

The Broken Link



Validating the Quality of the Link between Central Railway Station and City Centre in the Netherlands

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Theme 1: Sustaining safe walking

Abstract

The link between railway station and city centre in the Netherlands is becoming increasingly important in our cities; The railway station is gaining importance as entrance to the city (Rooij, 2005; Bertolini & Dijst, 2003) and cities are promoting their city centres to attract visitors and stimulate the local economy (Van der Hoeven et al., 2008). The link between station and centre therefore has to serve more and more people per day. This link is fundamentally important as image for the city and therefore the place to make a good first impression (Van der Spek, 2006).

However, the link between railway station and city centre is often unattractive (Kusumo, 2007; Rooij & Read, 2008). Visitors of the city have to cross several barriers while walking to the city centre. Furthermore the route is often disorienting and the public space has a low quality. In other words, it is not an inviting entrance to the city: The link is broken.

This paper describes which elements of public space cause the link between railway station and city centre to be broken. The focus is on the experience of the link by the pedestrian. The elements are found by a literature research on the work of leading authors in the field of (design of) public space in the 20th and 21st Century.

Furthermore the paper discusses a validation tool new developed to objectively measure and validate the quality of the link between railway station and city centre. The tool is based on a list of criteria derived from a literature research on the work of leading authors in the field of (design of) successful public space in the 20th and 21st century. The pedestrian and his experience of the link forms the basis of the tool.

The tool is used to validate and compare 16 Dutch cases. The paper presents an overview of the 16 case studies and offers general findings and conclusions on the situation in the Netherlands. Furthermore the paper shows how the theory is put into practice in Leiden by NS Poort (the Real Estate Division of Dutch Railways).

The paper is based on the Master's Thesis *Fixing the Link* of the author (Brouwer, 2010) in combination with the work by NS Poort in the city of Leiden.

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Introduction

The link between railway station and city centre is fundamentally important as image for the city. The link functions strongly as gate to the city: per day thousands of people enter the city by train and a major part of this group continues its journey on foot towards the city. In Amsterdam for instance 170.000 train passengers use the railway station per day. Almost 40% of them walk to the city centre. Smaller Dutch cities, like Zwolle that has 35.000 train passengers per day, also has a percentage of almost 40% of people walking to the centre (NS, 2008). There is no place in the city where this many people get their first impression of the city.

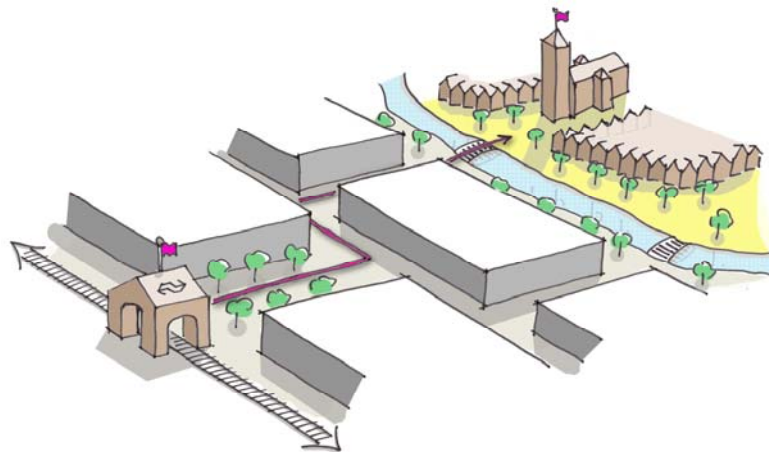


Figure 1: The link between railway station and city centre: the first impression

And the amount of railway passengers is only increasing. Worldwide, railway stations are attracting more and more passengers (Rooij, 2005; Bertolini & Dijst, 2003). Since the end of the 20th century governmental institutions have been focusing on the railway station in their strategic plans. In the Netherlands for instance six large railway station projects are being realized right now initiated by the government, because of the development of the Dutch High Speed line (HSL). And this is just the start; the list of projects is becoming longer by the day because of expected growth of passengers in other stations as well.

Besides the railway station environment there is also a large focus on inner city development. Municipalities are focusing more and more on the quality of their historic city centre (Van der Hoeven et al., 2008) to attract visitors and stimulate the local economy. Cities are looking for ways

to extend the stay of their visitors by improving the quality of the public space, the amount of shops, by offering special day or weekend arrangements and so on.

