Between dwelling and rail: seeking the potentials for added public quality between railway station, Transit Oriented Development, and the peri-urban locality.

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abstract

Through this research paper, I will argue that a new approach is needed for redeveloping peri-urban railway stations in the Netherlands, to solve a set of pressing issues in their specific context. As our country is urbanising and the focus on Transit Oriented Development as a solution to our housing crisis is growing, the smaller transit station at the edge of the city turns into an instigator for these new urban developments. Through literature review into notions of the polycentric city and the station as a public space, I will elaborate why the specific situation of these peri-urban stations needs a new discourse of station design different from that of central stations, considering both their local, contextual situation and their role towards the citywide transit network. I will argue that the relation between qualities of TOD and qualities of peri-urban communities has value in this new discourse, and that ultimately the station area can prove its value for liveability both in the city centre and in the local neighborhood in which it is situated, through a strong agenda for the space between dwelling and rail. Theoretical research is enhanced with case study analyses of six railway station areas in the Netherlands, focussing on the experiential potentials of a strong relation between the station and its (functional) context. This will result in conclusions and a small manifesto in favor of the peri-urban station as a new typology that is less network, and more local.
Station Amsterdam Lelylaan as urban corridor, the necessity of infrastructure rules public space
# Contents

**introduction / research / methods**  
6

**part 0 - pre-search: addressed themes**  
14 - 20

**part 1 - thematic research**  
21 - 66

1. theoretical frame  
   1.1 the polycentric city network  
   1.2 the peri-urban station as a public space  
   1.3 design elements for future peri-urban stations  
22

2. case studies - stations and social public space  
48

3. Results: tools for social public space at railway stations  
58

4. manifesto: between dwelling and rail  
64

annotated bibliography - part 1 thematic research  
65

**part 2 - development booklet -**  
Amsterdam Lelylaan / Slotervaart  
1 - 43

*Booklet found after this booklet, separate table of contents*
The Parktoren / Rijntoren office buildings, part of the new Arnhem Centraal Station development.
Today, railway stations have lost their innocence. From being just a space to switch modes of travel, they have evolved into multifunctional developments of an unprecedented scale, and beyond that, a powerful economic motor for their environments. At a time when our lives are involving an increasing amount of daily travel from neighborhood to neighborhood or even city to city, railway station areas are becoming a magnet for new developments on an urban scale.

**Transit Oriented Development**

Through Transit Oriented Development (TOD), where infrastructure and the built environment are designed as integrated solutions, the new and future housing stock of the city has an entirely different relationship with their local railway station than we are used to: using the railway station becomes intensively related to dwelling, physically and socially, and thus has a more important place in our daily lives. With the NSP (Nieuwe SleutelProjecten, new key projects) program initiated by the Dutch government, six major railway stations (among which Arnhem, depicted on the left page) were transformed into these multifunctional urban environments including office and dwelling developments, in order to foster international competitiveness of the areas within the European High Speed Line network (VROM, 2006). Apart from promising international perspectives, this transit oriented future is proving a vital factor towards our own urban challenges as well.

**A new attention for the station environment**

With the NSP program, the six major central railway stations in cities like Rotterdam and Breda claim a position in their urban fabric that goes beyond the station as a transfer machine, offering a holistic vision on the relationship between station building, station area, and the broader city. At the same time these stations function as economic motors on a
larger scale: housing, office space and amenities are included in station redevelopments as important nodes in the inter-city network. Special attention has been given in these projects to the quality of the public space surrounding the station to reflect these economic developments. This integral approach towards station environments was used for the first time with the NSP program and as a result of this, the interweaving of station and urban plan has become a standard in the vision of Bureau Spoorbouwmeester. In 2018, landscape architect Eric Luiten was appointed director of Bureau Spoorbouwmeester, further setting the environment-oriented course that the development of Dutch railway stations is taking.

**(Peri-)Urbanisation**

More than ever, we are moving to the city: in all the Dutch provinces we can witness a trend of people leaving the rural areas in favor of the bigger cities, a trend which is especially evident in Amsterdam, Utrecht and Almere (Noord-Holland, 2015). Before 2030, the Netherlands needs to build no less than one million new dwellings in its cities, and this needs to happen within reach of their main attractive element: the inner urban centres. However, these urban centres are out of limits for building new dwellings on such a large scale: monumental buildings are too rigid, status as well as speculation makes the housing market much too expensive, the city is full, and the infrastructure is already congested. This is why municipalities choose to solve this problematic demand for vicinity to urban centres by developing near existing public transit nodes in the city: this provides fast connections to the urban centre and is thus able to offer the desired sense of urban living, but on a larger scale.

*A future for the peri-urban railway station in the Netherlands*

Just beyond the edge of the urban centre, dense dwelling developments next to station areas are offering many more inhabitants the benefit of living in the city, through the infrastructure network: living somewhere, travelling and working somewhere else, connected on a city scale. The municipality of Amsterdam for example has designated several areas around peripheral railway stations as primary densification locations, and aims to develop 50,000 new dwellings in these areas by 2030 (Gemeente Amsterdam, 2016).

These developments however strongly contrast the current state of many, if not all, of these peripheral railway station areas: the stations are small and outdated, and often unappealing or even unsafe. Spoorbouwmeester Eric Luiten (Spoorbouwmeester, 2018) points out how changes in the transit network through the years have especially impacted smaller railway stations in peri-urban areas: gradually, increased efficiency and changes in technologies have resulted for example in ticket offices and waiting rooms at many stations becoming a vacant eyesore. No more amenities are needed today at small stations than a ticket machine and a platform. These stations are reduced to the pure functionality comparable to a bus stop without an effort to offer added quality to their context, which in turn reflects onto the quality of their surrounding public space.
Municipality of Amsterdam: “We prefer to build [new dwellings] near a public transport node.” (MRA, 2018)
Today, contrasting developments are taking place: we are designing our cities with TOD focusing on the efficiency of the connected city, but at the same time aim to enhance the quality of local public space around station buildings and peripheral neighborhoods. We are building mixed-use buildings that are extremely well connected to amenities in the city while also offering as much as their inhabitants need inside or near the building itself.

Seeking station environments and peri-urban identities

A great challenge is taking shape for the peri-urban railway station in specific: on one hand, there is the realisation that we need to integrate the station into its local environment to enhance the quality of the surrounding public space and liveability of the neighborhood which in many cases of post-war neighborhoods is considered an issue. On the other hand these stations and new urban developments are advertising connectivity and mobility within the city network as the new way of living, a diversification of peri-urban life through the possibilities of the transit oriented city and the spaces that it offers, outside of the local sphere. This paradox is leaving an ambiguous space between these two very different factors, the space between dwelling and rail. It is a space that is now assumed to be unable to create a high quality local environment in these areas, and thus seems neglected in urban developments. I however do believe there is much potential in this area, a potential that is the precise result of this transit oriented condition that surrounds it. In my research and design project, I aim to study these two perspectives of station environment and TOD alongside eachother, and to start blurring them: the station environment as the perfect mediator, offering a place that is connected to city life and at the same time extends its transit oriented livelyhood into the local public sphere. Defining the area between dwelling and rail.
The perceived issue is that the transit oriented city diminishes local values and qualities in peri-urban areas and replaces them with infrastructure, nodes and efficiency that remains distanced from the local scale. At this moment when new urban developments focus on public transport nodes, the railway station is in the middle of this change as something that is both part of the network and part of the local built environment. In the introduction I argue that instead, we should use this opportunity of TOD to reinstate public quality on the local scale through the influence of the station environment. To pursue this goal, the scope of this position paper is set out by the following research question:

“how can transit oriented developments and daily commuting in the peri-urban area, create a railway station that integrates with its context beyond being a transfer machine?”

