P4 REPORT

THE STATION AS URBAN CENTRE

URBAN DENSIFICATION AROUND THE STATION

University:
Master course:
Student:
Student number:
Tutors:
Date:

MSC 4 AR3AUH20 Hybrid Buildings Graduation Studio
Delft University of Technology; Faculty of Architecture
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This report contains the results of the research for the master's graduation studio of Hybrid Buildings. This graduation studio is part of the faculty of Architecture of the Delft University of Technology. The focus in this report will be on urban renewal and the possibilities of public transport for urban regeneration.

First an introduction to the studio is given, followed by the problem statement and some research questions. The methods and techniques for research and design are explained with a description of the analysis and argumentation. The report will end with conclusions and discussion.

Enjoy reading!

Mathijs Tabbers
September 2013
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREFACE</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>1.0 INTRODUCTION</strong></td>
<td>7</td>
</tr>
<tr>
<td>1.1 Hybrid Buildings Graduation Studio</td>
<td>7</td>
</tr>
<tr>
<td>1.2 The Zaanstreek</td>
<td>9</td>
</tr>
<tr>
<td>1.2.1 Industrialization</td>
<td>9</td>
</tr>
<tr>
<td>1.2.2 The Zaanlijn</td>
<td>10</td>
</tr>
<tr>
<td><strong>2.0 PROBLEM STATEMENT</strong></td>
<td>11</td>
</tr>
<tr>
<td>2.1 General Problem Statement</td>
<td>11</td>
</tr>
<tr>
<td>2.2 Low-Dense areas</td>
<td>11</td>
</tr>
<tr>
<td>2.3 Railroad Crossings</td>
<td>12</td>
</tr>
<tr>
<td>2.4 Industries</td>
<td>12</td>
</tr>
<tr>
<td>2.4.1 Industrial Heritage</td>
<td>12</td>
</tr>
<tr>
<td>2.5 Site Specific</td>
<td>13</td>
</tr>
<tr>
<td>2.6 Research Questions</td>
<td>14</td>
</tr>
<tr>
<td><strong>3.0 METHODS AND TECHNIQUES</strong></td>
<td>15</td>
</tr>
<tr>
<td>3.1 Methods and Techniques</td>
<td>15</td>
</tr>
<tr>
<td>3.1.1 Historical Research</td>
<td>15</td>
</tr>
<tr>
<td>3.1.2 Typological Research</td>
<td>15</td>
</tr>
<tr>
<td>3.1.3 Map Study</td>
<td>16</td>
</tr>
<tr>
<td>3.1.4 Theoretical Study</td>
<td>16</td>
</tr>
<tr>
<td>3.1.5 Mass Study</td>
<td>16</td>
</tr>
<tr>
<td>3.1.6 Case Study</td>
<td>16</td>
</tr>
<tr>
<td><strong>4.0 ANALYSIS AND ARGUMENTATION</strong></td>
<td>17</td>
</tr>
<tr>
<td>4.1 Urban Analysis</td>
<td>17</td>
</tr>
<tr>
<td>4.1.1 Structural Elements</td>
<td>17</td>
</tr>
<tr>
<td>4.1.2 Historical Development</td>
<td>17</td>
</tr>
<tr>
<td>4.1.3 Masterplan</td>
<td>18</td>
</tr>
<tr>
<td>4.2 Infrastructure</td>
<td>20</td>
</tr>
<tr>
<td>4.3 Analysis Koog-Zaandijk</td>
<td>20</td>
</tr>
<tr>
<td>4.3.1 Functions</td>
<td>20</td>
</tr>
<tr>
<td>4.3.2 Routing</td>
<td>20</td>
</tr>
<tr>
<td>4.3.3 ADM-Factory</td>
<td>20</td>
</tr>
<tr>
<td>4.4 Urban Plan</td>
<td>22</td>
</tr>
<tr>
<td>4.5 Design Station Area</td>
<td>26</td>
</tr>
<tr>
<td>4.5.1 Program</td>
<td>26</td>
</tr>
<tr>
<td>4.5.2 Case Study</td>
<td>26</td>
</tr>
<tr>
<td>4.5.3 Sketch Study</td>
<td>27</td>
</tr>
<tr>
<td>4.5.4 Model Study</td>
<td>28</td>
</tr>
<tr>
<td>4.6 Three Volumes</td>
<td>29</td>
</tr>
<tr>
<td>4.6.1 Commercial</td>
<td>29</td>
</tr>
<tr>
<td>4.6.2 Station</td>
<td>29</td>
</tr>
<tr>
<td>4.6.3 Dwellings</td>
<td>29</td>
</tr>
<tr>
<td><strong>5.0 CONCLUSION</strong></td>
<td>33</td>
</tr>
<tr>
<td><strong>6.0 DISCUSSION</strong></td>
<td>35</td>
</tr>
<tr>
<td>6.1 Architectural Debate</td>
<td>36</td>
</tr>
<tr>
<td><strong>7.0 BIBLIOGRAPHY</strong></td>
<td>37</td>
</tr>
</tbody>
</table>
1.0 INTRODUCTION

1.1 Hybrid Buildings Graduation Studio

In general the graduation studios of Hybrid Buildings focus on ‘how architectural interventions can activate and contribute to the process of urban transformation’. The hybrid building can act as a catalyst for these urban transformations.