Both the railway station and the city centre are thus attracting more and more people. This makes the link even more important as gate to the city and the place to make a good first impression.

Unfortunately this first impression is usually not positive. Station squares are often chaotic and dominated by buses, bicycles and cars. The pedestrian is left to its faith. The same goes for the rest of the link: the focus lies on the functional part. The link is therefore only place of flow and is seldom a place to stay. The link is usually not designed from the perspective of the pedestrian. The pedestrian has to cross several barriers, the public space is unattractive and the route is often disorienting. The link usually forms a large contrast with the quality of the city centre. In other words, it is not an inviting entrance to the city: The link is broken.



Figure 2: The link in Haarlem (left) in contrast with the city centre (right)

Research shows the importance of the first impression of the visitor: when visitors of a city have a pleasant arrival experience they will stay in the city for 4 hours and spend € 150,-. However if the arrival experience is negative they will spend half the time and half the money (Van der Spek, 2006). This goes for all visitors of the city; so also the ones travelling by car, by bus, or any other modality.

This paper researches the quality of the link between station and city. It aims to develop a tool that objectively measures its quality and gives practical measures to enhance the quality. The paper also shows how theory can be put into practice, by getting into more detail into the station area of Leiden.

Four elements for a successful link

It is easy to pick a certain successful place. Pointing out however what it is exactly that makes the place successful is not that easily done. Think for instance of the world famous canals in Amsterdam. Most people will think they are attractive. But what is it exactly that makes it attractive? Is it the height of the buildings? The width of the streets? Or is it the diversity of facades? Or simply the fact that there is water in the street? Or is it all the small shops and restaurants? The other way around, it is even more difficult to find out why a certain place does not work.

A literature study on the work of leading authors in the field of (design of) public space in the 20th and 21st Century provided four important elements for a successful link (Cullen, 1961; Jacobs, 1961; Lynch, 1961; Montgomery 1998; Isaacs, 2000; Gehl & Gemzøe, 2006; Van der Hoeven et al., 2008; Orum & Chen, 2003; Purciel & Marrone, 2006; PPS, 2009; Ewing & Handy, 2009; Living Streets, 2009; Walk21, 2009).

Summarizing the work of these authors, public space is considered attractive if:

- the public space is lively;
- has a human scale;
- the route is legible;
- and the public space feels safe & comfortable.

After developing these four main criteria for public space quality, their relevance for the link between railway station and city centre was checked. This resulted in the following list of 12 criteria for a successful link between railway station and city centre:

01. Liveliness

- a. Mixed Use;
- b. Use along the Day;
- c. Creating an Atmosphere of Watching and Being Watched;

02. Human Scale

- a. Permeability;
- b. Fine Grained Building Blocks;
- c. Walkability;

03. Legibility

- a. Orientation;
- b. Linearity of the Path;
- c. Clarity of the Maps and Signage;

04. Safety & Comfort

- a. Pedestrian Priority;
- b. Eyes on the Street;
- c. Maintenance.

The following paragraph describes all four elements. The elements are illustrated by examples of links in the Netherlands.

Liveliness

When there is a lot to do in a place, there are a lot of people moving around in the street, which creates a lively, vital city scene. It is therefore important to create people attractors and to make sure that they attract people along the entire day. Furthermore there should be enough places to sit down to create an atmosphere of watching and being watched. These eyes on the street also evoke a sense of safety (Jacobs, 1961; Montgomery 1998; Purciel & Marrone, 2006; PPS, 2009; Ewing & Handy, 2009). Currently the link in the Netherlands lacks liveliness, being mainly a place of flow: people are only using this part of the city centre in a functional way. It is not used as a place to stay, like an inner city square.

The station square of Haarlem is an example. The square is dominated by a large building containing offices and a small amount of shops. Both the shops and the offices are only opened during office hours. This means that after 6 pm there is barely any activity on this side of the square. The building also contains dwellings, a parking garage and a sports hall, but all the entrances to these functions are situated on the other side of the building. Furthermore the windows of the dwellings do not overlook the square and the parking garage and sports hall have closed facades. Finally there are no benches and barely any terraces on the square. A consequence of all this is that the square is unlively and therefore unattractive.

All and all for creating liveliness along the link it is important to have:

01a. Mixed use: a mix of residences, offices, shops, leisure and education to assure the presence of different kinds of people on the street spread out along the day;

01b. Use along the day: the presence of functions in the street that are not only opened during office hours, but also in the evening and in the night, or even 24 hours a day;

01c. Creating an atmosphere of watching and being watched: assure the presence of terraces, benches, shops (with their large windows and employees looking out on the street) and functions opened outside office hours. These elements make the public space a place to stay instead of only a place of flow.

