultimate combination of “wonen, werken en recreëren” (Prins, 1989).

In order to make all of this succeed, the area had to be provided with a number of new infrastructural connections to improve the accessibility of the area. The IJ banks were separated from the historic city centre by the Amsterdam Central Station railway yard, the area had no connections to the nearby motorways and it was not connected to the city’s public transportation network. All this had to be established in order for the project to succeed. The high costs that these infrastructural works would bring about, were not regarded as a problem as the IJ banks were appointed as one of the key projects and therefore it could rely on additional funds from the national government. Optimistic as all involved were, plans were made for an extension of the Amsterdam Central Station at the backside. These plans involved an elevated high speed tram stop, a metro tunnel connecting the city centre to the northern side of Amsterdam, a shopping mall, a large office tower and a congress centre. However, while urban planning for all this was underway, the office market collapsed. As a result of this, the Dutch national government doubted whether the high investment costs due to the highly required infrastructure would pay off and consequently the planning process ended in a “tug of war” (ten Cate, 1992).

Meanwhile, one of the few potential purchasers of land for office space development left on the market, ABN AMRO, decided to take matters in its own hands and went in search for a location elsewhere in the city. It found a new location in Amsterdam South, near Amsterdam’s world trade centre and near station Amsterdam South. This location was easily accessible from the nearby ring road, from the railway station and it was close to the airport. During the years that the IJ-banks project was launched, a lot of offices and small scale companies had established at this location. The choice of ABN-AMRO to establish their new office at what soon would become known as the Amsterdam Zuid-As, opened the eyes of the urban planners. The IJ-banks projects was subdivided into smaller sub projects and developers awaited better times before developing the dilapidated harbour lands. By now, the area has not become the high end office location that was ones desired. However, it has become a high end residential area, combined with the desired cultural facilities such as museums and a concert hall. And so the area has become the extension of the city centre that was once dreamed of.

Therefore one cannot say that the project has failed. However it shows us that it is not only the proximity to a railway station that can boost the competitive position of an area. The Zuid-As area was once regarded as inferior to the potential of the IJ banks. As the next paragraph will explain, this position changed over time (van Lohuizen, 1994).

3.8 Amsterdam Zuidas
In fact it were the Dutch businesses that more or less forced the city of Amsterdam to develop the Zuidas into a high quality office location instead of the IJ-banks. After the ABN-Amro Bank had announced to establish their new head quarters there, other companies like ING and Phillips soon followed. The municipality realized that the Zuidas location had a lot of potential of becoming the Netherland’s central office location where all national and international company headquarters could establish themselves near one another. Although initially not planned for, this led to the establishment of a masterplan for the area which was completed in 1997. Again it put the focus on the high quality which should attract the much desired high end businesses in order to align the city with other international European cities, and again
the area was appointed to become one of Amsterdam’s new vibrant centre locations with a divers mix of functions. However, the area faced some of the same spatial dilemmas as the IJ-banks. Although the area was well connected to the nearby motorway and railway, it was separated from the city centre by the city’s ring road. The lands which were to be developed were actually a buffer zone between the pre-war urban expansion area within the ring road and the post-war urban expansion area outside the ring-road. The buffer area was originally planned to allow for the expansion of the infrastructure between these two areas (both the motorway and the railway) but over time it had turned into an urban wasteland with not much more and some sports fields and allotment gardens. Therefore, in order to “heal” the urban fabric, the masterplan suggested to use the urban development of the Zuidas area to establish a thorough connection between the outer ring area and the inner ring area. In order to do so they proposed three possible solutions to the problem, respectively maintaining the current situation with the railway and motorway on a dike with improved passages underneath it, putting the railway and motorway underground and constructing real estate on top of it and last, bringing the motorway and railway back to ground level and construct an elevated ground level with real estate on top of it. In all three variants the railway station would be expanded in order optimise the accessibility of the area and to allow for the area to be connected to the international High Speed Network (Broekmans, 1997).

The development of the Zuidas is currently well underway. The offices of ABN AMRO and ING are completed and the area around the AmsterdamSouth station is really taking shape. However, during the years after the Zuidas Masterplan was presented, the office market has changed once more. Due to the introduction of the new way of working and the advance of the computer, in general companies need less office space which has led to an oversupply on the office market. This has led to a tug of war concerning the radical adjustments to the infrastructure in the area, which was to be co-funded by the selling revenues of land on top of the infrastructure. Public and private parties have not yet figured out if and how the proposed adjustments can be realized, but almost 15 years after the presentation of the masterplan, the Zuidas lacks the international air that was once

![Figure 24: Zuidas infrastructure variants (Broekmans, 1997)](image1)

![Figure 25: Zuidas Dokmodel (Zuidas.nl)](image2)
envisioned. However, the Zuidas was planned to be developed over a period of thirty years which means that it has still a future in front of itself. Nonetheless, with the current ongoing financial crisis the prospects do not seem to be good.

3.9 Amsterdam metropolitan revived
With the ongoing developments on both the Zuidas and the IJ-Banks borne in mind, combined with the ever increasing congestion of the road and the public transportation network in the innercity, the city of Amsterdam decided to revitalize the cancelled metropolitan railway between the north and the south of Amsterdam. The announcement of second metro line through the historic city centre of Amsterdam was not well received by the public as many of the Amsterdam citizens remembered how half of the city had been demolished in order to build the first metro line. Resistance against the plans for a second metro line were warded off by stating that new building techniques would be applied while building this tunnel. The underground part of the metroline would be constructed with the help of a tunnel boring machine which meant that no above ground construction works would take place, with the exception of the construction of stations (Bontje, 1997). In 1996 it was decided that the North-South line would truly be constructed and in 2002 construction was officially started. The completion was expected for 2012 but by now the expected delivery has been extended till 2018 because of technical problems which also have stretched the budget of 1,4 bilion euros to as much as 3,1 bilion euros (NRC Handelsblad 2010).

3.10 Amsterdam Zuidoost
The Zuidas was not the only area that stole away the potential of the IJ-banks because of its good accessibility. From 1989 onwards, Amsterdam’s soccer club Ajax had been planning to realize a new stadium as their old accommodations did not meet European soccer standards anymore. A location for this new stadium was found near the Bijlmermeer on a stretch of land between the motorway and the railway which, just like de Zuidas, was only used by the occasional hobby gardener. This location was chosen for the stadium because of its proximity to the motorway and the Bijlmermeer railway- and metro station. While construction on the soccer stadium was well
under way, and the municipality had just announced that the Zuidas was to become the region’s new high end office location, land prices sky rocketed at the Zuidas while newly adopted selection criteria had to made sure that only companies with a high end status could establish themselves on the Zuidas. Smaller, less prosperous companies therefore sought for an alternative location to establish themselves, which they found near the new soccer stadium. The stadium was easy to recognize, the accessibility of the area was excellent and the area was situated quite central within the Randstad urban region. Besides offices, a lot of leisure oriented businesses regarded the presence and the recognizability of a soccer stadium as favourable as well and so it happened that the Amsterdam Arena area turned into the city’s second city centre with a focus on entertainment (Bruijne, 1997, 2000).

However, just like the Zuidas and just like the IJ-banks, with the railway on one side and the motorway on the other side, the area was poorly connected to its surrounding urban fabric, which required intervention. Therefore it was decided to renew the railway station and to create a 70 meter wide boulevard which would connect the urban fabric to the new city centre. As the railway station was already positioned upon a dike, the new boulevard could run underneath the station and the station would get its entrance along this boulevard. The station was designed as open and transparent as possible in order to prevent the new wide passageway from becoming a dark and unsafe place. By now most of this urban area development has been completed, included the railway station. Both are regarded as a high success. The new boulevard acts as a true connector and the area has truly become the city’s second entertainment site.

3.11 Amsterdam Central Station as a multi modal hub
One can imagine that, after all this urban development and growth, the city’s main station required development and expansion as well. Over time little changes have been made to the Amsterdam Central Station building while passenger numbers were and still are increasing. The building has to be prepared for the future. One of the major additions that is going to be made is the underground station of the metropolitan railway, connecting Amsterdam North to the Zuidas. The tunnel will

![Figure 28: Amsterdam bus terminal (Bontje 1997)](image-url)
run underneath the IJ river and then straight underneath the railway station building which dates back from 1889. This is a major challenge as the building is constructed on wooded piles to prevent it from sinking away in the man made island. These wooden piles are constantly submerged in water which prevents them from rotting and therefore all construction works in the direct surroundings of these piles can potentially inflict major damages to the monumental building by design of P.J.H. Cuypers. As such, a concrete table structure has been constructed to permanently support the railway station, relieving the wooden piles from their duty. This task was recently completed and is regarded as a huge success (Bontje, 1997)

Besides the arrival of the new metro line, the city of Amsterdam wanted to seize this period of construction and mess to clean up the direct surroundings of the railway station. The square in front of the building, which once used to be covered in little parks and was regarded as a nice place to linger, has over time changed into a mess of different modes of transportation, cheap street furniture and small kiosks. In order to clear the square from this mess and to return the square to the pedestrians, all modes of transportation (besides the trams) will be relocated in a new multi modal terminal at the IJ side of the railway station. This new terminal forms the fourth overall span of the railway station and besides clearing out the square in front of the building, the terminal provides the city with a true face towards the open water front, a face that had been stolen from the city after the arrival of the central station in 1889. This new face will be emphasized by red letters on the roof that will spell the city’s name aloud.

The new multi modal terminal houses a second arrival hall, a bus station, access to the submerged metro and access to the new tram towards the IJ-banks. Cars are guided underneath the terminal by means of a two x two traffic tunnel and at the waterfront wharfs are being constructed to allow access to the ferries that service the IJ river. After completion, Benthem & Crouwel architects will have turned a 120 year old monumental building into a modern transfer machine (Benthem Crouwel, 2007).

3.12 Contemplation

This chapter has shown that Amsterdam has lingered in its past for a very long time. The city’s harbour was expected to bring about a revival of the city’s golden age and therefore it absorbed all the city’s attention and all major investments made. Nevertheless the city understood that railways could prove of help in conserving the harbour. With the coming of the central station however, a lot changed. For the first time in its history the city got disconnected from its harbour front and therefore the Amsterdam central station forms a barrier for the city that is still unique in its kind today as it changed the city’s face towards the river. At other places, the barrier characteristic of the railway is less present. This is mainly due to the fact that these railways were part of the urban planning process and therefore they are adapted to and part of their environment. Due to the fact that they were part of the urban planning system, buffers between the railway and the urban fabric were left open for future expansion of the infrastructure. However, for Amsterdam these space proved to be valuable urban development space. Among other things, the excellent accessibility of these buffers made them into much wanted locations for office and leisure developments which was initially overlooked by the city. The proximity of a railway station is an important factor in the development of these buffers into new urban cores of the city. The station buildings obtains the role of a link between the existing urban fabric and the newly developed fabric, as is the case at both the Zuidas and the Arena area (although not yet achieved at the Zuidas and highly successful at Zuidoost). Nevertheless the proximity of a railway station is not a guarantee for a successful urban area development. I regard proximity to other modes of transportation just as important. Besides this it depends on a number of other external factors whether a development will succeed or not, and some of these factors can just not be controlled. For example, the IJ-Banks development failed simply because companies did not want to establish themselves there but elsewhere, a process you can hardly control.
Before the railway
Railway in the open
Expanding railway
Railway on a dike

Railway station in a stressed position
Railway station as urban connector
One core city
Core development near railway stations
CHAPTER 4: UTRECHT
4. Railways in Utrecht

This chapter will provide an overview on the development of the railway system in Utrecht and on how the city had to cope with its growth and its role as Holland’s central railway junction. Next to this it has an account of how Utrecht’s central station was absorbed by the Hoog Catharijne project and how the arising problems in the area suppressed with the help of the Utrecht City Project. The chapter mainly consists of a summary of writings by Renes (2005) and van Hulzen (2000 and 1997). The paragraph about Hoog Catharijne is based on writings by Hoogendijk (1979) and Buiter (1993). Other sources will be indicated in the text.