The studio ‘The Zaanlijn; an urban artifact in the Zaanstreek’ follows on earlier studies made by Henk Engel and Arnoud de Waaijer commissioned by the province Noord-Holland. The assignment was to deliver maps from the station locations regarding the densification around public transport nodes in the province Noord Holland. One of the main conclusions of the report is that the number of inhabitants per hectare around public transport nodes is declining. This means that less people live in the vicinity of public transport nodes. Given the fact that sustainability has become an important issue lately, this conclusion is alarming, since the public transport, and especially the railway, can be a great solution to traffic jams and the decrease of CO2-emissions.

The goal of the studio is to study the possibilities to improve and densify around the station areas in the Zaanstreek. Within a radius of 800 meter of the station students were requested to formulate their own design assignment. The distance of 800 meter is equal with approximately a seven-minute walk.

In the studio we started analysing the area of the Zaanstreek. Seven groups of three students were made to look further into the different station areas. After that three groups of seven students were made to form a masterplan for the Zaanstreek, fitting 10,000 dwellings into the station areas. From there on each student chose an individual site and formed their own design assignment.

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1 Department of Architecture, chair of Building Typology, "Course contents" course information about the Hybrid Graduation studio with code AR3AUH20.
Fig 1. Zaanstad within The Netherlands (source: author)

Fig 2. Zaanstad within North-Holland (source: author)
1.2 The Zaanstreek

The area of this case study of the Hybrid Building Studio is the Zaanstreek, with a focus on Zaanstad. Zaanstad is a city in Noord-Holland, with almost 147,000 inhabitants, close to Amsterdam. The region is very well located due to closeness of big traffic nodes, the harbors of Amsterdam and Amsterdam Airport Schiphol is just twenty minutes away. Zaanstads important elements are the river ‘de Zaan’, the railway ‘the Zaanlijn’ and the provincial road, which used to be the most important connection to Amsterdam.

1.2.1 Industrialization

The city of Zaanstad is an agglomeration of former villages like Zaandam, Zaandijk, Koog aan de Zaan, Wormerveer and Krommenie. These villages already originated in the 15th and 16th century by land cultivation. In the 17th and 18th century the Zaanstreek had various industries and it was the ‘warehouse’ of the Netherlands back then. At some point in history there were around 900 windmills active. The industries all formed around the river ‘Zaan’ and its perpendicular ditches. Some of the industries are still within the urban tissue and some buildings are part of the industrial heritage. The introduction of the railroad in 1867 connected the different villages and helped the industries by transporting goods.

The way of life changed drastically over the 20th century with the upcoming of new technologies, especially the automobile as one of the ‘necessities of life’. Urban patterns changed, because of the new form of mobility. With the improvement of mobility also the connectivity improved. The role of the railroad for example changed, from transporting people and goods over a long distance at the end of the 19th century, into a more defined system of public transportation halfway the 20th century, connecting the different villages and cities to a larger network.

Newer technologies also changed the function of the railway stations. Where, back in the 19th century, people sometimes had to wait on the train for hours up to a day, hundred years later the people could plan their trip on a minute precise. The need for functions on the station like a hotel or a haircutter disappeared over time. Now only the bigger stations have some extra facilities like a fast-food corner and a small grocery store, but most of the stations are just mono-functional and do not even have a building, only a shelter to protect travelers from wind and rain.

Another influence on the change of the city, and also change of railway stations, was the sub-urbanization. Accelerated by the use of automobiles in the 1950s, sub-urbanization caused the so-called ‘urban sprawl’. New monofunctional areas of housing were built on the outsides of the city. If lucky, the areas got their own station, purely used as a transport node for commuters. In Zaanstad this happened for example at Kogerveld and also Koog-Bloemwijk.

The different villages in Zaanstad all developed around the industries close to the Zaan. Houses for the workers were built next to the windmills and factories. With the coming of the railway, some of these different villages grew more or less together, because they had to share a railway station. For example the station Koog Zaandijk connected Zaandijk and Koog aan De Zaan. The different municipalities all grew together into Zaanstad in 1974.