The research is carried out in two ways: through literature review combined with reference cases, and through case studies of Dutch railway stations. In this process, the research moves from a theoretical towards a more pragmatic approach. The theoretical research is carried out in two formulated themes, related to this paradox between TOD and station environments that I have previously described:

- the railway station as a public space
- the identity of the peri-urban neighborhood

My goal is to explore how this paradox and its physical manifestation between dwelling and rail can be turned into opportunity. This is guided by sub-questions:

- what does the city transit network mean for relations between the local area and the city?
- what is the significance and role of the (peri-urban) railway station within its neighborhood?
- how does the station influence its surrounding public space?
- how do local functions and activities relate to the perception of ‘social’ public space in a station area?
Through literature review, a framework is created for the next part of the research, where analyses of relevant case studies of Dutch railway stations show the relationship between station, public space and wider neighborhood. Through these analyses, I investigate how the potentials for social public space around the railway station can be used and maximized.

This research will ultimately argue how station, public space and neighborhood should work together to create viable and attractive peri-urban areas in our cities of the future. Finally, the thematic research is concluded with a textual manifesto for the relevance of these future station areas and the urgency to approach their challenges correctly. For my graduation project of Amsterdam Lelylaan in specific, this booklet will continue with site specific research and progress towards a global design. The end result of the design project will not be part of this booklet.
part 0
pre-search: thematic exploration

part 1
local station, networked city

1.1 polycentric city network
1.2 peri-urban station as public space

theory

1. theoretical frame

[design element]

[design element]

[design element]

[design element]

[etc.]

2. case studies

[design element]

[design element]

[design element]

[design element]

3. evaluation tool

4. discussion

Manifesto

Development Plan for Lelylaan station area

part 2

part 3

1. conclusion / discussion

Project Design

Reflection
Part 0

pre-search

thematic exploration of the topics I will be addressing in my project: TOD, peri-urban railway stations, post-war areas, car perspectives, public life, and city squares. Each topic is briefly introduced by a collection of images, quotes, observations and more.
Frankfurt am Main (1888). The first railway station offering functions to accompany travel, or even spontaneous visit, like small shops but even high quality restaurants.

Station theatres have been a phenomenon in German railway stations from approximately 1950’s to the 1990’s. Called “AKI’s”, these cinemas offered 30-minute film reels of news and entertainment to occupy the waiting traveller.

Nowadays, stations like Breda central station aim to combine travelling, dwelling, working and shopping under one roof. Railway station areas have become an economic motor for these kind of developments.
Peri-urban railway stations

A number of ‘waves’ of sober and standardised railway station design in the Netherlands, mainly during the 1950’s (above) and 1980’s, created these stations focused purely on recognition of the NS brand and basic necessities of the railway station, like buying a ticket and asking for information. However, even these elements can change over time and we witness these buildings change or abandon their functionality.
After WWII, a new standard of living was set out in the suburbs. Dispersed monofunctional residential neighborhoods are enabled by mass car ownership. Everyone owns their own piece of welfare in these residential areas. However many argue that these areas lack every sense of spontaneity and that because of this, the amount of people that don’t know their neighbors is rising across the western world.
Car perspectives

Vanishing Point (1971). An archetypical ‘road movie’. Celebrating the freedom of speed and car culture through high speed chases, radio stations, petrol stations and almost deserted places. It’s an image with a strongly American vibe, but a phenomenon more generally applicable: the perspective of surroundings blurs at high speeds, the important signs and places change when the mode and type of transport changes. A story and atmosphere, place is found in a setting that seems to have none, that of movement.

Exerpts from “Learning from Las Vegas” by Venturi and Scott Brown (1972, p. 14). What I read from this is that the way you look at things changes the experience: the car-oriented life in Las Vegas results in a different approach to signage than in other cities. Las Vegas is a showtown for the car: from the automobile perspective, it is filled with information, stratified signs against the streets. From a pedestrian perspective, signs are big yet insignificant, and space between them is too large to comprehend.
An increasingly popular topic in the urban realm is that of public life: pedestrianisation, alternative transport, and public meeting places are getting more important in urban and architectural design.
City squares

*Rijksbouwmeester Floris Alkemade:* “With ease, infrastructural projects claim a space that is as big as the historical centre of Amsterdam.” “Many public domains are being closed off more and more. How do we deal with this? What kind of society are we creating in this manner? Why should we, in places where we suspect danger, automatically result to closing off?”

(Translated from Dutch: https://www.spoorbeeld.nl/inspiratie/de-nieuwe-sleutelprojecten-op-weg-naar-2030)

*Marconi square, Rotterdam, cannot be placed in the same category as the square in Siena, Italy (above).*
Part 1

thematic research

Research that investigates the topics that I have introduced, through two methodologies: literature review that creates a “theoretical frame”, and case study analyses that apply this frame in order to evaluate six chosen railway station areas in the Netherlands. The results of both methodologies form a manifesto towards maximizing the potentials of peri-urban railway station (re) developments.
Theoretical frame

In this section of the research, a theoretical frame is shaped around the case studies to be analysed, and the design project. The frame consists of two topics: the polycentric city network (1.1), and the railway station and the place (1.2).
1.1 The polycentric city network

With the recent focus on Transit Oriented Development (TOD), the city’s infrastructural network is playing an increasingly important role in the development of urban areas. At the same time, current urban developments show a closer relation between people and activities: campuses, mixed-use buildings and science parks emerge and the separation between working and living that was promoted through post-war urbanism is now again starting to blur. This trend towards what can be called ‘sub-centres’ in the city is conflicting the structure of the functionally ‘subordinate’ post-war neighborhoods that surround our cities, and so it calls for a new approach to city planning that is able to adapt the typically monocentric and functionally segregated Dutch city to future needs.

The polycentric city

In his essay ‘A city is not a tree’, the architect and design theorist Christopher Alexander already pleaded against the monocentrically structured urban expansions that were the result of the post-war housing crisis, claiming “our modern attempts to create cities artificially are, from a human point of view, entirely unsuccessful” (Alexander, 1965). Designed en-masse for the new wealth of the car-owning single-family home, expansion areas were functionally ordered in an urban configuration of car traffic converging on main roads to get anywhere needed. Even in these years, while organisations like CIAM pleaded for a functional and spatial systemization of cities, fears arose that this kind of urban planning would negatively impact the liveability of our cities, and even lead to mental health issues related to this much promising segregation of demography and functionality (Hurley, 2016). And today, these fears do describe our view on post-war urban developments:

“At their worst, cities are segregated by race and class, and the unequal distribution of services creates fissures that fester in the collective memory and erode a sense of shared destiny. Placemaking in the twenty-first century must have as its intentional focus the reassertion of shared community and prosperity. This affects every institution, from how museums and orchestras open their doors to public school students to how new immigrants find a public voice for cultural expression to how schooling and lifelong learning become second nature to civil society and the public sector.” (Katz, 2017; p. 29)

This monocentric and functional principle that is still shaping our cities is an increasing problem. A problem of traffic congestion in and around our city centres, and a problem of poor public life and little diversity in our peripheral residential neighborhoods. The monocentric structure of our cities favors the historical urban centre as an accessible and enjoyable
centre for everyone, but in vain: in Amsterdam, congestions in the centre are not limited to cars but are also increasingly common to bicycles, and even pedestrian shopping streets are sometimes dangerously crowded. Contrastingly, we can observe local amenities and shops outside the centre struggling to compete against the economic viability of the inner city. These are serious problems and will only get worse if we persist with this unbalanced monocentric city model.