4.1 The city’s growth

Utrecht and the railway had the honour of meeting each other for the first time on the 18th of December 1843 when the city was connected to Amsterdam after the completion of the first section of the Rhijnspoorweg between Amsterdam and Arnhem (which in its entirety was completed in 1845). After this first meeting, Utrecht rapidly evolved into the main railway junction of the Netherlands, which she still is today because of its central disposition in the country. In 1855 the N.R.S. completed its second railway which led from Utrecht through Gouda to Rotterdam and in 1864 the N.C.S. (Nederlandsche Centrale Spoorwegmaatschappij eg. the Dutch Central Railway enterprise) completed its tracks through Amersfoort to Zwolle. In 1870 the city’s railway network was expanded by the SS to Den Bosch and in 1874, solely for competitive reasons, the H.S.M. established a second connection with Amsterdam through Hilversum. This quick overview, in combination with the maps down below, show how complex the situation quickly became and how the city of Utrecht rapidly got surrounded by railways (Renes, 2005).

4.2 Stations

The railway system of Utrecht finds its origin with many different enterprises which all built their own stations. The N.R.S. completed its first station in 1843 on the location where we can still find Utrecht Central Station today. The original station was designed in a Neoclassicist style and has been transformed multiple times to accommodate the growth of the railway system.
around Utrecht. In 1936 this building was expanded for the last time by design of S. van Ravesteyn, who enlarged the station hall significantly and added a new facade which was characterized by van Ravesteyns famous curved line. Shortly after this new expansion was completed, the building burned down and it was altogether replaced by a new building by design of van Ravesteyn in 1939 (de Jong et al. 1977)

Together with the SS and the H.S.M., the N.R.S. founded station Lunetten in 1874 to allow an easy transfer for passengers travelling from Rotterdam and Amsterdam to Den Bosch and Hilversum and the other way around. After the liquidation of the N.R.S. and the establishment of the joint venture between the SS and H.M.S., this station was shut down as its transfer function came to an end (Romers, 2000). Besides the N.R.S., the H.M.S. was still the largest player on the market and therefore she opened a grand station on the other side of the city centre which should be the second entrance to the city for travellers coming from Amsterdam and which should compete with the station of the N.R.S. Station Maliebaan, by design of A.L. van Gent in Neoclassicist style consisted of a two floor centrepiece and two low wings. The centrepiece housed the lobby and offices. The left wing contained a mensa and the right wing was used to store luggage. Although grand, station
Maliebaan attracted only few travellers as the direct route between Amsterdam and Utrecht was shorter than the route through Hilversum. Next to this a new station was opened in 1885 at the Biltstraat which had a much more direct connection with the city centre. Eventually the station was converted into a goods depot. In 1939, with the establishment of the N.V. NS, station Maliebaan was closed down as there was now a direct connection between Utrecht central station and Hilversum. Station Maliebaan had become redundant. In 1953 the station has been reopened to serve as the Dutch National Railway museum (Romers, 2000).

The railway system of Utrecht has been laid out by multiple railway enterprises. Although this is still very visible in for example The Hague, no traces of this competitive struggle can be found in present day Utrecht. In my opinion it could have been if not for two reasons. The first reason is that the H.S.M. did not had a very strong competitive position, as they exploited a new railway to Amsterdam which was subordinate to the already existing railway to the capital. What should have become the second main station of Utrecht ended up to be a failure. The second reason can be found in the service that the railway enterprises were prepared to offer to their travellers. Around Utrecht the railways of the different enterprises were connected to each other and where the lines intersected they were even provided with a station which allowed for inter-company transfers.

4.3 Enclosed by railways

The city of Utrecht is a perfect example of unanticipated growth. Although we nowadays are used to the fact that in the big cities railways bring their travellers to the centre of the city, this has not always been the case. If we look at the development maps of almost all Dutch cities we can see that the stations were originally established at the boundary of the cities. Urban growth however has encapsulated them over time. In Utrecht this became a real problem at the beginning of the twentieth century. The railways became crowded, just like the regular roads leading from the city centre to the periphery. The guarded crossings that were used to separate the different traffic streams from one and other were, due to regulations and technical limitations, more often closed than they were open. In that time, the city council came with a proposal to divert the existing railways onto ones which ran outside the city boundaries. These plans have never been realized though. Eventually a tunnel was constructed near the central station which led underneath the railways and offered at least some relief for the traffic congestion. However, in the 1930’s the aggravations lead to a climax and it
was decided that the railways were to be heightened in order to create multilevel crossings. These plans were executed but were only finished in the 50's due to the war. The new heightened tracks offered relief to the traffic but were found to be barriers just the same as the amount of crossings were diminished and areas were now separated from each other by railway dikes which were not only logistical barriers but imposed physical ones as well. The city centre thus remained separated from its periphery (Renes, 2005).

4.4 A new city centre

On the 1st of January 1954, Utrecht annexed lands from neighbouring communities. With the annexation of these lands, the city's population size increased from approximately 200,000 to approximately 250,000 residents in one blow. The area of the city doubled. The city council planned to build some major urban expansions on the newly obtained lands and anticipated a population growth to 300,000 people in 1970 and 350,000 in 1980. The recent opening of the Amsterdam-Rijn canal and the construction of highways intensified the feeling that Utrecht could develop itself from a provincial town into a true city. This process was already well underway which was indicated by the recent expansion of the Jaarbeurs, which expanded its properties from the West of the railway, at Vredenburg, to the East along the Croeselaan. While awaiting the annexation of the lands, Utrecht had established an office for city development in 1950. This office came with a structural plan for the development of the city till 1970. The structural plans were based upon the ideals of the functional city which were very characteristic for post war development projects. In these ideals the focus lay on separating functions and separating motorized traffic from pedestrians.

With the growth of the city, Utrecht became more and more the centre of the region. She thus had to prevent that its residents would diverge to surrounding municipalities for leisurely activities. The political opinion was that if the city itself would grow, that the city centre would have to grow as well in order to prevent it from a downfall. This fear of decline was the main incentive for the city council to start making plans for the development of its city centre. The structural plan for the overall city did not provide a clear structural approach for the city centre. It only stated that the residential function was to be decreased and that buildings accommodating centre activities, like offices and shops, should get more space. Because of the public opinion, which stated that the city centre would turn into a deserted plane after the shops had closed and the workers had left their offices, other functions for amusement, culture and education were added to the city's development strategy as well. Nevertheless the city had made its statement: Instead of making a museum of Utrecht's city centre, it was to be transformed into the new sparkling heart of the region.
All the city’s economic progress had the consequence that Utrecht had to deal with an increasing amount of cars. In 1950 about 3000 of the city’s residents owned a car. In 1960 this amount had grown up to 10,000. Experts expected a fourfold of that amount in 1970. In order to be able to realize the plans for the city centre, a solution had to be found for the upcoming traffic congestions. On advice of the ANWB (Algemene Nederlandsche Wieler Bond, e.g. General Dutch Union for Cyclists) the city council installed the German traffic expert M.E. Feuchtinger to think up such a solution. Feuchtinger proposed a ring road around the city centre on the location of the old surrounding canals. Next to this he proposed to make a new north-south and a new east-west connection. Feuchtinger’s plans required the filling up of the canals and major demolition works on the monumental city centre in order to allow for the new inner city traffic connections. In 1950, filling up canals was almost a trend as multiple cities, such as Amsterdam, Amersfoort and the Hague were undertaking similar ventures. But when the city council revealed its plans to the public they were not as enthusiastic. Architects like J.J.P. Oud and Rietveld supported the public as they deemed that such traffic systems would only draw more traffic to the city. Next to this the ministry of Education, Art and Science proclaimed the canals to be cultural heritage and thus they would not cooperate in providing any of the required permits for filling up the canals. In December 1959 the city council decided a thorough urban plan was needed for the Utrecht city centre and that they would postpone a decision about the filling up of the canals.

In 1960 the Rotterdam architect and urban designer J.A. Kuiper took on the assignment of composing such an urban plan. At the start of 1961 he advised the city council to spread the centre activities over a larger area of the city so as to unburden the historical core. This approach allowed for the conservation of the historical core which could then act as a part of the new city centre but with its own historical characteristics. Kuiper suggested to limit the functions within the historical core to living and shopping. To prevent traffic congestion Kuiper proposed a tangent system in which a star shaped ring road would at some points intersect the surrounding canals. For this traffic system demolition was required as well but not within the historical core of the city. Next to this, Kuiper proposed the construction of a new business centre east of the historical core. The city council was not impressed by the proposals of Kuiper. From their point of view it diverged too much from their own plans and Kuiper was asked to adjust his plans to the vision of Feuchtinger. While doing this, a new plan arose from an unexpected angle.

4.5 Hoog Catharijne
Commissioned by the N.S. in 1960, project developer Empeo had conducted a study about the feasibility of a new parking garage near the central station in order to unburden the station square of parked cars and as to create space for a new bus station. In a gathering of city and N.S. officials, Empeo executive J. de Vries stated that the surrounding cultivation of the Utrecht Central Station did not match its potential. Because of its fine accessibility and its disposition west of the historical core, Empeo saw an opportunity for Utrecht to expand their city centre on a regional and national level. Both city and N.S. officials were enthusiastic about the plans of the project developer and mutually it was agreed that Empeo would elaborate its plans in the coming six months. On the 11th of October 1962, Empeo and the city council revealed their plans for the station area to the public. This project of enormous scale aroused a science fiction feeling among the residents of Utrecht. The initial design for Hoog Catharijne comprised 90,000 square meters of new office space and space for luxurious shops. Next to this Empeo planned to build 280 new dwellings, a new central station, a gymnasium and a hotel. On the other side of the railway a second entrance should make the station and shopping mall more accessible for the western urban expansions and for the jaarbeurs, which was expanding on this side of the tracks. 2500 parking spaces should relieve the city centre from traffic. All of these functions would be connected by an elevated pedestrian traverse after example of the Lijnbaan in Rotterdam. Traffic and pedestrians were to be separated from each other in order to create a qualitative and modern environment. The elevated network also had the advantage that it could easily bridge barriers such as the railway yard and the Catharijne canal which separated the station area from the historical city centre. The elevated traverse provided a smooth transition from the station and the shopping mall to the histori-
cal core, making it an integrated whole. The plans were accepted by the city council without any resistance and project teams were established. It was decided that the city would provide the required lands and that she would issue these to Empeo in leasehold for the next hundred years. Furthermore, the city would pay for the furnishing of all external public spaces. In total the project would not cost the city more than 15 million guilders. The costs for expropriation and the acquisition of the required lands were estimated on 93 million guilders. The city council however expected to recover these costs from the lease hold with Empeo. On the 25th of February 1964 the city council and Empeo signed the contract. However, agreements had to be made with other stakeholders as well, among which the N.S., the jaarbeurs and the Dutch defence department. All three actors owned and occupied lands which were required for the project and thus they had to be re-established. Eventually the defence department decided to move its barracks outside the city which lead to the demolition of the barracks west of the station and the re-establishment of the Jaarbeurs on these grounds. The Jaarbeurs complex east of the station could now be demolished. A new conference centre, the Beatrix Hall, was built to compensate for their loss of property. In order to persuade the Jaarbeurs to move, the city paid them 18 million guilders and contributed in the costs of the new congress centre. On
the location of the old Jaarbeurs, at Vredenburg, a new concert hall would arise (muziekcentrum vredenburg).