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4 Gemeente Zaanstad; Zaan/IJ: ambities en mogelijkheden (2011)

URBAN DENSIFICATION AROUND THE STATION
1.2.2 The Zaanlijn

The Zaanlijn is the part of the railway between Amsterdam and Den Helder. The Zaanlijn was opened in 1867 and exists of the stations Zaandam, Koog Bloemwijk, Koog-Zaandijk, Wormerveer and Krommenie-Assendelft. Overtime the Zaanlijn has had some changes. The image of the railway station changed from a monumental building as an entrance to the adjacent area, into nothing more than a covered platform. In the case study the stations Koog-Zaandijk, Wormerveer and Krommenie had initially a monumental station building built in 1867, but over time this changed to covered platforms without hardly any additional functions. Also the most of the station squares are gone. Recently the government introduced the Program High-Frequent Railway transport (PHS). This means that the line will be used by six intercity trains and six sprinter trains per hour between 6:30 and 20:00 hours.

Fig 3. Infrastructure around Zaanstad (source: author)
2.0 PROBLEM STATEMENT

2.1 General Problem Statement

The general problem that comes forward from the research of Engel and De Waaijer is the urban declination around transport nodes. The main assignment of this studio is the densification and the improvement of the station locations along the entire Zaanlijn to solve the issue of urban declination.

Within the studio we analysed the area and encountered also other problems. Some problems are linked to the urban declination and some problems have other reasons. The most important problems for the design assignment are discussed.

2.2 Low-Dense areas

One of the problems -linked to the urban declination- is the monofunctional, low-density housing areas the city has. In the 1970’s the villages in Zaanstad all expanded with low-dense housing area’s, the so-called suburbs. The car is the most important transportation vehicle in these areas. This phenomenon is also called ‘urban sprawl’. Many research done on urban sprawl shows that it is not good for the environment, since it is based on the use of cars. Functions are spread out and the people living in suburbs often have to take the car to get to work. This causes traffic junctions.

In order to keep growing, Zaanstad needs densification within the urban fabric and not spread out anymore. To decrease the pressure of traffic, public transport becomes very important. Zaanstad has already an infrastructural network that has quality. “Yet this core quality is insufficiently utilized. The hierarchy between the stations is not logical. Some are in a pasture or between local sportfields. This provides in the long run insufficient support.”

To accomplish densification without causing major congestions, building in the vicinity of the stations could be a great solution. It stimulates people using the train, if it is just as easy as using the car. If the functions then are also in the vicinity of the station, people can walk or take the bike to the railway station.

5 Ruimtelijke Structuurschets Zaanstad 2005-2015
2.3 Railroad Crossings

An other problem that we as a group in the studio encountered during the analysis of the Zaanstreek is the current state of the crossings between the rail track and the provincial road. When the railroad was built, it was on the outside of the urban tissue. But with the expansions of the 1970's the built area is also on the west side of the railroad. The areas are connected by streets crossing the railroad. Right now there are several crossings on the same level. With a higher frequency of the trains passing by, this is almost impossible since cars then have to wait almost half of the time.

2.4 Industries

Furthermore Zaanstad deals with the problem that it still has heavy industrial sites within the urban fabric. Dwellings for workers were built around the heavy industries. Later the villages developed further, but some factories are still present and active. To develop economically further as a city, the heavy industry needs to move to the outside of the city and could be replaced by the creative cultural industries combined with dwellings.

2.4.1 Industrial Heritage

More an opportunity than a problem is the industrial heritage. The industrial heritage that the sites with heavy industry leave behind should be respected. Buildings that are suitable for re-use should be handled that way. The heritage can give a lot of quality to the city, because Zaanstad has a lot of qualities that are not used to their full potential. An example is the Zaanse Schans. With almost 900,000 visitors a year it is a big touristic attraction. Tourists are advised to travel by train from Amsterdam to station Koog Zaandijk and then walk, but once arrived at station Koog Zaandijk all the touristic possibilities are lost, since there is no clear direction towards the Zaanse Schans and other historical buildings.

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*Fig 4. Longer waiting at crossings with PHS (source: author)*
2.5 Site Specific

For choosing a site where an urban intervention could lead to a good solution I used the analysis of the different stations. I chose for a site where all the problems earlier discussed, like low-dense housing, problematic crossings, heavy industry and unused qualities come together. For me that is the Koog-Zaandijk station.

On the west side of the railroad is Rooswijk. A low-dense living area built after WWII, with a large expansion built in the 1970s. The first town-hall of Zaanstad was actually in Rooswijk. There even used to be ambitious plans to make Rooswijk the center of Zaanstad.7 But now it is just a quiet living neighbourhood with more than 2,250 dwellings and almost 6,000 inhabitants.