Luckily, there is change on the horizon. More and more, urban planners focus on creating functional diversity in their plans: whether in a master plan that combines housing with linked leisure and business opportunities, or in the shape of a mixed-use building offering green space, flexible functionality and commercial venues. Campuses and innovation districts arise and claim their role as a specialized centre within the larger city. This is a more polycentric principle that can be described as a “decentralised centralisation” of activities (Peterek, 2014).

City centres

Michael Peterek, who researched the polycentric potential of the Frankfurt region, claims that it is vital for this polycentric city model that it consists of “compact poly-nuclear centres, districts and neighbourhoods, offering as much as possible facilities for everyday life”. This focus on daily life not only stems from providing fundamental necessities for urban life, but especially from the desire to bring livelyhood back to the peri-urban parts of our cities. Alexander (1965) explains the monocentric, planned expansion city in the model of a tree where every ‘set’ of physical elements, like dwellings and supermarkets, is included entirely and only in one larger set, like that of the designated residential expansion area outside the city centre. He explains that this means a defined set called ‘expansion area’ will interact with the city centre, but does not relate to or overlap with other similar sets of expansion areas, nor do its inhabitants ever use the amenities found in these other expansion areas since they are provided within their own area. He goes on to explain his views on the polycentric city through a semilattice model: several sets of people share an overlapping space or function, or activity. This creates interaction and ‘overlaps’ on several levels, which he claims is an essential ingredient for livelyhood in an urban area.
Two depictions of Christopher Alexander’s ‘tree’ and ‘semilattice’ model. A distinction between hierarchy and overlap of activities (visual adaptation from originals, by author). (Alexander, 1965)
These so-called overlaps of activities can enhance, but also disrupt each other: Jalaladdini (2011), in his analysis of livelihood in two city streets in North Cyprus, describes the gas station as a major disruptor in one of the streets. If we relate this disruption to Alexander’s theories, the gas station belongs to a whole different set of activities that does not overlap with other sets of activities, though it might be argued that the amenities sometimes offered at gas stations like groceries or floral shops can coincide with activities of other sets. In this case the disruptor will have to be seen as associated with the set it belongs to, which in the case of the gas station is car-oriented streets, roads, high speeds and other elements that are considered undesirable in a (pedestrian) shopping street.

Creating livelihood seems increasingly important in making an urban centre work. When talking about shopping centres for example, nowadays it has become clear that concentration is no longer the only factor making this centre, it is instead more and more about the experiential quality and involving social motives (Warnaby, 2009). Planners (T. Venhoeven, personal communication, 30-11-2018) even talk about the necessity of physical retail disappearing from the priorities of public life in our future city centres, as technologies like online shopping are more accessible and often cheaper than physical stores. In general, this development signifies that the viability of a centre becomes more related with experiential qualities of the place instead of just the practicality of offering services. While many traditional city centres have an experiential quality that makes their shopping areas very popular, better connectivity within a city increases the competition that peripheral shops and peripheral shopping centres are facing from the city centre and this threatens their competitiveness when insufficient care is given to the experiential quality in their area. This experiential quality is a difficult topic in the context of the peri-urban area, because where polycentricity is concerned the post-war peri-urban areas are a strange case: their rigidity and monofunctional character does not seem to fit in this diverse and engaging city model put forward by polycentric thinking.

*Experiential shopping in Amsterdam, the Kalverstraat.*
Sometime in November 2018, I visited the Dutch town of Radio Kootwijk. Radio Kootwijk is a very small town of about 100 inhabitants, built around the similarly named radio tower in the early 1920’s, as dwellings for its employees. Since the radio tower had to be built far away from the urban areas, the town was truly in the middle of nowhere. To provide for anything other than residential functions, the radio company actually provided special buses for the town: a schoolbus, a marketbus, a churchbus on Sunday mornings and footballbus on Sunday afternoons. Amidst this rural environment, good connection to the city was very urgent and living was like being in an exclave, dependant on everything provided by the company. This was ex-urban living before the age of mass individual transport, where public space and infrastructure had a communal significance and brought people from the village together.

(additional info: Gemeente Apeldoorn, 2012)
Here, the developments in personal mobility emphasize the character of the public streetscape in our post-war housing areas. Individual mobility took the community aspect out of our streets and changed using the street into an act of separation, socially and spatially: as soon as a commuter enters his vehicle he is secluded from the public sphere, and this seclusion became the norm with car-oriented streets. Increase in car-use thus totally changed our perspective on streets as public spaces, especially in post-war peri-urban neighborhoods that were designed around this mode of transportation.

Above all, the post-war expansion developments meant freedom, personal freedom to move out of the urban community into a more rural and spacious living area. At the same time, the suburbs were still very dependant on the city for many other aspects, just like the beforementioned ex-urb of Radio Kootwijk. In that sense, the post-war suburbs provided urban living with the freedom and space of a more rural area. In our cities, the peri-urban areas are a unique but at the same time ambiguous phenomenon. “The fact that the residents can be considered urbanised even if they do not live in a strictly urban spatial type, because of their lifestyles and social focus on the urban, for example, emphasises the uniqueness of the zone.” (Ravetz, 2013). At the same time, the ambiguous spatial and functional character of these areas makes it difficult to view them as one contiguous and defined spatial type. Joe Ravetz, who researched peri-urbanisation, advocates that a peri-urban neighborhood should not be seen as merely a transition zone between the rural and the urban type, but instead as a specific mix of functional, spatial, economic and other relations, that is sometimes being locally clustered or dispersed between more rural areas (Ravetz, 2013).

Ravetz’ definition of polycentric urbanity (Ravetz, 2013).
Many distinct spatial forms are related to local activities: an old town centre surrounding its church; a farmland area comprising rows of agricultural lands and irrigation. Contrastingly, the peri-urban structure is shaped by factors external to its own development: the functional dependancy on the urban centre is the main motive behind its spatial structure and this turns the peri-urban area into a generic, large-scale urban layout and repetition of housing blocks and functional planning. Peterek describes how this practical and infrastructural layout gives way to a multitude of ‘centres’ like business, green leisure or shopping. This is what we see...

*The functional orientation of a traditional church street (Voorburg) versus that of an expansion neighborhood in Amsterdam.*
in many of our urban fringes, and Ravetz (2013) describes this phenomenon as ‘frontier capitalism’: large economic players find in the peri-urban area a fine balance between the benefits of being part of the metropolis and the (inter)city network, and the benefits of the spacious layout and organisational freedom of the peri-urban opposed to inner-urban areas.

The spatial and hierarchical freedom of the peri-urban area that offers opportunities for specific centres of working and living is a strong aspect that should be considered when talking about future strategies towards more polycentricity within our cities. We could even go as far as seeing the traditional city centre as just one of the many centres that comprise a polycentric city: as a centre of tourism and history, parallel to a centre of shopping and a centre of trade, or education. Urban strategies like this could give more significance to both the local identity of the place and to its significant role in a citywide network.

*From the next page onward, two references to projects concerning peri-urban centre developments are discussed regarding functional relations between local and city scale.*
Abstract provided by the architects (KCAP):

On the peninsula Punt de Sniep in Diemen, a city in the agglomeration of Amsterdam, a new neighbourhood for living and working will develop. The program will comprise of 165 apartments, a marina and commercial and gastronomy functions in three building ensembles with a total of 16,000 m2. The area Punt de Sniep has a prominent location in the center of Diemen: along the connecting road to Amsterdam and surrounded by two canals to which all buildings have a direct connection. Between the buildings, three different public spaces are created. All of them are programmatically and visually connected to the apartments to support the sense of community building, one of the key ambitions in the development of this new neighborhood.
It seems that combining working and living environments in peri-urban areas is becoming a common strategy to strengthen the local community. Reflecting on the conception of post-war neighborhoods like the Tuinsteden, where commuting to the city centre was one of the main design elements, it looks like these new projects try to restore the balance between the city areas as equally interesting parts. Eliminating the urgency of the commute by creating local workplaces creates a basis for more independency from the city centre and a more voluntary relation between the development and the centre of Amsterdam.