Part of the Hoog Catharijne project, in order to establish a sound connection with the historical core of the city and to provide the project with optimal accessibility, was the filling up of the Catharijne canal. It was to be replaced by what was then called the first part of the ring road around the historical centre. Because all the fuzz that Feuchtinger’s traffic plans had brought about, the national government was still not willing to provide the city council with the required permits as the canal was a listed monument. Eventually the national government had no other choice but to grant the permit as Empeo stated that the city could not meet its contractual obligations and therefore threatened to blow of the entire venture. The filling up of the canal was part of the already signed contracts between Empeo and the city and the city council had not expected such problems concerning the execution of these works. In return for this concession of the national government, the city council promised to refrain from other large scale infrastructural interferences within the historical core of the city.

From 1967 onwards the plans took on physical shapes and became percepti-
ble for the residents of Utrecht. From 1969 onwards one after another part of the project was completed and majestically opened. This was also the moment that the public opinion radically changed. Had they first been enthusiastic about this new and modern city centre that they would get, but now the concrete, gray, monotonous and dull boxes that arose seemed to disappoint. The re-establishment of the jaarbeurs seemed to offer a relieve for the city’s traffic system, but the cafes and restaurants in the surrounding area noticed a decline of clientele. With the demolition of the station area itself, residents saw a nostalgic part of Utrecht disappear and there were some major objections against the demolition of a number of architectural masterpieces such as the Jugendstil headquarters of insurance company The Utrecht and Ravesteyn’s central station building. Some stated that a big part of the city centre had been killed and that one could only await what would come back in return. In order to soothe the public, the city opted for a more transparent process. Empeo executive de Vries did not like this idea but nevertheless the city started a campaign to win back the confidence of Utrecht’s residents. However, the public opinion had already taken on its new shape.

The shopkeepers from the old city core felt abandoned by their administrators. The promises of an improved traffic system had never taken flight and they feared that the area would drain after the completion of Hoog Catharijne. In reality this was only true for the eastern part of the city, which was anticipated. As the city had made the promise to abandon all plans for major infrastructural interventions within the historical core, she was not able to meet the demands of the shopkeepers. The new plans stated that the historical core of the city had to become a protected city scape and that the entire shopping area had to be appointed as a pedestrian zone. The shopkeepers disliked this idea because they were afraid that the prosperous shoppers who owned a car would now avoid the city centre. The only thing that the city did to appease the shopkeepers was to build a number of parking garages outside the canal ring.

After the uprising of the shopkeepers, the city ran into some other unforeseen trouble. The height of the leasehold with Empeo had been based upon the interest that the city council had to pay for the loans required for the expropriation and acquisition of required lands. At the time that these amounts were determined, the interest rates had never transcended 4,5%. Therefore the city council had assumed that a rate of 5% on the leasehold would suffice. In the second half of the 60ies however the interest rate had arose to 7% which meant that the city was making enormous losses on the...
exploitation of the project’s lands. At this rate the interest losses for the city of Utrecht would amount over 1 billion guilders in 2010. Off course these losses aroused the public opinion on the project. Empeo was unwilling to contribute to the city’s losses as they regarded it the financial responsibility of the city itself. Next to this, Empeo had run into the problem of high interest rates themselves. Eventually the city council decided to cancel construction of the last part of project in cooperation with Empeo. Empeo agreed to this.

As gray and dull as Hoog Catharijne was on the outside, as warm and pleasing was it on the inside. The interior of the covered shopping area found its inspiration in the historic city core. The squares were connected by twisted passages and the squares should act as public living rooms. Tropical plants and birds, marble and mirroring glass gave the whole a very cosmopolitan look. The Hoog Catharijne project was really used to provide Utrecht with some modern allure.

Under overwhelming safety measures, because of announced disturbances, the project was opened on the 24th of September 1973 by princess Beatrix. While 3000 protestors expressed their feelings outside, the princess strolled through the new shopping centre. After she had left, the protesters tried to occupy the new shopping centre but they were warded off by the riot police. According to Hans Renes (2005) the project Hoog Catharijne stands for cold and rigid city planning of that time in which there was no place for nostalgic feelings. Although the architects of Hoog Catharijne regarded the architecture of the complex as timeless, nothing less was true. Already after two decades the project appeared outdated and expensive renovations proved necessary. Next to this, the undeveloped traffic level imposed a kind of sadness on the surrounding public space of the complex which induced an unsafe feeling. Residents of Utrecht have never forgiven the city for some of the changes that the coming of Hoog Catharijne imposed, such as the demolition of the Jugendstil building “The Utrecht” and the filling up of Catharijne canal.

4.6 Utrecht city project

By 1990, not even 20 years after the first parts of Hoog Catharijne were opened and while some parts of the urban plan were still under construction, the city realized that something had to be done to stop the rapid decline of the area. The covered shopping centre proved to be a magnet for drug abusers and the homeless and passers pay felt increasingly unsafe. Next
to this, mainly due to the aforementioned increased interest rates, the city faced financial difficulties and around 18.5% of the city's residents was unemployed. Something had to happen to provide the city with a new impulse which would help her through this rough patch that had lasted for almost two decades. Therefore, just like Amsterdam, the city initiated a large scale urban development near its railway station. The shopping centre would be expanded and renewed and 250,000 m² of new office space would be built on the former freight yards of the railway station. 600 new dwellings were to be constructed and the railway station was to be renewed in order to cope with the increased amount of visitors from the nearby located Jaarbeurs. The bus station was to be expanded and a new underground fast tram terminal would connect the city's periphery with the city's historic centre. The most important aspect of the Utrecht City Project masterplan however was the liquidation of the vertical separation of functions that had been introduced with Hoog Catharijne. The city highly desired the return of the classical urban model: the street was to be re-introduced. Introvert buildings were to become extrovert once more and motorized traffic was to be chased away to create space for the pedestrian once more. Besides all this, the station was to obtain a face again. A recognizable object within the urban fabric (Rutten, 1990).

Because the city had no money to realize all this on its own, the Utrecht City Project was appointed the status of key-project. With the financial support of the national government the city was to achieve her goals. But by now, little has changed to the situation as described above. Office developments have taken place as planned and the shopping centre has been swept clean from crime, drug abuse and homeless people but nevertheless, the railway station is as unrecognizable as ever before and the street level surrounding the station is still a bare no man's land. Little can be perceived of the high ambitions that defined the Utrecht City Project. The underground high speed tram terminal has been cancelled and works on the renewed public transport terminal have barely started. The condition of the area has even worsened considerably due to the omnipresent disturbances of large scale construction works. Although nominated as one of the key projects, trouble concerning the financing of public space and the improved modes of transportation have led to the downfall of the Utrecht City Project (van Broekhuijsen, 1999). However, the new public transport terminal by design of Benthem & Crouwel architects promises relieve and improvement. As one of the new key projects, improvement is finally at large. At least that is what we are ought to believe. The shopping centre and the railway station will be disconnected from one and other in order to provide both with an own clear

Figure 44: Utrecht new central station (Benthem Crouwel)

Figure 45: Utrecht new central station (Benthem Crouwel)
identity. This means that one still has to pass through the covered shopping mall and then leave it again to reach an outdoor square which provides access to the railway station which like this has obtained an own distinct face. Next to this a new traverse is created across the railway yard, outside the building, which should become the city’s new boulevard between the city’s eastern and western sides. Last but not least the messy interior will be swept clean and all retail and catering will be reorganised underneath a new wavy roof. Off course all the above mentioned will bring some relieve to the concrete mass that the Utrecht Central Station area is now. But from my point of view it is not much more than a very comprehensive face-lift which promises us a lot but which will let us down in the end. Fact is that because of the very complex land ownership situation around the railway station, it is very hard to come up with an integral solution to the problem, such as the Utrecht city project. Besides this, because of the complexity of the location, the outcome of the plans as predicted by Benthem Crouwel Architects is very hard to comprehend. Only time can tell whether they have been truly able to revitalise this congested part of the city or not.

4.7 Contemplation

Because of its central disposition in the country, Utrecht soon became completely surrounded by railways and adopted the title of largest railway junction in the Netherlands. Because of unanticipated growth, the railways got encapsulated within the urban fabric but never became part of it. Because of the increasing amount of both railway and normal traffic, it was decided that all tracks were to be heightened to separate the two traffic streams. This improved the traffic situation but also induced the railways to become a physical and visual barrier, separating the city centre from its periphery. One example to overcome this barrier was the elevated pedestrian traverse of the Hoog Catharijne project. The traverse effectuated a smooth transition from the historical core across the Catharijne canal and railway yard to the other side of the tracks. However, because of the integral design the railway station lost its own identity and with it its clear connection with the city centre. Furthermore, the undeveloped ground level, which averted from its surrounding public spaces, turned the Hoog Catharijne project into a barrier as wide as the railway yard and the Catharijne canal combined and therefore, among other things, the Hoog Catharijne project is considered to be a failure. Until today, efforts to improve the quality of the rapidly depriving railway station area have failed and only little has been improved in the area. Nevertheless the street level is still a bare no man’s land. The city of Utrecht has established its last hope on the design of the new railway station by design of Benthem & Crouwel architect. My expectations however are low, as the design will drastically increase the quality of the railway station but does little to its surroundings. Nevertheless it are not the Architects that are to blame. An integral approach to the problem is hard to find as the distribution of land ownership around the railway station is very complex. This makes the original Hoog Catharijne project a true result of the age in which it was built and into a mistake that should never have been made.
Before the railway
Railway in the open
Expanding railway
Railway on a dike

Elevated city scope
Railway station in a stressed position
Railway station as urban connector
CHAPTER 5: ROTTERDAM
5. Railways in Rotterdam

This chapter will provide an overview of the development of the railway system in Rotterdam and it will show how the city feared everything that had to do with the railway for a long time. Next to this it provides an account on how the city was way to ambitious in redeveloping its central station location. The writings of this chapter are mainly based on the writings by Paul van Laar in the city’s historical atlas (2006) and in the city’s monograph (2000). Where other sources have been used this will be indicated in text.

5.1 Rotterdam’s first railway

It is actually quite peculiar that in the early days of the Dutch railways a harbour city like Rotterdam took such distance from the railways as a new means of transportation. Although you could call the present day Rotterdam railway system quite successful, as it is optimally integrated with the national waterways, this has not always been the case. The city of Rotterdam was convinced of the qualities of the waterways as means for transportation and rejected the railway as an addition to this already existing and well function-
Rotterdam through Haarlem, Leiden, The Hague, Rijswijk and Delft was far less as it would not endanger the businesses of the Rotterdam merchants. From their point of view the railway between Amsterdam and Rotterdam could only create new opportunities to expand their businesses over land. On June 1st 1836 the H.S.M. started with the construction of the railway and although expropriation of required lands elapsed rather slowly, the entire railway was completed on May 31st 1847. Passengers travelling from Amsterdam to Rotterdam would arrive at a station near the Delftsche Poort.

This first station of Rotterdam was designed by the chief architect of the H.S.M. at that time, Cornelis Outshoorn. Unlike station The Hague Holland Spoor or Amsterdam Willemspoort, which were both built in a classicist style, this building was built in a neo-gothical Tudor style. Despite the relatively small size of the building, this design style provided the Rotterdam station with a monumental prestige. The station was a terminus and showed a lot of similarities with the Amsterdam station at Willemspoort. Both had an arrival and departure building and were connected by a gallery which provided the buildings with their monumental face (Romers, 2000).