The train track can be crossed by car over the Guisweg. The Guisweg is the connection between the Provincialeweg and the A8-freeway. At the present moment this cross-connection is still on equal floors. When trains pass the crossing, the cars have to wait. This is a huge problem for the future when the amount of passing trains is increased.

The factory at the east side of the station, across the Provincialeweg is the ADM Cacao factory. It settled at this location in the beginning of the twentieth century. The factory is still in use and causes air pollution, especially a bad smell. Heavy industry should not be within the urban environment.

The Zaanse Schans, within a ten minute walk from the Koog-Zaandijk station, is an important touristic attraction. Because of the factory, that is such a closed-off area, there is no clear route from the station to the Zaanse Schans.

The whole area around the station is lacking coherence. There is hardly any public space that connects the east and west side of the railway. The area has none of its qualities used to its full potential.

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2.6 Research Questions

The challenge in this project is to find a solution to all the problems encountered. First the problem of the declination of inhabitants per hectare. The question that comes along with this problem is: “How can a low dense housing area be more urbanized?”

For the problematic cross-connection of the east and west side of the train track the question is: “What is the best solution for the cross-connection?” Which seems an obvious question, but supported by analysis and research it aids the design-process.

The factory might have some potential with buildings that could be part of the industrial heritage. “Which buildings are suitable for re-use and could add value to the project?”

The question: “How can the areas qualities be used to their full potential” leads to an analysis of the areas qualities and a way they could be utilized to regenerate the area.

These questions are all on the urban planning scale. The questions that needed to be asked to come to a design on the building scale were made after finishing the urban plan. The most important ones are: “What does a station need for additional functions?” “What sort of building mass can define the public space?” “How could dwelling be integrated to densify the area?” “What are the routes for pedestrians, cyclists and automobilists?”
3.0 METHODS AND TECHNIQUES

3.1 Methods and Techniques

This chapter, Methods and Techniques, is a description of the methods and techniques that are used during the research and design process of the project. Here is explained how the formulated research questions are approached and which methods are used to find ‘an answer’ to the research questions.

The general method used to examine if the design questions are valid is to make a design proposal. For the different aspects of the design proposal separate questions are formulated. Each of these questions could require another method of studying. Methods can have overlap and the same techniques can be used within different methods. The research is structured by the specific thought frames within architecture, known as episteme.⁸

3.1.1 Historical Research

The history of a place can give insight in the current situation. Especially the historical development is important and gives a lot of information about the context. "The study of literature is almost always the first step in a study of architectural history."⁹ The urban and architectural development that is documented can be interesting to read. To understand the character of the area that is studied a morphological analysis is helpful. The historical development of the built area is brought in map by a mass-void drawing of different periods in time.

3.1.2 Typological Research

To be able to understand the different train stations and their position within the city a typological research on the stations was done by a group of students. The analysis in the form of comparative reduced drawings led to two types of stations with several subcategories.

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⁸ Lecture by Avermaete, T. (2012, February 16) [Episteme in Architecture]
⁹ Máčel, O. (2005). Historical Research In T.M. de Jong & D. J. M. van der Voordt, “Ways to Study and Research” (pp. 61-78) (Delft, DUP Science)
3.1.3 Map Study
Map studies are very useful for understanding the area better. A function map, where all the different functions are mapped out, is helpful for finding out what program is needed or could be added. A Frame-Pattern-Circuit analysis\(^{10}\) was made to see how people move through the area. The map of the infrastructure around Zaanstad (Fig 3) was used to see the important nodes and their impact on the area.

3.1.4 Theoretical Study
The earlier described ‘urban sprawl’ is a phenomenon that started in the United States when the automobile became a way of life. It also happened in Zaanstad, when low-dense housing areas, based on the use of cars, were built in the 1970’s. A movement of architects and urbanists tried to tackle this problem. The theories of these movement, called New Urbanism, are interesting to study.

3.1.5 Mass Study
Once the urban plan was made and the location for intervention was decided a mass study with foam-models helped to find a form that defines the public space.

3.1.6 Case Study
Analysis on other projects with comparable design assignments give insight in possible solutions. To tackle the problem for urban densification the book ‘Intense Laagbouw’ was very useful, because of the many examples of low rise, high dense housing projects.
For the building design assignment a case study of several comparable projects was helpful. Plans and sections were compared and the positive and negative points of each project noted down.

\(^{10}\) Bois, P. de (2010). “Stedelijke vitaliteit”. (Amersfoort, Elba Media)
4.0 ANALYSIS AND ARGUMENTATION

4.1 Urban Analysis

At the start of the project, the students made an urban analysis as a group. After the urban analysis, and other analyses, the students researched their site further individually.