Human Scale

Human scale of the built environment refers to the physical setting of a place that matches the size of human beings and corresponds to the speed at which humans walk (Purciel & Marrone 2006). Therefore it is important that building blocks are short and fine grained. Furthermore distances should be walkable (Jacobs, 1961; PPS, 2009, Ewing & Handy, 2009). In several Dutch cities the railway station was built outside the historical city centre. Later on the city grew towards the railway station. The new buildings are of a different scale than the buildings inside the city centre and therefore form a large contrast. If public space has human scale, it is more attractive as place to stay, because it makes people feel comfortable.

The link in Amersfoort is an example of a link lacking human scale. The buildings along side this route are large (the block width varies from 30m to 100m and the building width from 20m to 100m). Furthermore the link itself is 815m long. Walking such a long walk along these large buildings does not feel comfortable for a human being.

For creating human scale along the link it is important to have:

02a. Permeability: building blocks must be short (smaller than 40m is good, larger than 130m is too large);

02b. Fine grained building blocks: the width of the buildings must be small smaller than 10m is good, larger than 40m is too large);

02c. Walkability: the distance from railway station to city centre must be short (smaller than 150m is good, larger than 500m is too large).

Legibility

Legibility of public space refers to the ease in which people can recognize and pattern their surroundings (Lynch, 1961). Orientation (Where am I and where do I have to go to?), linearity of paths (too many turns makes one loose his orientation) and clarity of mapping and signing are therefore important points of focus (Lynch, 1961; Montgomery, 1998; Living Streets, 2009; Walk21, 2009). In several cases in the Netherlands the legibility of the link is bad: it is hard to orientate and several turns have to be made before one reaches the city centre.

In Zwolle the legibility of the link is bad. When exiting the tunnel under the railway tracks it is hard to orientate. At first sight it seems logical to cross the street and take the road in line with the tunnel. The visitor of the city however has to make a sharp turn left to reach the station square. After this angle rotation three other turns have to be made before reaching the city centre. This makes it hard for the visitor to understand his location. On some crucial places maps and signs are also lacking.

For creating legibility along the link it is important to have:

03a. Orientation: it has to be clear where to go to after exiting the railway station;

03b. Linearity of the path: it is important that the pedestrian does not have to make too many angle rotations; this makes him loose his orientation;

03c. Clarity of maps and signage: at every critical decision point there must be clear maps and signage.

Safety & Comfort

Safety and comfort refers to the way pedestrians feel in public space. As we have learned, the presence of people on the streets is crucial for the vitality of a place. Therefore we need to make sure that these people feel safe and protected to assure their presence in public space. It is important to protect the pedestrians from other traffic, evoke a sense of social safety by making sure there are 'eyes on the street' and assure a high level of street maintenance (Living Streets, 2009; PPS, 2009; Walk 21, 2009). Along several links in the Netherlands the public space is definitely not designed for the traveller on foot.

In Gouda the pedestrian has to cross several barriers before reaching the city centre: first of all the station square with the enormous amount of bicycles and the bus station forms a barrier. Later on, right before the access street of the city centre, the pedestrian has to cross the ring road around the historic city centre. In stead of giving the pedestrian priority crossing, he has to wait for the traffic light. Furthermore there are barely dwellings on the upper floors of the buildings overlooking the link and therefore barely 'eyes on the street'. The maintenance of the link is fine. The public space is clean and the municipality has invested in trees and flower pots to make the link more attractive. The maintenance of the buildings is however bad.

For creating safety & comfort along the link it is important to have:

04a. Pedestrian Priority: the pedestrian must have priority at every crossing;

04b. Eyes on the street: there must be residences overlooking the street to assure social surveillance;

04c. Maintenance: the public space must be maintained well.

Validation Tool

Based on these 12 criteria for a successful link a validation tool is developed to check the quality of the link of 16 Dutch medium sized and comparable cities. Only central railway stations are selected: Leiden Centraal, Eindhoven, 's Hertogenbosch, Arnhem, Nijmegen, Den Haag HS, Haarlem, Amersfoort, Groningen, Zwolle, Tilburg, Delft, Breda, Dordrecht, Maastricht and Gouda.