### 5.2 Connection to Utrecht

In the mean time, the plans to make a connection between Arnhem through Utrecht with Amsterdam and Rotterdam were revitalized. Now the Belgians had finished their railway connection with Germany, the city of Rotterdam must have felt disadvantaged and it could no longer believe that a railway could truly damage their competitive position against Antwerp. Therefore, in April 1846 the city council agreed to create a connection with Utrecht which would connect Rotterdam to the Dutch Rijnspoorweg. The proposal described a station at the east side of the city along the Meuse river and the Haringvliet to the old main city gate. In order to meet the interests of the merchants it was also decided that the facilities for transportation by waterway would be improved. The realisation of the new station was integrated with the realisation of extra docks for steamships in the eastern part of the city.

Next to the merchants there were also the residents living near the Haringvliet who objected against the coming of the railway as it would spoil the view across the water. According to Paul van de Laar (2000) this again illustrates how much the people of Rotterdam were accustomed to Rotterdam being a water city. In the summer of 1847 the city council reached an agreement in
which the Haringvliet would be indulged. Nevertheless, misinterpretations on this final agreement and resisting residents slowed down the arrival of Rotterdam’s second railway drastically.

Meanwhile the consortium constructing the Rhijnspoorweg had fallen into financial decline and therefore had become reserved about extending the railway from Utrecht to Rotterdam as Rotterdam had always been reserved about the proposed plans. It was eventually because of the insistence of industrialists from Germany that the railway was nevertheless extended to Rotterdam. In 1855 the connection to Utrecht was completed. The station of the N.R.S. was a temporary one and because of a lingering discussion about whether or not to connect the railways of the H.S.M. and N.R.S. it was not until 1876 that a permanent station was constructed.

5.3 Connection to the south

In de mid 50’s of the 18th century the Belgiums came with plans to connect Rotterdam to the southern part of the Dutch railway system. The idea was to establish an international connection with Antwerp by extending the railway of the H.S.M. from the Delftsche Poort to Moerdijk, near Hollandsch Diep, where the railway from Belgium now ended in limbo. Transfers between the stations at Moerdijk and Delfsche Poort now took place by means of ferry and omnibus. Not only the Belgians were interested in such a sound connection, but as the railway would lead through Dordrecht, this city’s residents saw the advantages of such a connection as well.

Again Rotterdam was not very enthusiastic about the plans of Dordrecht and Belgium. To connect Rotterdam to a railway such as described above required the construction of a bridge across the river Meuse. In the opinion of the merchants of Rotterdam, a bridge across the river would cause tremendous damage to the prosperity of the city. Even when it would be constructed far outside the city boundaries. Not much had changed after the arrival of the first two railways and Rotterdam still proved unable to see the advantages of transportation by means other than water. Meanwhile, Amsterdam had a different point of view and opted for a connection from the capital to the southern railways which would not run through Rotterdam. Eventually it was the Rotterdam city council which changed its perspective and realized that transit was as much a trade as commerce. The Rotterdam city council used the ambitions of the city of Amsterdam against it. Rotterdam showed it’s residents that the Dutch capital pretended to be better and richer than...
Rotterdam which aroused the public opinion of the Rotterdam residents.

Eventually the Dutch administration of that time broke up as it could not come to an agreement on whether or not to lead the connection to the south through Rotterdam. This meant that the connection between Rotterdam Delftsche Poort and Moerdijk would not be completed until 1877. However, the struggle between Amsterdam and Rotterdam over the southern connection had clearly pointed out the defect of the Dutch railway policies which until then had been the responsibility of private parties. The national government realized that this system only effectuated delays and that the need for a centralized organisation was critical to insure a healthy growth of the Dutch railway system. From 1863 onwards, the construction of railways would become the responsibility of the Dutch national government. In 1862 it was decided that the Rotterdam H.S.M. station should be connected to Moerdijk bij means of a railway which would run straight through the city centre. Although Rotterdam stood unwillingly against this plan, the city council eventually agreed because else they would not be granted the funds from the national government to realise new harbours west of the city. Eventually the council even relinquished the lands required for the inner city railway free of charge.

The inner city river to which Rotterdam owes its name, the Rotte, was filled up and on top of it a massive viaduct was built on which the trains would run. In order to connect the existing railway to the new viaduct, the existing tracks were heightened and the original Delftse Poort station was replaced by a design of Frederik Willem Conrad (Romers, 2000). From 1877 onwards the iron monsters steamed above the city. Many saw the steal viaduct as a beginning of the decline of Rotterdam’s beauty. However, according to van de Laar (2007) when the railway was put under ground after 116 years, the viaduct had become part of the city so much, that many missed it after it was gone.

In 1899 the new Central Station of the H.S.M. was connected to the N.R.S. station by means of the Ceintuurbaan which ran north-west around the city. This connection provided the H.S.M. with access to Utrecht and the N.R.S. with access to the southern railway system. Now Rotterdam truly had a main station. The Maas station was only disposed of in 1942 after it had been destroyed by German bombardments. A new and more direct connection to Utrecht was made after which the eastern part of the Ceintuurbaan and the original railway to Utrecht and Gouda were dissolved. All Rotterdam railways were eventually brought together at a new Central Station which was to replace the one designed by Frederik Wil-
lem Conrad. The new station was part of the post war Rotterdam reconstruction plan and the building was designed by Sybold van Ravesteyn (Saal & Spangenberg, 1983).

5.4 Finding some relieve
Around the beginning of the 20th century the railways proved to be obstacles for the major urban extensions that Rotterdam had planned. Many urban planners, engineers and city council members had their own vision on how to solve the inter connective problems between the different urban areas. Among the solutions were the heightening of the railways tracks, the heightening of the surrounding lands, the construction of diverting railways, connecting existing railways, building new stations and repositioning existing ones. During this struggle to get rid of the existing railways as barriers, a new one already was under construction: The 1905 Hofpleinlijn from Scheveningen through The Hague to Rotterdam which ran on a viaduct through the city. Although constructed by the SS and originally exploited by the ZHESM (Zuid-Hollandsche Elektrische Spoorweg Maatschappij eg. South Holland Electric Railway enterprise) it soon came into the hands of the H.S.M. which wanted to prevent the N.R.S. from getting a direct connection to The Hague. The H.S.M. built a second station (station Hofplein) to facilitate this railway and soon it became a popular connection for commuters who fled Rotterdam for its high taxes.

While all who were involved in solving the problem of the railway as an obstacle fought with each other about who’s idea was the best, the situation worsened. Observations showed that some railway crossings were closed nearly 200 times a day. Eventually the supervisory board of the Dutch railway services decided that the situation in Rotterdam was no longer acceptable. In 1914 a state committee was established in order to evaluate the Rotterdam railway system and its bottlenecks. This committee seemed to run into the same problems as its predecessors and also proved to be unable to come with a solid solution to the problem. It was not until 1929 that a new elaborate plan was presented to free Rotterdam from its railway constraints but due to the financial crises it was decided that the proposed interferences were too expensive. Eventually the problem was attempted to solve by only allowing freight trains at night and by creating multilevel intersections.
It was not until 1993 that the city was truly relieved from its one and true barrier: The railway viaduct.

5.5 Metropolitan railways
After the second World War, the City of Rotterdam composed a plan for the reconstruction of its city centre which was almost completely eliminated by German bombardments. One of the main features of the so-called “basis plan” was its adaptation to the new and modern way of transportation by car. The designers of the basis plan however, had underestimated the growth of this symbol of public welfare. Where in 1950 only 1 in 68 residents owned a car, in 1966 this number had increased to 1 in 8. The car advanced into the Rotterdam city centre and all open spaces such as playgrounds and plantations were occupied by this vehicle. Therefore, in 1959 it was decided that there was no longer place for the streetcar and that it should be replaced by a metropolitan railway which would run underground. Although Rotterdam knows a difficult history concerning the decision making towards railways, in this case things went rather smooth. Only one city councillor outvoted the plan and even the Rotterdam population seemed rather enthusiastic about the plans.

On the 14th of November 1960 construction on the section between the Central Station and the other side of the river was started. After the reconstruction of the city centre after the war, it now became a large scale construction site once more. In 1962 the city council considered the extension of the metro to the south. A railway viaduct was proposed for this section because it would have financial advantages in comparison to an underground railway. Residents of the southern part of the city were not altogether happy with this execution of the Metro. It imposed noise and it showed in their eyes ones more that the city council was more occupied with development of the northern part of the city then it was with southern part. The first Rotterdam Metro network was completed in 1968 and was opened by Princes Beatrix. At that time it was the smallest metro system in the world within the largest harbour city of the world. The system was to be extended to Rhoon, Portugaal and Hoogvliet in the seventies.

In 1973, construction was started on a second metro line which would run from east to west. Both railway lines were considered to be contributing to the livability of Rotterdam as it had truly managed to suppress the presence of the car in the city centre.

5.6 Railway underground
The railway viaduct which split up the historic city triangle in to two parts had always been regarded as a barrier. Before the war it obstructed the view on the historical city and the waterfront and the steaming and noisy trains were regarded a nuisance. However, during the war, most of the city’s historic core was destroyed but as by a miracle the railway viaduct remained unharmed. The new city centre grew around the viaduct but it soon became clear that the viaduct and its bridges across the river Meuse were outdated. “de Hef”, a lift bridge, opened every twenty minutes to allow shipping to pass underneath. The amount of trains passing the bridge had increased from 70 per day at the beginning of the century, to 160 per day in 1960. It was expected that this number would increase to 250 trains per day in 1995.

Next to this the N.S. had noticed that she used the Dutch railways up to their maximum capacity. The elevated Rotterdam railway proved to be a bottleneck in the overall railway system and therefore the N.S. opted to expand the railway from two to four tracks. In the 1946 basis plan for reconstructing of the destroyed city, a four track new bridge was proposed. However, the decision making concerning the construction of this bridge failed and till 1978 a lot of different variants for solving the railway bottleneck were suggested, among which an update of the existing viaduct and a railway tunnel. On the 10th of may 1978, a ship sailed into de Hef which cause serious damage and the standstill of railway traffic across the bridge for eighteen days. The N.S. used this incident to point out the problems of the current system which made the decision making take flight. At the end of 1979 an agreement was reached between the N.S., the city of Rotterdam and the Dutch national government which prescribed the construction of a four track tunnel. Unfortunately there were no funds available which meant that construction of the tunnel was postponed.
During the years after this decision, all three stakeholders looked for possible cost savings which eventually lead to a final design for the tunnel. A combination of contractors offered a fixed price for the execution of the works and on the 28th of April 1987 the construction of the tunnel commenced. The previous construction of the tunnels for the metro proved of much help during construction. However, this new tunnel was quite wider and higher than the metro tunnels. Next to this the railway tunnel had to dodge the east-west metro tunnel and its accompanying station. Because the designers of the metro had already taken into account the possible construction of a future railway tunnel, measures were already taken to let regular metro traffic proceed according to its regular schedule. At Blaak, public transportation now crosses at three different levels. The station at Blaak lies 11 meters underneath the NAP and consists of four platforms.

The Rotterdam railway tunnel starts at approximately the location of the Hofplein station and runs underneath the Binnenrotte, the river Meuse, the Noordereiland and the Koningshaven and pops up again near Karel Weber’s Paperclip building in Rotterdam South. The tunnel was constructed according the same principles as the tunnels for the metro, which meant that Rotterdam became a major construction site once again. In order to diminish nuisance for the city’s traffic, temporary bridges were constructed at the intersections of through roads and the construction site. The trains were diverted by means of a temporary railway to allow railway traffic to proceed. During the construction of the tunnel, measures were take to allow for construction on top of the tunnel after its completion. This meant that the old tracing of the railway viaduct could be used for cultivation. Therefore the Rotterdam office for city development commissioned an urban plan which reasoned from the continuity of the existing urban fabric. All boulevards and water connections were to be maintained and where possible improved. Serious studies were made to investigate the possibility of returning the river Rotte into the city centre. However, after it was filled up in 1877 the market had established itself here and therefore, to meet the desires of the market traders, the market was to return on the same location as before and the plans to return the river Rotte into the city centre were abandoned.