4.1.1 Structural Elements

Goal of this analysis is to map the structural elements that give the Zaanstreek its unique identity. By mapping water, nature, industrial areas, monuments, provincial roads, highways, cross-connections and railway stations, it should become clear what the elements are that make the composition of the region. In the case of the Zaanstreek the structural elements are of course the river Zaan, the railroad and the Provincialeweg. The highway has also a large impact on the urban tissue. (Fig 6)

4.1.2 Historical Development

The historical analysis shows that all the different villages in Zaanstad formed around water structures perpendicular to the river Zaan. The villages represented a large industry in the 17th century. At some point in history there were 900 windmills active. (The windmills still form a great attraction to, especially Asian, tourists. Since 1961 some historical buildings have been relocated to the ‘Zaanse Schans’.) The different villages grew together, because of expansion along the dyke. In 1867 the railway was built on the outside of the villages. From then expansion started towards the tracks. Around this time the ‘Zaankanters’ also exchanged their windmills for steam machines. Large multinationals like Verkade and Ahold started their companies here. After World War 2 the city growth boomed. The city stopped growing in the east direction when it reached the A8 highway. And to the west the expansion of the city was stopped by a big natural reserve. In fact the highway and the natural reserve limit future expansions. The city of Zaandam is now fully entangled with the municipalities of Koog aan de Zaan, Zaandijk, Wormerveer and Krommenie, all along the Zaan. Together it is now called Zaanstad.

It is interesting to see that the city has been guided by natural barri-
ers or infrastructure when it comes to direction of growing or limiting growth. As can be seen in the map above, where the river, the railroads, the highways and the protected nature areas form the structural elements of the city.

The municipalities really expanded after the second world war. Large monofunctional neighbourhoods with dwellings arose. The focus of work shifted. Back in time 80% of the people living in the Zaanstad worked in the industries, now it is just a little more than the national average. Many of the residents nowadays are working in Amsterdam. The traffic to Amsterdam and the traffic on the Provincialeweg is already giving problems. With the intended densification this will only increase. A good solution for the commuters is public transport and especially the fast train connection to Amsterdam. (Fig 7)

4.1.3 Masterplan
Before coming up with a masterplan our group of students mapped out all the possibilities for densification within the 800 meter radius of the railway stations. We separated three different types of areas: sport fields, empty areas and factory sites. Then we calculated for each area how many dwellings could be built. We gave some areas a different density, according to their position within the city. Areas that are more centred have a higher amount of dwellings per hectare than the areas more on the outskirts. (Fig 8)
Fig 7. Historical development (source: author)

Fig 8. Masterplan (source: author)
4.2 Infrastructure

Before zooming into the station area, the group of students that all chose Koog-Zaandijk made an analysis of the infrastructure (Fig 3) around the railway and the Provincialeweg. The complete analysis can be seen in supplement A.11 Because of the fact that equal crossings are not an option anymore there has to be decided if the railway should be lowered or raised. Also the crossings of the Provincialeweg, which is now a 70km/h road, has to be dealt with. The analysis shows that lowering the station is though, because two ditches have to be crossed then. Moreover, the railway can be an urban artefact, important for the structure of the urban tissue. The research by Kevin Lynch12 for example shows that people use the railway as a recognizable reference point in their routes. By lowering the railway this is not possible, that is why there is chosen for a raised railway track.

The next step was to decide whether the station should have an island platform, or side platforms. The big advantage of an island platform is the fact that both directions can share an entrance to the platform. But the railway track then needs 55 meters on both sides to come back next to each other. This is not desirable for the crossings and could be problematic, because the track should be on ground level on time before crossing the freeway A8. Besides, side platforms have the advantage that the platform is on the facade of the station, which gives a better visual connection between the platforms and the public space. These arguments led to the choice for a raised station with side platforms.

When visiting Zaanstad it became clear that besides the railway the Provincialeweg is also a barrier between east and west. This has to do with the fact that it is a two-lane road in both directions with a maximum speed of 70km/h. In order to make a better cross connection for cyclists and pedestrians something needs to be done. The Provincialeweg was used as a through-road to Amsterdam. But the A8 actually took over that role, so the Provincialeweg can be downgraded in front of the station, cause most traffic coming from the north will take the Guisweg to the A8.

4.3 Analysis Koog-Zaandijk

4.3.1 Functions
In order to see what kind of functions are present in the area and which functions might be needed a map is made (Fig 9). The map shows that around the crossing of the Guisweg and the Lagedijk there are a lot of retail functions. The buildings that hold the retail are a little neglected and the Guisweg is not a very pedestrian-friendly street. Furthermore it is clear that the built environment is mostly housing.