In the project, it seems not the neighborhoods but the shared main road and its embankment become the physical pedestrian motive towards the public terraces of the project. Spatial openness between the design and its context blurs the hierarchy and ownership of its designed public space (next page, above). Using the embankment as a motive for its layout, this project creates a new understanding of the continuation of local public space from the existing to the designed (next page, below).
Punt de Sniep can be considered a peri-urban plan that definitely links to the functional urban area, though through its integrated private marina it also reflects on the area's relation to its more rural environments as something opposed to the urban.

For this theme of the polycentric city, it should also be very informative to look at a project that is not so much in this functional urban area, but instead focuses on the connection from the city towards the rural areas, while still maintaining this functional relation to the urban.
The perspective above directly shows the motive of this development: the rural area. How the five ‘fingers’ of green are imposed onto the built and shape the public space really set the tone for this multifunctional development program. It almost seems that it rejects its peri-urban location in this way. Yet it is not a tree-like segregation of neighborhoods like many of its post-war precedents: the image below shows how all blocks are in fact a mix of housing types, and comparable housing types are mixed and matched in different sets, to create this hybrid neighborhood structure on the larger scale.
From the urban fringe outwards, the typologies do show a certain sequencing (below, first). However this is not the main focus of the project: the main infrastructure runs side to side through the project rather than in an urban-rural direction (below, second). Through hybridisation of typologies and commercial / leisure functions in different locations a side-ways cohesion is achieved.

We can consider Lichterfelde as neighboring the urban fringe, but its main quality is actually its connection to the rural, internal infrastructural connections, and local economic opportunities, opposed to the development at Punt de Sniep. Concludingly, a peri-urban development can be oriented more towards the city centre, or more towards the rural area. In the future, we should aim to stress this bi-directional quality of the peri-urban area and create the intermediate.
In conclusion, regarding the polycentric city

- independant local availability of ‘daily life’
- local qualities and added value to the city as a network
- diversity of functions and activities, working and living
- experiential quality for the area as a ‘destination’, centrality
- peri-urban area has unique spatial qualities: urban/rural, and certain freedom / space / independance
- creating centralities and ‘overlaps’ of activities through different scales

In summary, our cities should be acting more as meaningful agglomerations of centres, instead of a monocentric structure. The peri-urban areas offer the space and freedom to introduce measures to this effect.
1.2 The railway station and the place

Railway stations brought the machine to the heart of the city for the first time, while other technologies were hidden in industrial areas outside the centre. To ease this impact of technology and industry becoming visible in the city, stations would consist of two elements: the building, and the shed (Bertolini, 1998). The station building was used to mask the raw esthetic of the shed because it was able to integrate into the city, aesthetically, mirroring the architecture of that particular city: think about Amsterdam CS’ (1889) resemblance to Amsterdam’s Rijksmuseum. Through the years, as stations became more accepted in the city and as part of daily city life the attitude towards station design changed, and after WW2 we see a different station layout emerging: ‘the roof’. The most clear example in the Netherlands being Tilburg station (1965), we see an abundance of light and clarity in the station, boasting efficiency and equal hierarchy between different tracks. The station started positioning itself over the tracks instead of standing in front of it. The last few years, the increasing popularity and importance of the station in the city has evoked a new change in station design, which I want to call ‘the institute’: stations like Breda CS (2014) act as a closed hub for infrastructure and connectivity, while surrounding its transit infrastructure with functions like shops, offices and dwellings. In a way, this layout can be compared to the early days of train stations. On the next pages, these three stations are summarized.
1: Amsterdam CS (1889), the shed.
2: Tilburg CS (1965), the roof.
3: Breda CS (2014), the institute.
The station as a centre

I believe that in the discourse set out by this research, the direction in which railway stations are now developing themselves is clear. Railway stations are becoming the symbol for a quality of travel that is lost in individual transport: the station is a centre of social activity, rather than travel efficiency. The station is the place where people come together in a common mindset, whether to meet, travel, or commute. We can view individual railway stations within a city network as these centres for their neighborhoods and see the qualitative decay of more peripheral stations in the context of the before discussed monocentric city model. The peripheral railway station is treated only a necessary modal change opposed to the city’s central station as part of the ‘destination’. The peri-urban station’s role as necessary modal change can be linked to its poor quality public space and its inability to engage with the local surroundings on a social level.

In Scotland, Alexander Hamilton (2015) researched the ‘adopt a station’ program by rail service operator ScotRail, where local public and private parties were invited to ‘adopt’ their local rural railway station into the community in an active way. Depending on their location and community setting, people added functions like a bookshop or a café to their station.
Hamilton explains that a sense of ownership by the community is an effective way to achieve a positive station environment, and that railway company policies concerning identity, organisation and health / safety standards do not have to be an antithesis to station appropriation by this local community. This local difference in station multifunctionality is still a difficult topic in the Netherlands, where the NS develops the whole station building from their own standardised identity vision, resulting for example in a specific set of economic exploiters in the station building (Verheul, 2015). In interesting case that proves the Dutch railway station able to be ‘adopted’ by the community aswell is the small railway station of Almelo De Riet, which has been transformed into a snack bar providing a significant local ‘service’ in its neighborhood.

*Station Almelo De Riet as a snackbar, the old function of ticket office is taken over by the ticket machine in front.*

This sense of specificity of a local identity is something that is absent in the character of many peri-urban neighborhoods, where the boundaries between local streets and larger infrastructure create a distance between local public life and the spaces that make the urban fabric of the neighborhood. Seen as an infrastructural node, the railway stations that are located in these kind of areas are at a non-local distance from the local context. They are often located either on the edge of a neighborhood or at an infrastructural knot, but never seem enabled to go beyond their function as a necessary modal transfer node. In order to redevelop these peri-urban station areas, this piece of infrastructure that the station is has to become included in the social sphere of the neighborhood.
Infrastructure as public space

The attitude towards infrastructure in peri-urban areas becomes critical for urban redevelopments, as we are realising ourselves nowadays how much public space we have surrendered to the increase of personal vehicle usage. Our main streets have become car-centred infrastructure where the pedestrian is treated as an annoyance rather than the valuable social elements that they really are. Urban planners are now beginning to eliminate the car from some new residential areas, or are even turning inner city streets into car-free areas and showing the opportunities this transformation offers for public social life. This attitude towards streets is showing as well in the municipality of Amsterdam’s decision to count their most vital city streets as public spaces (Gemeente Amsterdam, 2017b). Here, they look at streets that are being used not only for traffic, but also economically and socially.

What can be observed in the discussion on streets as public space, is a shift in direction as well: from crossing movements on a medieval pedestrian street with inviting shops on each side, towards a more ‘length-oriented’ street focused on movements between locations on a larger scale, by faster traffic. Now, we are talking more and more about ‘bridging’ boundaries that the modern street imposed on us, and this bridging suggests a return to this cross-directional usage of the street. Jan Gehl is an architect who has devoted his work towards “life between buildings”, towards pedestrianisation of city streets that used to be car-oriented.

According to Gehl, a distinction can be made between three kinds of activities within the public realm: necessary activity, optional activity, and resulting (or social) activity. He uses this theory as the basis to create more social public spaces in cities around the world. For example in Panama, pictured below, where a traffic island is converted into a social pedestrian space starting with creating a more exciting visual effect on the former traffic road. This visual transformation increases the quality of this environment which in turn enables more social activity like street food vendors to take stage there.