On september 15th 1993, the first trains passed through the new Rotterdam

![Figure 55: Fortmer Rotterdam station Blaak, 1980 (Gemeentearchief Rotterdam)](image)

![Figure 56: Rotterdam station Blaak, 1994 (Gemeentearchief Rotterdam)](image)
railway tunnel and Rotterdam was finally disconcerted from the railway via-
duct that had split the city centre into two parts after 116 years.

5.7 Centraal District
After all underground construction works were concluded and all construc-
tion sites were cleaned up, the city of Rotterdam initiated a new rail project. By 1998 van Ravesteyn’s central railway station had served its travellers for well over four decades. Over time little changes had been made to the sta-
tion building and the city realized that because of the future arrival of the high speed train and a new light rail connection to The Hague, the railway station would soon be too small to cope with the increased amount of travellers. Over time the station and its surroundings had become a mess of different modes of transportation and dispersed shops and kiosks. Next to this the city centre was cut off from the railway station building by extensive car centred infrastructure, forming an unmistakable barrier between the railway and the vibrant core of the city. The new building was to become an integral transfer machine which would allow for an easy, clean and comfortable transfer between the different modes of transportation, and which would facilitate the traveller in its daily needs (Schotanus, 1998)

Off course the city of Rotterdam had observed how the city of Utrecht had recently initiated their Utrecht City Project, and although new major urban developments had only recently took flight on Rotterdam’s Kop van Zuid, the city was determined to supersede Utrecht’s central station redevelopment. The city attracted William Alsop to draw up an urban Masterplan for the area, which eventually prescribed the development of 300,000 m² of offices, 1400 new dwellings and a 100,000 m² of urban entertainment. All this was to be realised on top and around the city’s new central station. In 2001 Alsop presented a masterplan costing 1.5 billion euros in total. His proposal was to regenerate the city centre by means of improved public transportation, improved connections and a renewed joy which should improve the experience of the city. The railway as a barrier was to be liquidated by means of an elevated pedestrian traverse. All this, off course combined with a high level of quality, should transform the city into an attractive and thriving international location. Just like the similar and aforementioned projects in Amsterdam and Utrecht, the masterplan was a direct result of the fourth

![Figure 57: Section proposed Central Station, Alsop 2001 (Allen, 2001)](image1)

![Figure 58: Impression proposed Central Station, Alsop 2001 (Allen, 2001)](image2)
policy document on spatial planning which prescribes the development of urban nodes around junctions of public transport (Provoost, 2000).

Off course the urban masterplan by William Alsop was received very well by Rotterdam’s city council, as were the urban Masterplans in both Amsterdam and Utrecht. And although the question whether such an amount of office space as proposed by William Alsop would actually be absorbed by the market was a truly sincere one, the city did not get a chance to find out. Public and private partners could hardly wait to transform the central station area into the city’s first major construction site of the 21st century. The city council had already started lobbying for additional public funds from the national government and all actors involved were ready to go. But then...

In March 2002 throughout the country municipal elections were held to establish new executive boards to govern the Dutch cities. In Rotterdam the elections were won by the local political party Leefbaar Rotterdam (liveable Rotterdam), led by late politician Pim Fortuyn. During the campaign the party turned the development of the central station into a cornerstone of their believes. The new railway station was set a side as megalomaniac and too expensive for a city that faced a lot of other, particularly social problems that required immediate priority. In fact the costs of the railway station were almost twice as high as the city could spend on it. Furthermore, during the period prior to the elections the invested local government had been unable to explain how and where they would obtain the required additional funds to actually realize the plans of Alsop. As a result the elections were won by Leefbaar Rotterdam and Alsop’s plans were brushed aside. Only three months later, shortly before national elections, Pim Fortuyn was killed.

Nevertheless the spatial and functional problems concerning the railway station remained. In January 2003 a new budget was established between the city council, the NS and other private parties. This time the plans concerned only the development of a new multi model transfer machine. All additional developments were postponed and incorporated in the Rotterdam Centraal District project for which only mere visions have been presented yet (Kooijman, 2007).
The new design for the new public transport terminal uses mainly the same points of departure as Alsop’s design. The public transport terminal is to incorporate all modes of transportation in one single building and a solid new connection is to be made between the railway station and the city centre. This means that all car centred infrastructure is brought underground and a green carpet is led out towards the city’s centre which should create a pleasant and comfortable environment for pedestrians. Furthermore, a new station hall will be erected from which all modes of transportation are directly accessible. In 2004, Benthem Crouwel architects, West 8 and Meyer & van Schooten (team CS) won the European tender and they provided the city with a new design. This time in accordance with budget and in accordance with the program of requirements. Construction works on the new railway station are currently well under way and although the design is much more sober than the design of William Alsop, it seems to do exactly for the city what it is supposed to do.

5.8 Contemplation
Rotterdam has resisted against the coming of the railway for a long time. The merchants of the city, who relied on the city’s waterways for a great deal, also played key roles within the local government and therefore were able to ward of a connection to the Dutch railway system for a long time. Eventually it was the national government that forced the city to allow such connections. The integration of the railways within the urban fabric went rather blunt. The railways were heightened and placed on viaducts to allow other traffic streams to pass the railway without any interference. An alternative to these viaducts was found after the second world war in the form of tunnels. With the completion of these tunnels, Rotterdam was finally relieved from the railway as a barrier. Like Amsterdam and Utrecht, Rotterdam is a good example of how loose railway systems eventually got connected to each other to form an integral whole.

Just as we see in Amsterdam and Utrecht, Rotterdam also saw the potential of a connection to the high speed train network. Rotterdam also believed that it could exploit its new connection to the network and also planned to develop Europe’s next international location for international enterprises to establish themselves. Rotterdam is another good example of how such visions are hard to plan and that external factors determine whether it will come true in the end. In Rotterdam it took only one populist politician and an angry crowd to end all dreams. Nevertheless I am of the opinion that the city has been able to rebuild their dream in a more realistic manner. By taking it step by step at a time I think the city will eventually get what they once dreamed of. All it takes is a little humility and a lot of time. The realization of the railway station by design of Team CS is the first step. Lets see how many steps will follow.
Before the railway
Railway in the open
Expanding railway
Railway on a dike
Railway on a viaduct
Railway station underground
Elevated pedestrian traverse
Railway station as urban link
6. Railways in The Hague

This chapter provides a description on the development of the The Hague railway system and on how the city has coped with a situation in which two main stations had to serve the city’s travellers. The writings of this chapter consist of a summary of the writings by van Schuppen (2006) and de Nijs and Sillevis (2005). The paragraph about the Hoog Hage project is mainly based on newspaper articles from the Lexis Nexis database. The description on the Wijnhavenkwartier is coming from the website of the municipality of The Hague and the description of the Beatrixkwartier is based upon the writings of Tom Daamen (2005). Any other sources will be indicated in the text.

6.1 The Hague’s first station

According to the The Hague historical atlas (van Schuppen, 2006), there is no other Dutch city in which the old competition of the commercial Dutch railway enterprises of old can be perceived as evident as in The Hague. After Amsterdam (1839), Haarlem (1839) and Leiden (1842), The Hague was the fourth city to welcome the steaming steel monsters of the railway as it lay along the rail route which would eventually lead through Delft and Schiedam to Rotterdam (1847). When on the 4th of June 1843 the permanent station of Leiden was finished, the railway was extended in a rapid pace to Voorschoten without any significant delays. The extension from Voorschoten to The Hague however proved to be more difficult as many of the lands required for the construction of the railway, were property of noble families living in Voorschoten and Wassenaar. Many of these families only wanted to issue their lands if their estates would be provided with private stations, a demand which the H.S.M. initially was unwilling to meet. Eventually the families got what they wanted in the form of small wooden platforms which were paid for by the nobles themselves. Furthermore the trains would only stop at these platforms if the noble’s servant would signal the train driver with a red flag. In practice, these private train stations were hardly used and they proved to be a mere status symbol (van der Meer, 2009).

Eventually the railway reached The Hague but once there, it proved to be rather difficult to construct a station within the municipal boundaries. There-
Before it was decided that the Station would be erected on lands which at that time belonged to the town of Rijswijk. Rijswijk however, was not pleased with this decision as it meant that it would have to pay for all the costs that the station would bring about, such as its pavement and supervision, while The Hague would relish all the benefits. Therefore Rijswijk relinquished the required lands to The Hague in leasehold, for which the city of The Hague had to pay an annual fee of 400 guilders. This fee is still paid today (van der Meer, 2009).

Eventually the construction of the The Hague Holland Spoor station was put out to tender for a sum of 48.000 guilders. It was finished on December 6th 1843 after which the extended railway was taken into service. The original Holland Spoor station was again by design of Cornelis Outshoorn. The classicist The Hague station consisted out of a lobby with adjacent waiting rooms for 1st, 2nd and 3rd class travellers. The centrepiece of the building had a second floor and was suited with eight pillars which marked the ascent to the entrance. The centrepiece was flanked by two wings which provided access to the platforms which had small buildings on each end (van der Meer, 2009).

In 1888 the original Holland Spoor building was replaced by a new building in Neo Renaissance style designed by D.A.N. Margadant. A new station was needed because the original railway was heightened to allow shipping across the trekvliet which crossed the railway. The heightened disposition of the tracks allowed for a new typology of station of which the platforms were accessible by means of a tunnel. This tunnel accommodated multiple functions such as the counters and shops. The waiting rooms for 1st, 2nd and 3rd class were allocated in stone buildings on the platforms themselves. The main building consisted out of three wings. The centre wing contained the main lobby and to its left was the royal waiting room. The right wing contained offices and consisted out of a canopy to shelter the carriages of the first class passengers. The platforms were covered by four roofs which consisted out of arch shaped trusses which rested on cast iron columns. This station of Margadant is still in use today and was extensively renovated in 1990 (NAI/BONAS).

After the completion of the original station Holland Spoor in 1843, the city directly got a second station to serve the community of Voorburg and its surroundings. In this community lived a lawyer of the Dutch Supreme Council who had requested such a station multiple times. As the H.S.M. expected
more trouble concerning expropriation of required lands for the last part of the railway to Rotterdam, they thought it wise to create some goodwill with a member of the Supreme Council. Thus a Station at Nieuw Oosteinde (now Laan van Nieuw Oost Indie) was erected, which merely consisted of two wooden platforms (van der Meer, 2009).

6.2 Competition

The second present-day The Hague main station presented itself on the 1st of May 1870 as the temporary end station of the railway between Scheveningen and Utrecht, exploited by the N.R.S. The station was designed by A.W. van Erkel, who was an architect in the service of the N.R.S.. The building consisted of a two storey high centrepiece with low side wings which were ended by two high end pavilions. The entrance to the buildings consisted of three high roman arches. In the parapet above these arches were the insignias of Utrecht and the Hague. The walls of the building were plastered and the roofs were covered with slate (Dal, 1981).

Although the N.R.S. Intended to extend the railway from the The Hague station towards Scheveningen, this never happened. This created the weird and still existing situation in The Hague with its two main stations and an enormous barrier splitting up the present day city centre. Already in 1908 H.P. Berlage, The Hague’s urban development advisor, proposed to eliminate the railway yard in his expansion plan for the city (Stal, Penning & Groeneveld, 2007). As his plans were deemed to expensive, they were never realised.

6.3 Bezuidenhout

The arrival of the N.R.S. station imposed an increased demand for housing in its direct surroundings. In 1868 construction started on the first streets in the area west of the railway yard which meant that the station’s positions outside the city was already caught up by the urban fabric before its completion. The first dwellings were built as private undertakings and were to house prosperous residents of The Hague. From 1890 onwards however, the city established the office for public works which took over the development of the Bezuidenhout area. Up till the first world war the urban expansion developed into an idyllic area with a lot of plantations, squares and stately boulevards. According to Doll-Grass et. al. (1995), the Bezuidenhout area could then easily be compared to present day known stately areas in The Hague like the Statenkwartier.