4.3.2 Routing
The connectivity of the area is mapped to see where improvement are needed. The connection from north to south is pretty good in general, but for both bikes and cars the problem is the connection from east to west. For cars the only cross-connection is the Guisweg. In the map it is clearly visible that the ADM-factory is a closed area. There are no through routes from north to south. This should be improved and the site should be more opened up, since it is a barrier between the urban tissue of north and south.

4.3.3 ADM-Factory
The ADM-factory occupies most of the buildings in the area between the Guisweg and the Stationsstraat. The factory site is now very closed off. This does not stimulate the coherence of the neighbourhoods at all. To improve the urban tissue the area needs to be more open. The factory should leave, because heavy industries should not be in between housing. By replacing the factory, its buildings remain empty. With an analysis of the existing buildings there is determined which buildings are suitable for re-use and which buildings could be demolished. The determination is done by checking whether the building is a monument, has a good structure, is suitable for an other function and has aesthetic value. The coloured buildings (Fig 11) will be kept.

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11 Paar, V., Selkou, M., De Vries, M., Tahbers, M. (2012): “Infrastructure through time; Analysis of the relations between the developments of main infrastructure in Zaanstad”
BIKES
CARS
POOR CONNECTION TO SPORTFIELDS FROM SOUTH EAST SIDE
POOR CONNECTION NORTH TO SOUTH
POOR CONNECTION EAST TO WEST

Fig 9. Function Map (source: author)
4.4 Urban Plan

With all the input from the analyses and the theories of the New Urbanism an urban plan is made. The theories from the New Urbanism advocate that areas with low-dense housing can benefit from a compact walkable ‘urban centre’, connected on city scale with an ‘urban core’. The urban centre needs a mixture of housing and functions and should be based on travelling by bike and by foot. The station-areas can be urban centres for the former villages and new developments around them, all connected in the larger scale to the urban core that Zaandam is within Zaanstad. The areas could be developed according to the Transit Orientated Development model (Fig 12). ‘An advantage of the TOD-model is that rail is the most efficient form of transit. Another advantage is that institutional as well as commercial uses can be concentrated around a transportation node. This is likely to create retail that is well-supported by pedestrian traffic.”

The start of the urban plan (Fig 13) is introducing two car-free streets, passing under the railway, connecting east and west. These car-free streets border the former factory buildings in a sort of middle-zone. These middle-zone will be filled with high-dense housing blocks that have a raised deck with semi public spaces above and parking under. This is designed after a example from ‘Intense Laagbouw’. The factory-buildings will be re-used as a hotel and a cacao-museum.

The southern car-free street will connect the sports fields with the east side of the railway. In between the southern car-free street and the Stationsstraat there will be housing.

The northern car-free street will connect the west side with the Lagedijk and give a visual connection with an old windmill. From there the Zaanse Schans is visible, this to guide the tourists. This street will have a more commercial appeal and the typology of housing that is already there will be kept. Housing on top of working with a store-facade to the northern car-free street and an atelier-facade to the Guisweg.

The housing will be high-dense low-rise with some higher accents, referring to the chimneys of the former factory.

URBAN DENSIFICATION AROUND THE STATION

Fig 12. TOD-model on Zaanstad (source: Lexicon of New Urbanism & author)

Fig 13. Explanation Urban Plan (source: author)
Fig 14. Urban Plan (source: author)
4.5 Design Station Area

4.5.1 Program
After completing the urban plan, the next step is designing the station. Based on the analyses, and the ideas of creating commercial functions next to a transport-node, the program is formed. The concept that commuters take the train instead of the car can be boosted by creating daily routes that leave out the car. For example: a commuter wakes up, drops his kids at the day care, comes back from work, picks up kids, does grocery-shopping and goes back home. If the day care and the grocery-store are next to the station, the commuter only has to go to the station to do the every day routines. This could stimulate the use of the train. The whole project is based on densification of the area, that is why dwellings are also integrated in the project.

The programme contains three different types: commercial space, dwellings and of course the station. Study has to show how to integrate and connect these different types.

The commercial space needs at least a day-care, grocery store and a fitness that could make a connection between the station and the adjacent sports fields.

4.5.2 Case Study
In order to get an understanding of how a train station can work together with commercial functions some references were analysed. The references are all based on a raised track and station connected to commercial functions. (Fig 15)

The Bijlmer Arena Station in Amsterdam is a station that is next to a large shopping boulevard, concert theatre and stadium. The raised railway has several tracks and six platforms. The entrances to the platforms are from the boulevard under the railway. There is a hall which can, together with the stairs, be closed off at nights. Columns with large span elements make a open space under the railway, connected to the boulevard with commercial functions.