Left: Pedestrianisation project by Gehl Architects, changing the direction of the street to create a pedestrian public square. Right: Gehl’s theories about public activities.
NYC Plaza Program, USA; Gehl Architects + JMBC

Abstract by Gehl:
“Since 2007, NYC DOT partnered with community organizations across New York City to create 73 new public plazas in neighborhoods lacking open space through the New York City Plaza Program. Community groups can apply for City approved physical improvements if they demonstrate a capacity to maintain the plaza. Successful applications receive standard furnishings from the City to connect the traffic island to a sidewalk. Due to Gehl’s analysis, special emphasis was placed on communities lacking open space. Plazas along Broadway created 400,000+ sq ft of new meeting space. While most utilize simple and affordable designs, some like Times Square have since received funding for a permanent design improvement.”
The most important aspect of the plaza program has to be the theme of ownership that is used throughout the realisation of a plaza: from the start, the initiative had to come from the local inhabitants and business owners in the shape of a proposal and committing to the project. This resulted in the upkeep and management after realisation being the responsibility of the local initiators. Here, the sense of ownership that is created in the plaza is not only staged, but it is real. In this sense every plaza in the program has a different infill, because the stakeholders are different.

What is similar in all of them, is the common desire and goals: to make a comfortable and publicly ‘owned’ space, and to give infrastructural space back from the car to slower traffic like bike and foot. With this project, the question arose who the street was really for: it used to be for cars and was given back to ‘the people’, but the designers wanted to study who these people were. Whether the spaces were used mostly by inhabitants of the street, of the wider neighborhood, or tourists, workers, et cetera. It is very important to describe this because it influences not only the immediate success but especially the durability of a public project.
In conclusion, regarding the peri-urban station and the place

- physical / spatial impact of the station area on the urban form
- station buildings are becoming station environments
- possibilities for added functions with station redevelopments
- TOD: the station as an urban (sub)centre
- the station is also a social centre
- sense of local influence / ownership, or ‘adoption' within the context
- experiential quality of public space
- a good relation to the station means a higher quality environment
1.3 design elements of the future peri-urban railway station

“how can transit oriented developments and daily commuting in the peri-urban area, create a railway station that integrates with its context beyond being a transfer machine?”

2. CASE STUDY ANALYSES
Case studies
Catalog of stations as public space
Question

How do local functions and activities relate to the perception of ‘social’ public space in a station area?

Approach

Through the previous chapter I discussed that the station area should play a relevant role in liveability of the surrounding (peri-urban) neighborhood. Continuing on this, I will now do a case study analysis of several railway station areas in the Netherlands to create a more tangible catalog of elements and activities that prove the socio-spatial relation between the station, its public space, and the wider neighborhood. As a hypothesis, I state that a diverse mix of functions and activities creates a more lively public space.

First of all, user groups like workers and dwellers are mapped in their spatial situational context in order to perceive the station area as a specific centralisation of activities. These situational functions become preconditions for the other part of the mapping, where they are linked to the supporting spatial elements of the public area in and around the station. This part of the mapping includes for example café’s, convenience stores, but also benches and other street furniture. There are a number of ways to categorise these elements, determining the role they have in their public space. For example, Gehl (2011) uses three categories of public activity: necessary, optional and social. Initially, I tended to categorise the spatial elements into: going, meeting and staying. Below I have created a short list of categorisations I considered regarding the public role of spatial elements surrounding the station.

<table>
<thead>
<tr>
<th>Gehl (2011):</th>
<th>own examples of each category:</th>
</tr>
</thead>
<tbody>
<tr>
<td>necessary</td>
<td>catching the train</td>
</tr>
<tr>
<td>optional</td>
<td>waiting, watching</td>
</tr>
<tr>
<td>social</td>
<td>meeting for coffee, walking together</td>
</tr>
</tbody>
</table>

Me:

| going (practical)     | catching the train                                   |
| meeting (practical landmark) | meeting for coffee, waiting for someone, wayfinding |
| staying (convenience) | grabbing coffee / food, landmark, passing through   |

the following tries to clarify Gehl’s “optional” terminology

| needs (necessary)     | catching the train, getting food or coffee           |
| desires (on the spot) | getting food or coffee, sitting and watching         |
| plans (in advance)    | meeting, having lunch, getting coffee               |

the following is an adaptation of my first try:

| going (hurry / short) | catching the train, grabbing food / coffee           |
| staying (planned / longer) | meeting, waiting / watching, lunch               |
| passing (accidental / convenience) | getting food, passing through, running into someone |
The spatial elements in the three perceived activity groups can spawn activities related to the functional and spatial needs of the user groups in the area, as shown below.

Following the theories of Gehl (2011), I relate public activities to either necessary or social public space. Necessary public space strictly inhabits activity related to specific needs of specific users in this distinction of going-staying-passing (straight lines in the above diagram), while social public space is able to ‘blur’ the socio-spatial distinction of users and activities (greyed lines in the diagram). Spatially, social public space can provide an opportunity for functional overlap of its physical elements. For example: drinking in a café can be seen as planned ‘staying’ amongst businessmen, but can also result from ‘passing’ as a visitor or dweller and running into an old friend. Here, ‘staying’ and ‘passing’ are blurred because the social public space of the café allows it. This however works both ways: the social public space is only viable if the context can support it: if the station is only used to rush to a train, the viability of a coffee corner is doubtful. The ratio between going-staying-passing at a station can be an indicator for this viability. Social public space may not be achieved in a station at the edge of a residential area with less needs and activities: only necessary public space is needed. If more diverse user groups are added to the area it creates more needs, which demands a better balance between station activities. This in turn will provide a more solid basis for social public space: the more different elements and functions in the space, the more possibility for change and interaction between them.

In the second part of the case study, this relation between activities and social public space is explored through observational survey at the case study sites: evidence that explore the ‘blurring’ of functions and user groups in the public space is presented to determine how social public space manifests itself related to site-specific qualities.

Case studies are found and selected from internet research, personal observations and discussions. The selected projects have to be realised in order to give credibility to their significance in this analysis. Public space and multiple user groups must occur that spawn a certain degree of activity, to be analysed for this study.
### Analyses

**Amsterdam Bijlmer Arena**  
**Amsterdam Zuid**  
**Leiden CS**  
**De Vink**  
**Den Haag Centraal**  
**Den Haag HS**

<table>
<thead>
<tr>
<th>consumers</th>
<th>business</th>
<th>destinations</th>
</tr>
</thead>
</table>
| • dwellings  
• shopping | • offices  
• hotels  
• industry | • stadiums, sports  
• schools, universities  
• government buildings  
• event locations  
• healthcare, etc. |

<table>
<thead>
<tr>
<th>going</th>
<th>staying</th>
<th>passing</th>
</tr>
</thead>
</table>
| • parking spaces  
• bus stations  
• info booths | • restaurants  
• cafés  
• meeting spaces | • station amenities like kiosk, AH to go, Starbucks, etc  
• other fastfood-related amenities |
The station is flanked by two functional spheres: to the west, the destination functions overlap with mainly business-related functions; to the east, mainly offices, and shoppers overlap. The station is active as a connector between activities in the different areas alongside it. The amount and mix of functions and activities suggest an active public sphere. The station itself is designed for passing and opportunities to add activity to the spaces around it.

1. A change of scenery in walking invites different behaviour.
2. The bench and resulting activity gives life and opportunity to the restaurant.
3. Variety of choice provides a moment, thus space, for discussion.
4. The landmark as an opportunity.
5. A bench next to bikeracks is only a necessity.
6. A bench provides a pause from shopping, or is it a place to eat a snack?
7. The landmark as a motive to stay in the area.
The station is surrounded by business, and this shows in the public activities on its two adjacent squares: amenities are mainly destinations for office workers and business-related guests, the public space is only a necessity to get there. In the summer, there is more activity outside however this does not come from the station, but from the buildings in the area.