After the first world war the Bezuidenhout was extended to the west. Ac-
cording to construction regulations composed by the office for public works and housing associations, the new buildings were not allowed to be higher than three storeys and were required to have a uniform appearance and a uniform alignment. The regulations effectuated that this second district of the Bezuidenhout lacked the allure of the older district. During the economic depression of the 1930’s the stately Bezuidenhout fell into decline because there were no sufficient funds to maintain the grand manor houses. By this time, the government had already built its first ministry in this area and it now took up a lot of the decayed estates to house its departments.

When on the 14th of May 1940 the Dutch surrendered to the Germans after the bombing of Rotterdam, the Germans took over the administration of the city. They decided to use the nearby The Hague forest to hide their V2 rocket installations which they used to bomb London. The forest, which lay close by the Bezuidenhout area, was heavily bombed during the war by the English who wanted to eliminate the German V2 rocket installations. On the 3rd of March, 1945, the English took of in their bombers once again. Because of miscommunications and bad weather the English bombs failed to hit their true targets. Instead, they bombed the Bezuidenhout area. Over 600 people left their lives and over 12,000 lost their home.

6.4 Bezuidenhout Reconstructed
In 1934 W.M. Dudok had succeeded H.P. Berlage as the city’s urban development advisor. In 1947 he presented his design for the heavily damaged Bezuidenhout area. He proposed a new layout for the area which was to take up a residential function again. Next to this he proposed to move the Staatsspoor station, the former station of the N.R.S., in the direction of Voorburg and to put it underground in order to allow a better connection between The Hague’s historic core and the Bezuidenhout area. Furthermore he pro-
posed to cluster the government buildings around the Spui area. The plan was rejected because there was no money to put the station underground and the government was reluctant to cluster its departments at one location. Eventually the plan was heavily modified. The cluster of government buildings was rejected, the station would remain above ground and the new highway from Utrecht was to be extended right through the Bezuidenhout area. In 1951 Dudok resigned as the city’s urban development advisor as he could not handle the political squabbling about the reconstruction plans for the Bezuidenhout.

Eventually a commission led by Mouton took over. Because an underground station was too expensive they proposed to at least deepen the tracks. They proposed the same for the extended highway. In stead of a cluster of governmental building near spui Mouton reserved three plots east of the station for governmental buildings. On these plots, respectively the Ministry for Foreign Affairs, The Royal Library and the National Archives would arise. Part of the funds that the Mouton plan required were to be provided by the national government. It took three years before they decided that deepening the tracks was too expensive. In order to still establish the highly desired connection with the city centre the Mouton commission proposed a 7 meter high viaduct across the yard as an alternative. In 1962 the highly economized plan of the commission Mouton was accepted.

In that same year an urban planner called D.A. Jokinen from the provincial government proposed an alternative plan in which the railway from Utrecht could connect to the Hofpleinlijn coming from Rotterdam, thus eliminating the entire railway yard between Noordorp and the city centre of The Hague. He eliminated the Staatspoor station and appointed the The Hague Holland Spoor station as main station for the city. The relinquished lands of the yard could than be used for the highway coming from Utrecht. Without immers-

![Figure 68: Plan Jokinen (Smits 1962)](image)

![Figure 69: Bezuidenhout after bombings, 1946 (Haags Gemeentearchief)](image)
ing themselves in the plan, the local government rejected the scheme of Jokinen as the decision about the development of the Bezuidenhout area had already been made. Reconsidering the approved plan would mean a recoil of 15 years and therefore the plan disappeared relentlessly into the trash bin (Doll-Gras et. al., 1995).

6.5 The Hague Central Station
The Mouton plan also prescribed the replacement of the Staatspoor Station which dated from 1870. In 1970, exactly 100 years after the completion of the original N.R.S. station, construction on a new station was started. A station that would not only provide a connection to Utrecht, but also to Amsterdam and Rotterdam. The new station was part of the “Spoor naar ’75” campaign and according to the N.S. it would become a true central station which would be used by 40,000 travellers each day. With the coming of The Hague Central Station, The Hague Holland Spoor would lose a substantial part of its importance and would only have to cope with 15,000 travellers per day. The new Central Station would consist of a station building with offices for the N.S., an office building for Shell, restaurants and shops for travellers, 12 platforms for trains, an elevated bus platform with 19 bus stops and 4 platforms for the so called elevated semi-metro. The building would measure L60 x B130 x D200 meters and would cover all its function to protect the travellers against the weather. The Hague Central Station was to become the new pumping heart of the city. However, according to the vision of the N.S. architect who designed the new station, K. van der Gaast, a properly functioning pumping heart had to be provided with arteries which allowed the blood to flow freely without congestion. He found these arteries in a series of multilevel crossings which allowed for a greater number of trains, busses, trams (or semi-metro) and cars to pass each other without interference.

A new viaduct crossing the railway yard would provide access to the bus platform and would establish a connection between the bezuidenhout and spui. The Utrechtsebaan, a sunken high-way would allow for ground level crossing. The semi metro would pass both the railway yard and the Utrechtsebaan on an own viaduct. The viaduct would enter the Central Station from the city centre side. At the central station it would split up into two branches. One of them would lead to the Bezuidenhout area and the other would bend away, through the neighbouring park, towards Scheveningen. In order to enhance the idea of a semi-metro, the viaduct would devolve into a tunnel which would lead the trams underneath the city centre, allowing other traffic to pass freely.
Next to facilities for bus and semi-metro, the N.S. was also constructing the so called sprinter-line towards Zoetermeer. The sprinter would end at the Central Station but was already planned to be extended underground towards Scheveningen. Measures to allow for such an extension were already taken up during construction but they were never used (The Hague office for urban development, 1970).

### 6.6 Opposition

The above mentioned system of multi-level crossings evoked a negative public opinion. Especially the branch of the semi-metro crossing the neighbouring park imposed furiosity. A studygroup from the Academy for Architecture from Rotterdam, who called themselves Dooievaar, started protesting against the controversial traffic plans of the local government. These plans had already caused the filling up of multiple canals and the decline of buildings around the parts of the semi-metro that were already completed. With the help of a local newspaper the group of students proved to be able to prevent the construction of the last branch of the semi-metro through the park. Besides demonstrating against the The Hague Central Station plans, Dooievaar advocated the creation of additional bicycle lanes instead of highways and the construction of parking garages outside the city centre instead of in the middle of it. It had a very strong pro pedestrian attitude and rejected the influence of traffic in urban planning. By now, the vision of Dooievaar has become pretty much reality with the introduction of the so called verkeers circulatie plan (VCP eg. traffic circulation plan) in the The Hague city centre. This plan repulses all private traffic from the city centre and diverts it around it (Werkgroep Dooievaar, 1974)

The design of The Hague Central station was unique in its time because, not only because of its integration of commercial activities and multiple forms of public transportation but also because of its connective role in its environment. The station was to connect to the new neighbouring shopping centre Babylon and the surrounding governmental buildings such as the national archives and the royal library. Nevertheless it is nowadays regarded as an obstacle. The design is seriously outdated and the heavy concrete bus platform deprives the train platforms from any light. The connection with Babylon has miserably failed as most travellers preferred to visit the city centre instead of the modern shopping centre. Unlike the situation in Hoog Catharijne, at The Hague Central Station the traveller is not forced to pass along the shops (Saal & Spangenberg, 1983).
6.7 Den Haag Nieuw Centrum

“Een hart van vijf miljard” This was one of the headlines in the newspaper of the 18th of October, 1997. This article in Trouw treated the redevelopment of the The Hague city centre. This restructuring venture involved the redevelopment an area that ran from the Spui kwartier, through the Wijnhavenkwartier and the The Hague Central station area, all the way across the railway yard to the Bezuidenhout area.

The Wijnhavenkwartier was originally part of The Hague’s historic city centre. In the 17th century the area housed a number of harbours which allowed the city to establish trade relations with cities such as Leiden and Delft. However, these harbours also attracted undesired activities such as prostitution and crime. Because of the increasing sizes of ships the harbour lost its function around the end of the 18th century and the area fell into decline. At the beginning of the 20th century there was little left of the original area. Houses had been torn down because of their increasing deprived state and the characteristic channels had been filled up because of hygienic problems. This left the city with a massive hole in its historic urban fabric. Many architects attempted to solve the problem but in over a century of time, many big names such as Berlage, Dudok, Mouton and Nervi failed to convince the city council with their plans. It took until 1958 before the first restructuring projects in the area took flight. Between 1958 en 1985 the area was rebuild according to modern principles but the development lacked a clear structural vision which ultimately led to a medley of modern concrete structures by design of architects such as Weeber and Lucas & Niemeyer. In 1981 the city council decided that the area still faced problems concerning safety and identity, mostly caused by the monotonous supply of offices in the area. On behalf of the city council architect Weeber presented a masterplan in which he strived for a more elaborate mix of functions. A newly constructed theatre area
(designs by OMA & Hertzberger) and a residential building (Weeber) were the first steps in improving the area. The next move in this restructuring venture was made by American architect Richard Meijer who proposed to use the area to build a new city hall. Next to this the proposed to intensify the use of space in the area by building a number of high rise buildings and grouping all ministries together. The realization of the city hall in 1987 and the designated status of the area as a key project by the national government displayed the faith and confidence that the government had in the area. The construction of the city hall proved to be a true stimulus for the development of the entire city centre. This apparent confidence of the local government and the promising economical perspectives stimulated developers and corporate businesses to invest in the further redevelopment of the The Hague City Centre (Dienst Stedelijke ontwikkeling)

The first phase of the redevelopment of the Wijnhavenkwartier consisted of two major projects, among which de Residentie by design of Rob Krier and the Hoftoren by design of KPF. Next to this, major improvements were made to the infrastructure. Construction works on the Souterrain (the semi-metro tunnel as once proposed by Mouton) and koningstunnel turned the city centre into a city sized construction pit. In total, 800.000 m² of new office space was constructed between 1993 and 2000.

Construction works in the Bezuidenhout area near the railway yard detained after the war. It took a while before some efforts were made to revitalize this heavily damaged part of the city. Between 1967 and 1969 the ING real estate division was the first enterprise to establish itself in what was to become the Beatrixkwartier. With the establishment of the headquarters of the Dutch Postal Services in 1986 and the announcement that ING desired to expand their housing facilities in the area around 1989, the city council constructed a masterplan for the area which designated the Beatrixkwartier to become the city’s new high end business district which, unlike the with governmental organisations overcrowded Wijnhavenkwartier, aimed at attracting service sector related companies. Ever since, a lot of companies with a specialisation in telecommunication have established themselves in the Beatrixkwartier and the area has become a high standard, properly accesible, multifunctional area where people work, live, meet and relax (Daamen, 2005).

In order to establish a profound connection between the Wijnhavenkwartier
Figure 78: The Hague Central Station railway yard (Masterplan Hoog Hage)

Figure 79: Masterplan Hoog Hage (Masterplan Hoog Hage)
and the Beatrixkwartier, architect and urban planner Joan Busquets came up with a masterplan for the intermediate Grotiusplaats which is located right at the spot where both areas were brutally separated from each other by the presence of a newly constructed, deepened highway. The original masterplan consists of two identical towers and two “bridge”buildings across the deepened highway. The proposed ensemble would provide the Grotiusplaats with the appearance of a square and above all it would fix the missing link between The Hague Central Station, the Beatrixkwartier and the Wijnhavenkwartier. Unfortunately today, almost twenty years later, Busquet’s masterplan has still not been completed as the largest of the two towers has still not been constructed. This hole in the masterplan provides the area with a very unfinished look (Daamen 2005).