Figure 3: Sixteen Selected Case Studies

Every criterion could score a grade on a scale from 0 to 5. Adding these grades up a maximum of 15 points per theme is scored. A graph in the form of an amoeba shows the final scores: the larger the surface of the amoeba, the higher the score.

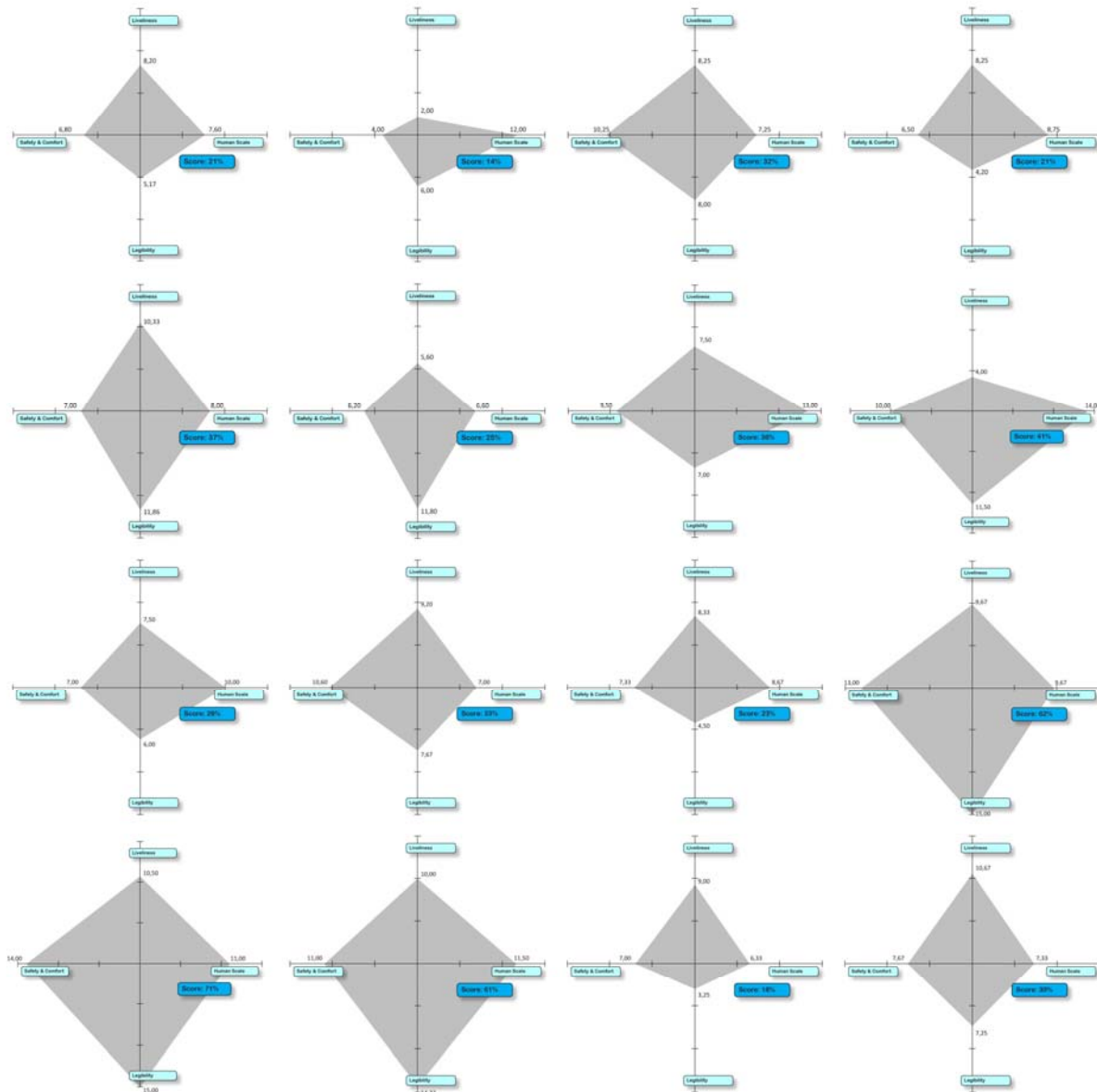


Figure 4: Amoebes of the final scores

The method thus visualizes the score and makes the cases easily comparable. It becomes easy to pin point what exactly makes a certain place successful or unsuccessful. We have already given some examples of the elements that influence the quality in Haarlem, Amersfoort, Zwolle and Gouda. Now these elements are found, it is also clear which measurements one should take to improve the situation. Sometimes they are quick wins, like making a pedestrian crossing or adding some maps or signs. In other cases larger measurements are necessary, for instance redevelopment. It is not per se desirable to create a 100% score. Sometimes a couple of small quick wins are all it takes.