The Hackescher Markt in Berlin was opened 1882 and is still preserved in its original conditions. The station is served by the S-Bahn. In this part of the city of Berlin, the S-Bahn is a continuous structure with arches that connect the different sides of the S-Bahn. The entrance to the platform is in one of these arches. The other arches are all filled with commercial functions, giving the connected square enough activity.

The Interchange in Minneapolis is a project that is still in development. It is designed by EE&K a Perkins Eastman company. The project is particularly interesting for the principle ideas. The company used their ‘Open Transit Design’:

“What we’re calling “Open Transit Design” is a new way to explain the concepts underlying some fairly long-established principles in station design that are re-emerging in an era of unprecedented interest in city living. Just as the name suggests Open Transit is an inclusive design point of view that incorporates a wider array of spaces and modes to create an iconic place. Great cities across the world are defined by great places. If we are to make cities more sustainable we need to create transit places that will also sustain and enhance urban life. For the first time in more than two decades, growth in town and city centers is outpacing suburban growth according to the U.S. Census (figures reported in July 2011). Cities are re-marketing themselves around different amenities as the suburbs lose popularity. Transit is an essential component to defining the difference between world-class cities with vibrant 24-hour occupancy and the type of commuter city that empties out when work is over...

...So what comprises Open Transit Design? There are five essential elements needed for this type of project:

- Integration of all available transit modes
- An orientation towards real estate development
- Architecture that makes iconic spaces
- Integration of culture with transit design
- Appeal for non-transit users

Open Transit Design is that which integrates all modes of transit including: rail, bus, cars, bikes, and walking. Bicycles are a newer part of the
equation being pushed in both bigger cities (New York has massively altered traffic patterns in such complicated places as Times Square to include bike lanes) and smaller ones where people have simply grown tired of gas prices and want a more active lifestyle. A few years ago, bikes were still considered primarily for recreation, but they are becoming an increasing part of the daily commute in cities across America. As such, The Interchange will have a “Bike Bar” cafe that will provide bike repair, rental, and other services.”

Although this project is in the United States and their cities are a little different then the European cities, I think the basic idea that transit places need to sustain and enhance urban life is global.

These different projects all have in common the connection from station to an urban space, more than just a street or sidewalk. In these projects more or less the classic idea of a station square is recognizable, but the type of building is different. (Fig 15)

4.5.3 Sketch Study
After finishing the global programme and the station analysis, different variants were made all trying to incorporate the three different types into one building mass. All the variants had some flaws and the integration did not strengthen the different functions, but only weakened them. This led to the idea of creating different volumes for the different types of program, forming a composition for the public space. The commercial functions form the mass on the ground floor, following the car-free streets and creating a public space that gives entrance to the station. The dwellings are not ground-bounded, but apartments, since this creates a higher density, without losing ground floor space that could be used for public functions. (Fig 16)

4.5.4 Model Study
A model study was done to see which form would be the best. In the end there is chosen for a combination of the different models. The ground floor of the third model (Fig 17) is chosen, because it creates a square perpendicular to the station and the Provincialeweg with a straight visible connection to the park. For the dwellings there is chosen for a tower on the northern commercial volume, communicating with the tower on the other side of the Provincialeweg. On the southern commercial space there is a stretched two-story-high volume, giving direction along the park to the square, with a great view on the park. The entrances of the dwellings will be on the car-free streets.
4.6 Three Volumes

4.6.1 Commercial
The commercial space should form the base of the building and can define the public space. The commercial volume should give space to a day-care, grocery store and fitness. The entrances of the dwellings are also integrated in the commercial volumes, because they have a connection with the car-free streets. To provide outdoor space for the day-care and enough light for the fitness patios will be added. The exterior look will be robust/stony, with wood and green in the patios.

4.6.2 Station
The station volume will be a covered platform with its entrances on the square in the middle of the plot. The volume will be opened up on the street side as a ‘window’ to the street life. The park side will be more closed off since it also has to form a sound barrier for the dwellings.

4.6.3 Dwellings
The dwelling volumes are a reaction on the surroundings. The tower on the north side of the plot reacts on a higher volume across the Provincialeweg. The more stretched dwelling volume follows the direction of the commercial space beneath and gives the apartments a great view on the park. To keep a cohesion between the different volumes there is chosen for a facade that makes the volumes readable as blocks and does not emphasize the direction of the volume. (Fig 19)
Fig 20. Facade (source: author)
Fig 21. Impression (source: author)
Fig 22. Impression (source: author)
This chapter is about trying to answer the research questions stated in chapter 2. First there is the main theme of the studio; densification around the station area. The additional question asked is: “how to create a more urban environment?”. There are already enough low-dense housing areas in Zaanstad and lately there is the trend that the city becomes more popular. The reason for this could be that a city provides all the needs within a reasonable distance. Implementing other functions than for the basic needs in a low-dense area is always hard, because of the fact that there is not enough support. But the extra functions do give quality to life, so it is desirable to have them around in walkable distance. The theories of the New Urbanism advocate compact walkable urban centres, to counter the extensive use of the car. The problem with the realized designs according to the principles of the New Urbanism is the fact that the amount of dwellings per hectare does still not exceed the density of a low-dense area. This is because more room is reserved for public space in these designs. So the environment is improved, but the amount of users for additional functions is still not enough. That is why the urban design for the Koog-Zaandijk area needs a higher density than the forty dwellings per hectare it has right now. This can be achieved by large towers, but it is accomplished with mostly high dense ground-bounded dwellings, since that offers a better relationship with the public space.