The restructuring of the entire area still continuous today as part of the Den Haag Nieuw Centrum Masterplan. The area houses a lot of governmental organisations in some of the city’s most characteristic modern buildings among which the ministry of Housing, Spatial Planning & the Environment (Hoogstad), the Ministry of Health and Sports (Rob Krier, Micheal Graves, Cesar Pelli), the Ministry of Education, Culture and Sciences (Kohn, Pederson & Fox). The restructuring of the area is far from completed. At this moment, according to Richard Meijer’s vision, construction of two new buildings for the ministries of justice and interior/kingdom relations (Kolhoff) is well under way. After this project has been completed, restructuring is planned of the site of the two current ministry buildings (Lucas & Niemeyer) and plans have been made to upgrade the theatre area into a true culture forum (Neutelings & Riedijk).

6.8 Hoog Hage

Although the city was thriving and a lot of new urban program was constructed, already in 1997 the city expected to soon run out of space for further future inner-city developments. A solution to this was presented in march 1997 in the form of a project called Hoog Hage, a vision based on foreign railway area developments such as the Liverpool Street Station redevelopment and the development of real estate on top of the French A1 highway near Paris. The proposed plan prescribed the construction of a city platform above the The Hague Central Station railway yard. This new elevated cityscape would amount 8 hectares of new inner-city development space for 300,000 m² of offices, 500 new dwellings, 50,000 m² of shops and leisurely activities. Furthermore the Hoog Hage plan would finally dissolve the barrier between the Bezuidenhout area and the city centre. Next to this it would attract 30,000 new jobs to the city centre. Another part of the plan was to develop a new central station at the intersection of the railways. This new

![Figure 80: Proposal from OMA for a station at the intersection of the railways (www.oma.com)](image)

![Figure 81: Proposal from OMA for a station at the intersection of the railways (www.oma.com)](image)
railway station, proposed by the Office for Metropolitan Architecture would become the centre point of the Hoog Hage project.

The local government was quite much convinced of their plans for the superstructure above the railways. Double use of space had already introduced itself in The Hague with buildings above the Utrechtsebaan and The Hague saw Hoog Hage as an opportunity to centralize their main office location and leisure centre around major traffic junctions so as to be able to redevelop and transform existing office and leisure buildings at the low end of the market. However, the plan was estimated to cost around 2,4 billion guilders. The Hague itself planned to invest a maximum of 170 million guilders in the project, while 700 million guilders was expected to come from the national government. The remainder of the costs had to be financed by corporate businesses and developers.

Besides Hoog Hage, the newspapers from March 1997 also write about the decline of other districts within the city. Concentrations of disadvantaged groups within post-war districts were rapidly growing. Although the biggest problems were still to be found in the already known problem areas, other districts were heading in the same direction. The cause for the decline of these districts was to be found in the monotonous supply of dwellings in these areas. At that time the solution was to be found in the restructuring of these areas which meant selling dwellings that till then had been rented out, demolishing decayed dwellings, improving dwellings in proper state and investing in public space. The restructuring of these areas became part of the city’s policy document Vital and Undivided in which the local government set forth three key projects which were deemed necessary to keep the city vital and undivided. Besides the restructuring of post-war areas, the development of the Hoog Hage project was also considered to be of vital importance.

However, the revitalization of the city’s centre had come at high costs. With the construction of the new city hall, the souterrain and the renewed city centre, the Hague had spend more money than she had available. Therefore the city was placed under financial supervision of the state. Although the city council was very enthusiastic about the Hoog Hage plan, the city’s representatives seemed to realize quite well that the city would not be able to bring up the required 170 million guilders for the project and that investments in other parts of the city were required as well. Next to this, as mentioned in the previous chapters, other cities like Amsterdam, Utrecht and Rotterdam had also grand development plans for the next century with ventures such as
the Utrecht City project, de Kop van Zuid and the Amsterdam Zuidas. From 2002 onwards, the Hoog Hage project disappears from the newspaper database. Besides the high costs, former The Hague alderman of urban development Peter Noordanus states that the plan was merely a grand vision of the city’s urban planning office. A lack of involvement of external parties such as the NS and private investors made the plan unrealistic and it didn’t take long before the plan bled to dead.

6.9 Den Haag Nieuw Centraal

Despite the fact that the Hoog Hage dream slowly evaporated and was never realized, the city had made some major improvements to its city centre. However, one last element was still missing which could bind all the developments of the last two decades together into an integral, continuous urban whole. Today, the The Hague Central Station and its surroundings are outdated and, because of the large scale changes made to the surrounding urban fabric, the railway station does no longer connect to the city in a proper way. The city has labelled the quality of the public space near the Central Station as “poor”, “worn out” and “unsafe”. Furthermore the railway station seems to be acting as a barrier between the city’s business district and its ministry district. Obviously all this has its negative effects on the area’s investment climate. The city has a great desire to improve this situation in order to optimally utilize the potential of the area. Next to this, the current railway station seems to be unable to house highly desired connections to both the High Speed Train and Light Rail networks. Therefore the city has initiated an integral urban area development with the aim of transforming the The Hague Central Station and its environment into an identifiable area which connects the city centre and the city’s central business district both spatially and visually. A large outdated parking garage will be brought underground in order to create a new vibrant station square and the outdated shopping centre Babylon will be renovated and expanded drastically. Next to this a number of other real estate developments are planned for the future as well.

Next to this the station building itself will be adapted in order to fit the transfer needs of the 21st century. This should transform the central station area from a place to just pass through, into a place to live, work, and relax. All this proved enough for the ministry of Housing, Spatial Planning and the Environment to select the Den Haag Nieuw Centraal masterplan as a second generation key project. The design for the new public transport terminal in The Hague is by design of Benthem & Crouwel architects. In their design, they replace the old worn out steel roof of the building by a transparent glass one. Next to this they create
entrances at all four sides of the building in order to establish the highly desired link between both the northern and southern part of the city. The last big intervention they make consists of disconnecting the tram platforms from the bus platform. This opens up the ceiling above the train platforms and thus creates a light and spacious feeling.

After completion, The Hague Central Station will have had a serious face-lift, but little more than that. Of course the building will have been adapted to house the new light rail connection towards Zoetermeer and Rotterdam (Randstadrail) and of course the building will look better than it does now. But the railway station will still be the barrier that it has been for the last 30 years, with its massive concrete bus platform and concrete viaducts that root the station at its place. A new viaduct will even be added in order to provide space for the new metro line coming from Rotterdam, for which no space exists on ground level. Some serious issues concerning the area will remain unsolved and will even be worsened, among which the most important issues addressed by the municipality.

6.10 Contemplation

The The Hague railway system still is a present day memory of the commercial railway enterprises of old, which has left the city with two main railway stations and a railway yard that brutally penetrates and disturbs the continuity of the city’s urban fabric. As it scars the city, quite a number of familiar architects, such as Berlage, Dudok and Koolhaas have delivered plans to dissolve this situation. Eventually their plans were all considered to be too expensive and put aside. Over time it proved that the city could think of no better and possible (and probably cheapest) solution to the The Hague Central station railway yard as a barrier then to construct a number of massive concrete viaducts that inert the present day The Hague Central station at its location and which make the possibilities of adapting the building very limited. All this is emphasized by the successful restructuring venture of the city’s vibrant core. The railway station prevents the area from being an integral whole. However, replacing this pumping heart of the city now, after all the missed out opportunities, will require a major heart transplantation. This extensive surgery could come with major complications and risks, just like surgery in the medical world. Relief to the above described situation is nowhere to be found. Although Benthem & Crouwel architects have taken up the massive task of rethinking The Hague Central Station, they have burned their fingers to the project to the best of their abilities. In order to illustrate what the final result probably will look like, please let me quote one of my tutors about Den Haag Nieuw Centraal: “het is en blijft gefriemel”.

Before the railway
Railway in the open
Expanding railway
Railway on a dike

Deepened railway
Railway bridged by a viaduct
Railway as link in the city
Railway station area under stress

Two main railway stations
Abolish one, emphasize the other
Abolish both, create one new one
CHAPTER 7: FINDINGS
7. Findings

This chapter will present the findings of this study and it will try to provide an answer to the questions stated in the introduction of this thesis. Each sub question will be answered individually. The main question will be answered last in the form of personal design vision for the The Hague Central Station area.

7.1 How and why have railways in the major Dutch cities developed into the inner city barriers that they often are today?

In order to answer this first question it is of importance to define the word barrier. According to the Dutch dictionary, a barrier is considered to be some thing that obstructs a free passage. A quick look at the growth maps of the four cities immediately shows how the railways have developed into the inner city barriers that they often are today. The first stations were generally erected well outside the city boundaries because of a lack of space and the nuisance that the trains were expected to bring about. However, in 1850 the four large cities consisted only of their historical core and some minor extensions. The true growth of the cities had yet to come. It was this unanticipated growth of the urban fabric that caused the railways to become part of the urban fabric. Once the railways were encapsulated by the city, the first step in becoming a barrier was made. Because of the growth of the cities, traffic from one side of the railway to the other side increased. Also the traffic on the railway itself increased. Because of the single level crossings, these two traffic streams started to interrupt each other, causing congestion in traffic flows. This is the point at which the railway started to obstruct a free passage from one side of the tracks to the other side. Off course there can be distinguished multiple gradations of railway barriers. Even today we still see single level crossings at places where the railway is not wider than two tracks. However, at large station locations with large yards, the railways form a much larger barrier as the railway consists of up till 16 tracks.

Besides a physical barrier, I think that in a certain point of time the railways and their stations also became psychological barriers. Due to the financial struggle of the NS from 1917 onwards, major cutbacks were made on the
development of railway stations. Everything that made railway station buildings comfortable and pleasant places to wait for a train, ornament, catering, hygienic facilities, service facilities and more, it all disappeared. Railway station buildings became places to merely pass through and thus they lost their functional relation with the urban buzz, making them into the unpleasant, unsafe and uncomfortable caverns of the urban fabric. Like this, they became barriers for people to use the train because the once pleasant and maybe adventurous experience of travelling by train had now completely disappeared. In combination with the advance of the much more comfortable car and the disappearance of the Dutch coal industry, this almost meant the end for the Dutch railways.

Last, the railway station area can be perceived as both a catalyst and a barrier for urban development. According to the model of Bertolini and Spit, a node in a network will attract activities that will add place value to this node. The other way around, a developed place will attract means of transport that will add node value to the place. However, at a certain point there is no place left for development of either the node or the place. Bertolini calls these specific cases railway station areas in a stressed position. Whether railway station areas will reach such a position is very relative. It depends on a lot of factors among which the availability of means and the willingness to use these means. From my point of view, the U-oevers in Amsterdam are a good example of a station area under stress. The potential of developing both the place and the node was available but there was a lack in availability of means and / or a lack of willingness to use these means. From my point of view, the U-oevers in Amsterdam are a good example of a station area under stress. The potential of developing both the place and the node was available but there was a lack in availability of means and / or a lack of willingness to use these means. The same applies for the The Hague Central Station area and the Hoog Catharijne area in Utrecht which both have a lot more potential than is being realized right now. The web of external factors has just become to complex.

7.2 What interventions have already been applied in these cities in order to eliminate railways as such a barrier?
The initial approach of dissolving the railway as a physical barrier is for each city the same. The tracks are heightened in order to create multilevel crossings which should allow for a free passage underneath the tracks. The first way of heightening the tracks is by putting them on a railway dike. The dike has a number of passages to allow traffic to cross the railway. However, because of the limited amount of passages the railway as a barrier is diminished but it is certainly not dissolved. Next to this the railway dike obstructs the view across the railway tracing and thus forms a barrier on its own.