1. the space does not invite to ride the bike, but instead to walk with it.

2. waiting is limited to the entrance of the hotel / restaurant, the advertisement is an extension of the destination.

3. a social space is created to take a break or have lunch, but the area does not provide the amenities.
Leiden station has two clear sides: the centre and the destination side. The station focuses on the corridor function between the two spheres, offering amenities and shops inside the station building.

1. waiting for the bus might turn into getting some food if the opportunity arises.
2. are they waiting for a train, or deciding to get some food, or even just shopping in the station area?
3. an out-of-sight waiting area on the first floor creates very limited interaction.

Leiden station has two clear sides: the centre and the destination side. The station focuses on the corridor function between the two spheres, offering amenities and shops inside the station building. On the centre-side, the infrastructure offers some opportunity for amenities.
This small station shows something important: even small stations have a large spatial impact on their surroundings. This is the station as a node for modal change, with parking space for cars and bikes on both sides. The adjacent square on the north side feels out of place, since it is oriented towards the station but does not engage with it. Resultingly, the station feels like something hostile to the area.

1. an unrelated collection of elements creates tension between the necessary space of the station and the neighborhood.
2. the square is limited to a Chinese restaurant and an evening shop, while the lack of street furniture makes the square functionally redundant.
With three different squares next to it, the station was designed to become a public space within itself. Being a terminal station gives the opportunity to create a square layout rather than a corridor, but sometimes being surrounded by infrastructure still poses a barrier towards the station. Also, the layout of this square proves difficult because the ambiguous routing within the station works against the creation of opportunity, overlap, and social public space.

1. at this station, many places to sit and wait are hidden, and do not feel inviting.
2. here, someone playing the station piano may enhance the experience and usage of sitting spaces.
3. the station offers a combination of functions, where restaurants / bars are located on the first floor and appear less open. 
The station area of Den Haag HS shows a clear fragmentation, both spatially and functionally. Most notable public spaces are streets which combine housing with shops, on the north side of the station. On the south we can observe a completely different atmosphere, a concentration of the Hogeschool with amenities and business and some related housing create the opportunity for some public life on the local scale of the courtyard. The station is flanked by different areas as well as infrastructure and parking space.

1. The most inviting place in this station is on this platform, where seating next to the kiosk provides opportunities.

2. Outside, functionality is mainly limited to parking and going and this forms a functional barrier between the station and the context.

survey of social activities

- Going
- Passing
- Staying

explanation of analysis

The station area of Den Haag HS shows a clear fragmentation, both spatially and functionally. Most notable public spaces are streets which combine housing with shops, on the north side of the station. On the south we can observe a completely different atmosphere, a concentration of the Hogeschool with amenities and business and some related housing create the opportunity for some public life on the local scale of the courtyard. The station is flanked by different areas as well as infrastructure and parking space.
Case study results
tools for social public space between dwelling and rail
How do local functions and activities relate to the perception of ‘social’ public space in a station area?

**Social public space in the station area**

The way that a railway station relates to its spatial context can make or break the quality of its surrounding public space. With station De Vink, we can observe how the station’s physical impact creates an undesirable tension between the station and the neighborhood, because the two sphere’s do not interact functionally or socially but are still spatially influenced by each other. This interrelation of spheres is the important element in the creation of social public space, and concluding from the case study analysis there are three main ways to achieve this:

1. **spatial elements providing the interrelation and ‘blurring’ of going, passing, and staying**
2. **variety of paths to take in the area, offers choice not only on what to use but more importantly how to use it**
3. **variety of functions in the area, supports the different uses of the space and possibilities of functional overlaps, as well as the ways to get there**
Spatial elements like street furniture or even supporting amenities can bridge the gap between functions and spaces in the area.

1. spatial elements providing the interrelation and ‘blurring’ of going, passing, and staying
Taking the one straight path to your destination makes only for a necessity, but when an area offers a variety of paths or even just a more experiential one, your experience of the route changes. The journey becomes more conscious and instead of distances you start looking to waypoints. There is more opportunity for a variety of planned and spontaneous activity.

2. variety of paths to take in the area, offers choice not only on what to use but more importantly how to use it
More functions create more activity, this is only logical, but on top of that they also give opportunity for interaction-sharing spaces. A landmark kan attract people to an area, but a restaurant will make them stay.

3. variety of functions in the area, supports the different uses of the space and possibilities of functional overlaps, as well as the ways to get there
Manifesto
4. Manifesto: the peri-urban railway station is created between dwelling and rail.

We are at a pivotal time for our peri-urban railway stations. New urban developments and densifications are an instigator for the station to shake off its post-war stigma of being an infrastructural necessity and instead show a new, or rather rediscovered, face of this public infrastructure as a social centre rather than an anti-social one.

The new peri-urban station becomes able to give peri-urban areas the functional centrality they still lack today, and at the same time to go back to the roots of the railway station’s social role in its context. It is time to develop railway stations where creating this station environment is more than spatial design, and the station is made by social design.

Beyond the communal courtyard, people can feel lost in a copy-paste peri-urban neighborhood. Their sense of ownership and identity is lost in this thinking of the city as a functional machine. The railway station becomes something non-local, that is imposed onto a local site. Its standardisation threatens local integration and accessibility. There is no opportunity for the context to influence the station, the context is subservient to it.

The peri-urban situation is the perfect test case to create a new type of station, because of its balance between local spatial and social qualities and at the same time its functional dependance on the infrastructural network. The policy of the station ‘institute’ and standardisation of the railway building does not fit here, it does not reflect the social significance of the station and will only result in another conflicting segment in the area.

The new station should be a social centre, reflecting this relation between neighborhood and station that is taking place between dwelling and rail: the opportunities that local daily life gives to this relation, that goes beyond being a spatial or visual connection or transition. A connection that is tangible and temporal, sensible to activity: local ownership in the station area, development and adaptation, a reflection of its time and place. The station becomes a place that is not owned by the NS or other ‘non-native’ developers, but that is made up by its context in a way that does not compromise its core functionality, but instead adds to it and enhances it and at the same time appropriates it to its station environment.
Annotated bibliography
Alexander, Christopher (1965). *A city is not a tree.*

“It is more and more widely recognized today that there is some essential ingredient missing from artificial cities. When compared with ancient cities that have acquired the patina of life, our modern attempts to create cities artificially are, from a human point of view, entirely unsuccessful. Both the tree and the semilattice are ways of thinking about how a large collection of many small systems goes to make up a large and complex system. More generally, they are both names for structures of sets.”


Bertolini offers a clear chronological summary of railway station design in Europe.


This collection of articles covers a wide range of past present and future theory on railway development, including as well principles from people like Augé and Bertolini, and is supplemented with practical experience from case studies in the Netherlands and elsewhere in Europe.


An article describing the installation of new spoorbouwmeester Eric Luiten, landscape architect, and the challenges he will face in the coming years with regard to railway development.


The aims of the municipality of Amsterdam to create a more balanced city, concerned with overpopulation, tourism, crowds, and more.


Some additions to my story on the experience of Radio Kootwijk, and its history.


This article aims to discuss the difference between metropolitan stations and rural, local stations in their conception and most importantly how they are ‘adopted’ by the community and what the station means to this community.


“With the rise of the politics of populism in the United States and much of Europe, how can openness and diversity survive? The answer, according to urban experts Bruce Katz and Jeremy Nowak, lies within communities around the country that have been creating their own solutions to the problems of modern postindustrial societies.”


About the European phenomenon of peri-urban areas, how they should be described and analysed.


Description from the author: “Research mapping the density and function of commercial activities in Greater London, then exploring relationships with travel patterns. Part of my PhD research at CASA UCL. Presented at Regional Science UK and Ireland Section 2009.”