One of the biggest problems in the area at the current state is the cross-connection from east to west. This is because the railway track is on an equal level as the Provincialeweg and its perpendicular roads. The analysis showed that a raised track is desirable, since the railway can be an urban artefact in the city and the lowering of the track could be problematic with the crossing ditches.

The ADM-factory will be replaced outside the city, because heavy industry should not be within the urban tissue. Some of the buildings on the site have historical and/or cultural value. The analysis shows which buildings will be integrated in the urban plan.
The station can play an important role for the area. The Zaanse Schans is by train only fifteen minutes from Amsterdam, but that quality is not used at all, since there is no clear route to the touristic place. By adding this route and giving space to the other historical and cultural buildings the area gets a lot more quality.

The additional functions that will make the station stronger are functions that are part of a daily cycle. Functions like a day-care and a grocery store. These functions make the use of the train more attractive.

The analysis of the existing raised stations shows that all designs have their entrance to the platforms from a public space. In order to create a public space that is not directly a street, the building mass of the commercial spaces can be used. In the design the masses on both the car-free streets form a square perpendicular to the Provincialeweg.

The integration of dwellings is a difficult but interesting assignment, since a railway-track and housing are not an ideal combination. Ground-bounded dwellings are out of the question, because the ground space at the site is best reserved for commercial functions and public space. That is why is chosen for two volumes on the commercial masses. The courtyards in the ground-floor volumes form a buffer between the dwellings and the station.

The station-square forms the gathering point for the pedestrians, cyclists and motorists. The pedestrians have a wide side-walk next to the Provincialeweg, under the shelter of the railway. The cyclists can use the lane through the park to get to the bicycle-parking under the square. The motorists can use the ramp from the Provincialeweg to the parking underneath the square.
The difficulty of this studio lies in the fact that there are made large steps in scale, from the analysis of a whole city to a detail one to five. Before coming to an architectural project an urban plan had to be made. This was challenging, but personally interesting since I am also interested in urbanism. The hard part was the step from an urban plan to the architectural project. Personally I prefer to design in a context, but in this studio we mostly could create the context ourself. Which is a very good exercise, but for me a struggle sometimes, cause at moments I questioned my earlier made principles. What helped me was to really keep in mind the goal and the problems that need to be solved.

For the architectural plan the case studies helped me understand the importance of a public space adjacent to a public building. In my earlier design of the station area I always placed entrances to the platform on both car-free streets. Of course a street is also a public space, but it has not the same hierarchy as for example a square. The moment I understood that, designing the architectural plan was a lot easier.
6.1 Architectural Debate

Architects always played or tried to play an important role in the social behaviour of the community. The modernists were the first to implement the car in the way of life and slowly it became a necessity to own a car. We are now at a point in history where the sustainability of the earth is an issue. This already comes back in education, legislation and designs of some architectural company. One of the biggest polluters is the car. So we can make the most energy efficient buildings, as long as the car is a necessity we can never reach the level of sustainability that we should have. I believe that architects can play a big role to help society get rid of the idea that the automobile is a basic need.

The theories of the New Urbanism were in that way helpful, since they stimulate pedestrian/bike friendly areas. A problem I encountered was finding good reference projects from the examples given in books like “The New Urbanism: Toward an Architecture of Community”. This is because all the projects were in American cities, since the New Urbanism found its origin there. American cities are not very comparable to the Zaanstreek. Therefore I tried to find the underlying ideas of the New Urbanism. The Lexicon of the New Urbanism from Duany & Plater-Zyberk was more useful.

I think in some way the ideas of the New Urbanism are implemented in the (sub)urban developments (VINEX) of the last ten years. All these neighbourhoods have a street or square with the daily needed functions like a grocery store, bakery and elementary school. This is in line with ideas of the New Urbanism, but the car is in all these projects still important. I think more interesting is the earlier mentioned TOD-model in the Lexicon from Duany & Plater-Zyberk. Here the development is based on a possible public transport connection to the bigger network.
7.0 BIBLIOGRAPHY

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