A second way of heightening the tracks is by means of a railway viaduct as has happened in Rotterdam and Delft. The railway viaduct allows for more passages compared to the dike and therefore the viaduct might be more successful as it interferes less with the traffic on ground level. Nevertheless, just like the railway dike, it obstructs the view from ground level and thus the railway viaduct can still be considered to be a barrier.

After the 2nd world war the ideals of separating multiple traffic flows are extended. A first good example is Utrecht where an elevated pedestrian traverse is used to bridge the barriers such as the railway yard and the Catharijne singel. In Utrecht the transition from the historical city core to the elevated traverse is rather smoothly. However, the concept fails because the ground level has not been developed and therefore the whole complex repels itself from its surroundings.

In the Hague they did it the other way around. The ground level was reserved for trains and pedestrians. Trams, busses and cars used elevated tracks to bridge the railway yard. Just like the railway viaduct described above, these viaducts became barriers on their own. The elevated level is undeveloped and thus it is an unpleasant place to linger or even pass through. Next to this the heavy concrete bus platform at The Hague Central Station deprives the pedestrian zone from all light, causing the pedestrian zone to be a dark and grim place.

By now we have left the ideals of the 70’s which thought of traffic on viaducts as signs of prosperity and modernity. We still embrace the idea of separating traffic flows though. However nowadays we use tunnels to do this, like in Rotterdam and in the near future in Delft. In my opinion the tunnel (or
open tunnel) is the only true successful method of dissolving the railway as a physical barrier as it allows for both an unobstructed passage and it does not form a visual barrier. Nevertheless, there do exist some bad examples of this too. In Rotterdam, the main reason to put the railway underground was to stop the trains from interfering with the ships on the Meusse river. However, after the railway was put underground, a large gasping hole arose at the place of the former railway viaduct. Although multiple architectural offices have made proposals for this bare open stretch of land in the heart of the city, the city council could think of no better solution than turning it into a market square. This means that with the arrival of a new Market Hall in two years time, the square will lose the only function it has. Therefore only putting the railway underground is not enough.

The railway’s station as a psychological barrier has been dissolved by undoing the process of moderating the railway station building. From 1970 onwards this reversed process has been launched. Since then we have seen the return of catering, hygienic facilities, identity and service. Next to this the railway station does no longer provide only access to the train, but also to all other modes of transportation. The railway station has become a true transfer machine which optimally provides its users with comfort and pleasure. The supply of catering and retail has expanded rapidly, making the railway station a true place to linger instead of a place to run through. This process of increasing comfort level and improving the travel experience still continuous today, as is indicated by the Spoorconcept and ARCADIS’ vision of the railway station of the future.

Last, multiple solutions can be found concerning the problems regarding the railway station as a barrier for further railway station area development. In The Hague we can see that the city is immensely bothered by having two main railway stations at its disposal, of which one brutally penetrates the urban fabric. From 1908 onwards multiple proposal have been made to heel this wound, among which abolishing the Central Station location and creating a new railway station at the intersection of the two main railways. In Amsterdam we see how smaller, less developed railway station areas are used for extensive place development in stead of the area near a railway station in a stressed position. Over the last two decades, the city has developed two new core areas with an own distinct function. One for leisure and one for business. This relieves the century old central station and the city’s historic core, while both new cores are perfectly accessible and function very well, because, among other things, of their proper connections to the historic city centre by means of metropolitan railway.

7.3 Which of these interventions seem to have been successful in (partially) eliminating the railway as a barrier?
The applied solutions to solve the railway as a physical barrier that could be nominated as successful are the approaches of both Rotterdam and Utrecht.
The construction of a tunnel is in my opinion undeniably the best solution and this view is supported by the vision of the researchers who contributed to the seventh part of the series *Over Holland*. In this part of the series, the researchers state that the railway systems of the Dutch historical cities are heavily outdated and that they cause congestion and that they interfere with highly desired improvements. They looked at five smaller historical cities, respectively Haarlem, Leiden, Delft, Dordrecht and Gouda and tried to imagine what it would mean for the cities if the innercity railway would disappear underground as has happened in Rotterdam and is now truly happening in Delft. The possibilities are endless and the relieve is huge. Thus the researchers also see an underground future for multiple other innercity railways.

Besides the tunnel I am of the opinion that an approach as has been used in Utrecht could work as well. It is only because of the poor execution of the plan that it has failed on some fronts. Bridging the railway yard by means of an elevated pedestrian traverse would ask for a clear vision on how to connect the entire project (thus not only the traverse) to its surroundings.

Concerning the railway as a psychological barrier, I am of the opinion that the current policy concerning new railway station buildings does what it should do. Current railway station design does improve comfort levels and it does create a pleasant travel experience. Therefore I dare to say that it is the right policy to execute and that it is the right policy on the long term as it takes advantage of the ever increasing consumption society. So unless our financial continuity collapses completely (which however in these days could well be the case but which is also an uncertain factor), it is a safe road to travel. The railway station building has not become a place to stay but it has become a place where people do not mind to wait. Renewed identity and grandness of old make the building recognizable again, creating improved accessibility for the traveller. The presence of multiple modes of transportation, on a regional, a national and an international scale, helps public transportation to compete with the car once more.

Concerning railway stations as a barrier for urban development, I would dare to state that (although perhaps not completely planned) the multiple core expansion of Amsterdam intrigues me. It demonstrates how every commonplace place has grand potential. Even without us knowing. Because who could have guessed at the beginning of 1980 that both the ZuidAs and the Arena boulevard would become the places they are today? The Hague has a less successful policy on this area. I would be a visionary if I could now point out The Hague’s new Central Business District. And maybe there will never come a new CBD. What I do can tell is that The Hague has never reached Bertolini’s stressed position until quite recently. Due to the bombings of the Bezuïdenhout area and due to poor urban planning in the Wijnhavenwarter, the city had until recently more than enough space to develop new urban program. They would be mad to make huge investments while they...
had plenty of open space available. However, time is running out and so is the open space for new urban development. After well over 100 years, it is now time to solve the The Hague Central Station railway yard as a scar in the city’s urban fabric.

7.4 Personal stand regarding present day railway station design

I have already expressed my preference for both putting the railway underground and creating an elevated ground level above the railway as means of solving the railway as a physical barrier in The Hague. Both means have precedents, respectively in Rotterdam and in Utrecht and both means have their “ifs” and “buts”. From my point of view, the best means available for the The Hague Central Station is bringing the railway under ground. The main reason for this is that the elevated ground level has been proposed quite recently as it was part of the Hoog Hage project. This project failed and although never realized, has cost the city a lot of money which is still a sensitive subject among the city’s residents. Another reason for this choice is that the urban morphology is very irregular. It varies from mega buildings to small houses that were built before the war. Next to this the morphology is very susceptible to change because of ongoing restructuring projects. For me, the “ifs” and the “buts” of bringing the railway station underground are just not as big as the negatives of the elevated ground level, which makes the chance of success for the underground railway most probable.

Solving the The Hague Central Station as a psychological barrier means constructing a completely new railway station. No halve measures as is the case with the intervention of Benthen & Crouwel. Next to this, I would like to adhere to the process of increasing the traveller’s comfort and to improve the traveller’s experience of his journey. Both will be done with multiple means. According to this study, traveller comfort means facilitating the traveller at the best of your abilities. The railway station building should have an own identity in order to make it easily accessible, the building should house all modes of transportation available in the area, the transfer between these modes of transportation should be smooth and the different modes of transportation should be recognizable. One of these modes of transportation is parking. As the building will be located along one of the city’s main entrances, I would like parking to be very visible in the design. As the city of The Hague has a policy of keeping its city centre free from motorized traffic, this allows motorists to park their car directly after they exit the highway and enter the city. Because of its position within the multi modal hub, travellers by car can than easily transfer to the mode of transportation of their liking, thus adhering to the city’s policy on motorized traffic. Besides all this, travel information and travel service should be located at one central point in the building. New digital media can be used to provide this travel information in order to ease the traveller.

Improving the traveller’s experience incorporates a whole different set of means. First of all the building should become a monument once more. Not to act as a catalyst for urban development (maybe it could be as an accessory but in truth this dream is long gone) but to provide the traveller with a feeling that he is special. And with monumentality comes identity. Each city should be recognizable at its own and the traveller should experience this while he arrives or departs. Last but not least, the traveller should be provided with alternative activities to waiting. This means introducing the four travel domains from the spoorconcept (which aims at proving both comfort and experience).

In order to create additional inner city development space for the future and in order to create proper inter area connections between the northern and southern part of the city, the railway station will be moved slightly towards the intersection of the two railways. This opens up the plot of the current railway station to allow for new inner city urban development projects. It also allows for sound inter area connections for both pedestrians, cyclists and motorists and it will truly dissolve the railway station building and its railway yard as a barrier within the urban fabric.

Last but not least, I choose to merely design a railway station. Precedents in Rotterdam, Utrecht and Amsterdam have shown that additional functions will complicate the web of external factors, thus decreasing the success of developing a new railway station building.
Figure 87: Abstract model of the situation as it is right now. Yellow shows the station building, red the pedestrian routes, blue the barriers, and white surrounding buildings (by author)
Figure 88: Abstract model of the situation as by design of Benthem & Crouwel. Yellow shows the station building, red the pedestrian routes, blue the barriers that interfere with pedestrian routes, and white surrounding buildings (by author)
Figure 89: Abstract model of a proposal for repositioning the railway station underground and towards the intersection of the two railways. Yellow shows the station building, red the pedestrian routes, blue the barriers, and white surrounding buildings (by author).
Before the railway
Railway in the open
Expanding railway
Railway on a dike

Deepened railway
Railway bridged by a viaduct
Railway as link in de city
Railway station area under stress

Deepened railway
Railway bridged by a viaduct
Railway as link in de city
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Before the railway
Railway in the open
Expanding railway
Railway on a dike
Deepened railway
Railway bridged by a viaduct
Railway as link in de city
Railway station area under stress

Original network
Densified network
Core development near railway stations
Abolish both, create one new one
Epilogue

I hope you have enjoyed reading this study as much as I have enjoyed writing it. The writings in this thesis have provided me with insights into how cities have coped with their railway systems over time and what influences have effected the decision making concerning this topic. The writings have pointed out some successful and some less successful interventions that could be applied to dissolve the railway as a barrier. However, probably the biggest lesson learned is that the railway can be much more than just a physical barrier.

As this is the lost opportunity, I would once more like to thank everyone who in one way or another has helped me writing this thesis. Thank you very much and I hope you value it as much as I do.

Best regards,

Romy Berntsen
Sources:

Literature:


*News paper articles:*


**NAI Bonas:**


**Articles**


ten Cate, G. (1992) *Toch toekomst voor de IJ-oever dankzij Koolhaas C.S.?* Bouw, Jaargang 47, nr. 21, p. 34-37


Groenendijk, P. (2000) *Stilte voor de storm, presentatie masterplan centraal station rotterdam nabi*. Bouw, jaargang 55, nr. 11, p. 8-10


Rutten, J. (1990) *Utrecht-City kiest weer voor de straat*. Bouw, jaargang 45, nr. 4, p. 16-19


**Policy documents:**


*Interviews:*
Jan Benthem, Benthem & Crouwel Architectural Design

Onno de Bever, Project manager Den Haag Nieuw Centraal

Wim Gideonse, Coordinator New Key Projects, Pro Rail

Earde Jepma, Senior Developer / Project manager, NS Poort

Peter Noordanus, former aldermen of spatial planning 1989 - 2001, The Hague city council

Koen van Velsen, Architectenbureau Koen van Velsen, Bureau Spoorbouw-meester