Provided abstract: “This paper considers the role of historic architecture in the creation of distinctiveness in urban shopping destinations as part of a move towards a more experiential focus by urban management initiatives. Utilising the concept of the servicescape, the paper suggests that distinctiveness may not be apparent at ground floor level, given the consistency of retail fascia design to reflect the chosen brand image and the rigidity with which centralised directives regarding window displays etc. are implemented. However, above ground level the real distinctiveness of the built environment dimension of the servicescape becomes apparent, and may contribute to differential advantage in an increasingly competitive retail environment.”
part 2

situational research and design proposal

*Lelylaan between dwelling and rail*
Station Amsterdam Lelylaan is the case study project for my graduation project of designing a new peri-urban railway station, between dwelling and rail, following the discourse set out by my research. In this booklet, contextual analysis will argue why the situation of Lelylaan forms a fitting location for developing this new station concept.

*the fourth step in railway station typology*
This part of the booklet shows a brief overview of the results of my design project, reflecting on them from the research perspective.
INTRODUCTION

This plan document is made as part of an individual graduation project within the ‘City of the Future’ graduation studio at the Faculty of Architecture, TU Delft, NL.

The City of the Future (Stad van de Toekomst) is a research project initiated by the BNA (Dutch association of architects) to address the issues that our cities are facing with regard to urbanisation, changing economies, circularity, and more.

Following up on this research project, our graduation studio aims to come up with design solutions within the addressed themes. Students formulate their individual scope and goals to design their own vision on these issues.

With my project, the design for the Amsterdam Lelylaan railway station aims to address three urban issues: urbanisation, Transit Oriented Development, and liveability.

For me, the city of the future is an open city with a healthy public life on a human scale. These claims are further elaborated both in this document as well as in my research document.

The Lelylaan area provides the example for my vision: the peri-urban area is made of large-scale plots and is segregated by a preference for car-oriented travel and public space. New housing developments in the area are bypassing this issue by focussing on the functionality of the station area, but this area is as outdated and unattractive as the other public spaces in the neighborhoods.

This project aims to redefine the purpose of a station area and its infrastructural extents within the context of the peri-urban structure of Amsterdam Nieuw-West. It advocates the development of the railway station environment as the tool to change the structure of the area with the aim to establish liveability and identity in the post-war area.
• identify and give value to the things that describe the area: the qualities of the post-war development, the particular new developments, and the municipal visions for the area. p 4

• diagnose the issues that appear between station and neighborhood, between private and public space: the boundaries that now limit the ability of this area to become the lively and active urban neighborhood that it plans to become in the near future. p 18

• develop a realistic scenario for the area, comprising what developments and challenges will take place towards this urbanisation. p 25

• propose the functional program needed for a design intervention for the railway station of Lelylaan that gives the old and new neighborhood a diverse yet unifying social centre, that at the same time acts as a unique location within the city transit network. p 37
CURRENT SITUATION

IDENTIFY

• site location
• municipal vision
• Lelylaan - as found
• The AUP urban design
CURRENT SITUATION
site location

Amsterdam Lelylaan station

De Baarsjes
Oud West
Oud Zuid
CURRENT SITUATION
site location 1:10.000

The Lelylaan railway station area, due to its location in a peri-urban neighborhood, has a specific spatial character. At the edge of both the inner city of Amsterdam, the Nieuw West area, and the ‘economic frontier’ of businesses between the A10 ring highway and the railway.
CURRENT SITUATION

Municipal vision

The goal is to develop 50,000 new dwellings around the ring highway by 2030. Lelylaan is one of the locations for these developments.
CURRENT SITUATION
Municipal vision

This is a map of Amsterdam comparing non-residential functions (grey) to existing main infrastructure and new housing developments (red). Amsterdam is a very monocentric city, meaning that inhabitants of peri-urban areas around the centre are functionally very dependant on the centre for leisure, work, shopping, etc.

This is a problem because it puts a lot of pressure on the infrastructure, and also because this diversity of functions found in the centre is linked to a sense of livability of the area. In peri-urban areas, this livability is missing.

Amsterdam Lelylaan station
CURRENT SITUATION
Municipal vision

Precedents for future developments in this area are being set by, from left to right: Little Manhattan (869 dwellings), WestBeat (150 dw), and Andreas Ensemble (518 dw). The area is densifying from peri-urban to more urban density levels.
CURRENT SITUATION
Municipal vision

The municipal vision for the area shows how the area around the Cornelis Lelylaan will be urbanising from the city centre towards the Lelylaan railway station. In this plan, a new and larger Lelylaan station is suggested as well.
The Lelylaan area first struck me as a very particular area while taking the train towards Amsterdam CS. After Schiphol, there is the moment where the train rises out of the tunnel inbetween highway and a scattering of industries, headquarters and offices. After that, entering the Lelylaan area feels sort of ambiguous: Amsterdam is announced, but this area does not seem like it’s there yet. It is sort of inbetween the industrial area that we just passed, and a more urban area like Amsterdam really is, but yet this remains somewhere inbetween.
CURRENT SITUATION
Lelylaan - as found
CURRENT SITUATION
Lelylaan - as found

Three types of users:

1 - new inhabitant, young urban professional living next to the station. His headphones isolate him from his unappealing immediate surroundings, but he would love a buzzing living neighborhood.

2 - (young) families. They want a safe and green neighborhood for their kids, but also need social space to meet other likeminded people.

3 - shortstay, tourists and other visitors. The route from their hotel to the station is an uncomfortable one, and the impression it leaves on them is one they quickly want to get rid of.
CURRENT SITUATION
The AUP urban design

The Lelylaan railway station, due to its location in a peri-urban area, has a specific spatial character. At the edge of both the inner city of Amsterdam, the Nieuw West area, and the ‘economic frontier’ of businesses between the A10 ring highway and the railway.

The Cornelis Lelylaan is a commuting corridor between the area and the inner city.

Post-war residential neighborhoods from the AUP urban plan offer a typical green-blue and urban-rural structure of functional and spatial segregation.
**CURRENT SITUATION**
The AUP urban design

The AUP was generally structured with commuting infrastructure between the harbor and the historical centre. Car use, standardised living, and large scale planning were the foundations of the development.
CURRENT SITUATION
The AUP urban design

Open ensembles of dwellings characterise the area, together with a clear green/blue structure. Part of the post-war idea of ‘good living’ was the incorporation of green and blue up to building level, opposed to the old urban centre where there was no space for this.
The AUP (general expansion plan of Amsterdam), designed in the 1930's and built after WWII, was a reaction on the urbanisation around 1900, when the inner city became overfull and living conditions were very poor. Functionalism as foundation of the AUP brought order and hygiene.

This was a reaction in its own time. Nowadays we strive for example for diversity in functions, but we should not lose the values of the AUP: greenery, courtyards, space for play and leisure. The densification challenge of today aims for the same clarity and quality but much denser, a sort of continuation of the direction set by the AUP, but with added demands of functional diversity, safety, social cohesion, less car use, etc. Especially functional diversity and reduction in cars, and their interrelation, is contrasting to the history and design fundamentals of the AUP.

- 

Next, I diagnose what elements in the area demand attention when proposing to design the new railway station as a public space.
• friction between station and neighborhood

• car-oriented urbanism limits freedom of movement for slower traffic

• lack of identity and livability

• ‘economic barrier’ disconnecting residential neighborhoods from the rest of the city
**DIAGNOSIS**
friction between station and neighborhood

As part of my research into the topic, I created a tool to map several factors that affect the potential of social public space in the area (see thematic research booklet for more). It shows station Lelylaan surrounded by the most necessary ‘going’ functions, which can form a physical and psychological barrier between the station and the area. It lacks most other amenities. On both sides of the station we find very different functional zones, between which the raised overpass and the layout of the station form a border.
The spatial segregation in the area, caused by infrastructure, creates a small clustering of all functions related to the station. The minimum space necessary is used to solve parking and amenities, which shuts itself off from the rest of the area. To the east, business and destination functions are clustered. To the west, residential areas continue towards the Sloterplas. Other amenities in the area appear very dispersed, while functions are locally clustered.