Gradient Links and Transition Links

After studying all 16 cases we can roughly distinguish two types of links: gradient links and transition links. Along the gradient link there is a gradient perceptible towards the centre. Slowly more and more activity in the plinths can be found. Examples are Leiden, Haarlem, Den Haag HS

and Maastricht. This last example shows how the actual distance to the city centre is not of importance. In Maastricht the heart of the city centre is quite far away from the railway station. In time however the city centre has expanded in the direction of the railway station, turning street after street into access streets. Even though the pedestrian has to walk quite a lot, it does not feel like a long way because there is a lot to do and to see. The gradient links all have one clear axis leading towards the city centre. Therefore the stream of people is thick and the potential for shop owners large.

In other cities there is a clear transition between being outside the city centre and all of a sudden being inside. Examples are Amersfoort, Arnhem and Zwolle. In almost every case the expansion of the city centre is hindered by a barrier, mostly a large ring road. In some cases the buildings along the link are just not suitable for creating activity in the plinths (e.g. Nijmegen). Transition links do not have one clear axis leading towards the city centre; usually several angle rotations have to be made, which means that there are also several routes from station to centre.



Figure 5: Gradient Link (e.g. Leiden, left) & Transition Link (e.g. Amersfoort, right)

The gradient links feel most natural when walking towards the centre; you feel as if you are walking in the right direction. Unsurprisingly gradient links have higher scores than transition links.

Fixing the Link in Leiden

NS Poort is putting the theory of fixing the link also into practice, for instance in Leiden. NS Poort, the Municipality of Leiden and housing corporation Ymere are making plans for the station area that currently lacks quality on many aspects. Leiden is a relatively large station compared to the city size and has an important regional function.

First of all we need to state that Leiden was the best scoring case of the 16 case studies. It thus seems strange to take it as an example. Leiden however is currently a 'try-out station'. As we speak six Dutch railway stations are being redeveloped because of the arrival of the High Speed Line to the Netherlands. Leiden – being our sixth largest railway station – is used as the place to

try out new developments for the HSL stations. These developments vary from new retail concepts to new benches on the platforms. While Leiden Station is fit for the future, the railway area lacks quality. Measures are taken on the urban structure, in the property around the station on short and long term, and on the public space.

Urban Structure

As a consequence of building activities in de '70s and '80s Leiden station area consists of large building blocks of over 100 meters long. A part of these buildings endured their economic life span and are on the list to be demolished. An urban plan is set up by urban designers MaxWan with a finer urban grain and additional routes to the city to give pedestrian choices between a fast transfer to the city centre and attractive alternative routes with less traffic. This makes the public space much more human scaled.

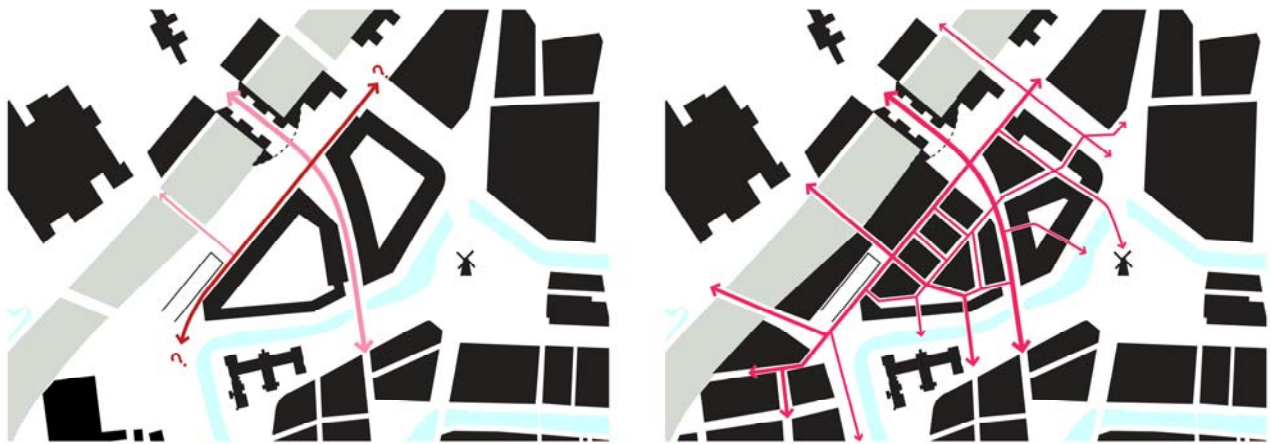


Figure 6: Plan Link in Leiden now (left) and plan (right)

Also, new principles are chosen for the buildings themselves. In order to combine a large density of buildings with the goal to match the pedestrian experience of entering a historic city centre a building type with setbacks is chosen. While walking the link, pedestrians experience a three- to four-layered city, while the higher parts are put in the setback up to fifteen layers.

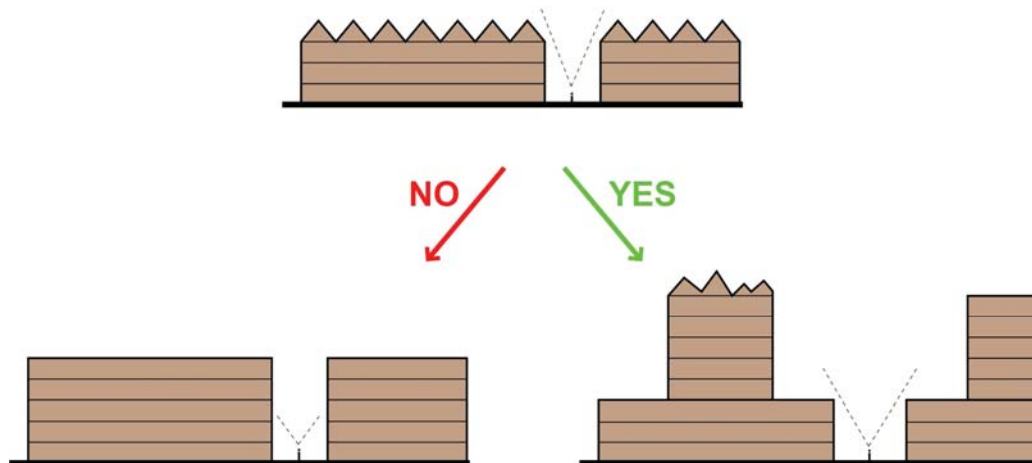


Figure 7: Setbacks

Temporary property plans

The redevelopment of the station area will, however, take 10 to 15 years. In order to take steps to enhance the quality also on short term, the parties involved stepped up for some smaller initiatives. Across the station, there is a building site, which has been there for years in ownership of an unwilling property developer. This building site is bought by the municipality and in

transformed into a bicycle storage and is thereby put into use for the station area. The building on the other corner is bought by Ymere and NS Poort. Currently most of the ground floor is empty as are all the higher floors. Ymere and NS Poort are temporarily filling the ground floor with a restaurant, the second floor with a flexible work concept and for the higher floors redevelopment plans are made. This temporary filling is needed to enhance the quality. In about ten years from now, the other station area plots are filled with new buildings and then the Ymere/NS Poort building will be demolished to be redeveloped in line with the new urban plan. On the short term the new functions in the building will create liveliness along the link to the city centre.



Figure 8: Building bought by Ymere and NS Poort

The station square and urban programme

The railway station area already has a high grade in the *Fixing the link* study. In order to keep the quality at this level, parties are working on plans to integrate the new RijnGouweLijn (light rail connection) on the other side of the station and even ideas to transfer the bus station to that side in order to put the 'transfer node' efficiently on one side and the urban connection and integration with the city on the centre side. In addition to that, the urban programme aims at more apartments in the station area, additional retail en leisure to enhance the use of the public space over the day and even a hotel.



Figure 9: Artist Impression Station Square and Link now (left) and plan (right)

Conclusion

The paper showed the importance of the link between railway station and city centre from the perspective of the pedestrian. The link between railway station and city centre is fundamentally important as image for the city and is now underperforming in several cases.

The validation tool was developed to objectively measure the quality of the liveliness, human scale, legibility and the safety & comfort of the link and thus gives the planner/designer practical clues for improvement. The project of Leiden showed how the theory can be put into practice by including the results of the study in a design for railway station area redevelopment.

The examples given in this paper of broken links in the Netherlands shows the bad shape some of them are currently in. They badly need to be fixed.

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