1. the station is an infrastructural knot, going is the most important aspect.
2. from a dispersed destination to the station is an uncomfortable route.
3. the station is a common spot to hang out, despite the lack of spatial support.
DIAGNOSIS
car-oriented urbanism

Below is a sketch that maps the sequence of transitions and borders that are found in the area: the hard separation between the main infrastructure and the open neighborhood structure, the new TOD development as an isolated superblock, and the industrial area spatialised by carparks. While the car receives priority, this has a large impact on public space and limits movement for other types.
DIAGNOSIS
lack of identity and livability

part of what characterizes the AUP plan is its very rigid urbanism. Copy-paste urbanism is the development of an urban plan that is designed from the infrastructural perspective. At the same time when this plan was proposed, a group of urbanists actually designed an alternative proposal that criticised the structure and certain lack of detail that the AUP showed.

Seen below, this alternative proposal aimed to define the buildings up to an individual scale.
**DIAGNOSIS**

economic barrier

View onto Nieuw West from the edge of the city centre (Westlandgracht). First, water forms a hard barrier between Old and New West. After that, we can only recognise some large office buildings and the raised A10 ring highway.

In the book “Atlas Westelijke Tuin-steden”, an anthropological research into the area talks about the Cornelis Lelylaan as providing a fast route to the centre for both bicycle and transit. The authors explain however that often it is claimed that the neighborhoods are quite distanciated from the city. They explain that the network of fast traffic like the ringroad A10 acts like a mental barrier. They stress that this is contrary to the fact that more new inhabitants settle in the area because it is close to the centre.
With the cities current focus to reduce usage of the car, and a general direction in urbanism to focus on more local diversity in functions and livability, the AUP plan seems very outdated from an urbanist view. At the same time, new dwelling developments add to the urgency of this problem and on a ‘short’ term perspective, looking at the railway station can bring the best of two worlds: local diversity and livability integrated with an excellent connection between living and (inter)city mobility.

- 

Next, I develop a course of action to address these demands, creating a vision that combines densification with livability around Amsterdam Lelylaan.
STRATEGY

DEVELOP

- centrality and mitigation
- open plaza
- diversity for the area
- accommodating the changing pace of railway travel
- station activity
STRATEGY
centrality and mitigation

Transforming the non-local character of the Cornelis Lelylaan into spatial and functional guidelines towards functional centralities in the area.
In my proposed master plan, the station becomes one of the centralities in the area. The Lelylaan aids this centrality being encapsulated by an active streetscape on a slower scale: street furniture, playgrounds, and bicycle streets flanked by front facades of new dwellings give the straight line a new significance.
**STRATEGY**

**open plaza**

Locally, the Cornelis Lelylaan carway should move under the surface. This surface creates a plaza where slower traffic like pedestrians and bicyclists have the freedom to move, or stay. The tramway would remain on ground level, and the rail overpass on its current level above the plaza.

This eliminates fast traffic from setting the attitude of the square, and gives priority to more ‘social’ modes of transport.
**STRATEGY**
diversity for the area

Adding functions and diversity, mix of station and others. Today the neighborhoods are too dependent on commuting by car or transit for work, leisure, consumption, culture, etc. In the future, the transit node of Lelylaan should reverse this and give back local opportunities to be shared with local inhabitants as well as visitors.
STRATEGY
diversity for the area

As the development area of Lelylaan is described by the municipality as ‘living-working area’, and flexworking and co-working spaces are gaining attention, this is an interesting aspect that fits the situation of Lelylaan where diversification in both functions and dwelling typologies attracts new groups like higher educated young professionals. This can also be matched to the notion of a station that provides space to stay rather than go.

‘Spaces’ flexworking offices in Oslo
STRATEGY

diversity for the area

The station as a clustering of functions: the station as a building turns into the station as a clustering of its related functions. This enables the station to become a porous, open and social space. We talk about a station environment rather than a station building, this should mean that the station does not become a closed building but an open ‘streetscape’.
The station and surrounding functions can create 24/7 activity in the area. Create a plinth and streetscape that fosters public life, one of the pillars of the AUP is freedom to move and enjoy the area, this needs to be integrated into the station environment.
STRATEGY
station activity

Station activity comprises a lot more than rushing onto the platform in a last-minute attempt to catch your train. It is as much about waiting, parking your bike, drinking coffee or meeting an old friend at the station as a waypoint. For me, station activity can be categorised in three columns: ‘going’, ‘passing’ and ‘staying’. This offers a range of activities from parking your bicycle to eating out after visiting a local event.

Station activity is public property, and needs to be addressed this way. Balancing practical and social functionality of these activities is something that is becoming more and more important in railway environment design.

As Lelylaan station is growing and its usage intensifies with surrounding developments, the stations activities should diversify from shortstay ‘going’ amenities towards more ‘staying’ activities like bars and restaurants.

Leiden CS: seating for travellers and shoppers alike.
STRATEGY
accommodating the changing pace of railway travel

The Lelylaan overpass, at its lowest, is situated approx. 4 meters above ground level in the current situation. The overpass is an element that is managed by concerned railway corporations who always need to have control over maintenance areas like the railway tracks and the electrical elements above. This needs to happen independently of other, local, parties.

The overpass and the way it is used is subject to frequent change: the amount of trains that stop or pass the station, the length of the trains and the amount of passengers that put pressure on the functionality of the station spatially. This all needs to be accommodated for in a rather flexible way by the station environment that will be designed.

At the same time, station amenities like information booths and ticket offices in these kind of stations are also frequently subject to change. The future station should be able to accommodate this change.
STRATEGY
accommodating the changing pace of railway travel

For Lelylaan, station activity has the opportunity to spread out into the area and engage with both existing and new developments to add liveability to the area. The space under the overpass can be used to inhabit these activities as a tool to bridge both spatial and social boundaries between two areas.

The width of the ‘passage’ that runs under the overpass is between 15 and 30 meters, which is a regular size for a station passage.
The station should set the precedent for a redevelopment of centralities and the way we look at infrastructure in expansion neighborhoods. I believe that this redevelopment should not mean a tabula rasa: the spatial grid that was laid out in post-war areas, is still relevant today. It is not the infrastructure that has to change, but how we use it and how we view it.

Lastly, I propose a functional program that supports the development of the strategy.
• functional program in numbers
**PROGRAM**
desired functional program

- entrance points to platforms: stairs and elevators
- car parking, bicycle parking, NS bicycle point, waiting area, restrooms, maintenance and storage rooms
- 3.000m² of station-related amenities (food, convenience, souvenir, etc.)
- 37.000m² or 420 new dwellings, mainly for individuals and young families
- 28.000m² (flexible) workspaces / offices and commercial functions
- high quality public space as destination: urban leisure in the park-city

![Diagram showing the desired program in m²]

- **dwelling**: 37.000 m²
- **amenities**: 3.000 m²
- **working / commercial**: 28.000 m²
- **public space**
- **destination**
DWELLINGS

Because of the municipal goal to build 50,000 new dwellings, they form an important part of the project. We can start estimating the possible added dwellings in the station area by looking at surrounding developments and densities: the density is about 10,000/km² (discussed in ‘identify’).

The station area is 0.140*0.300 = 0.042 km² in total. So if the entire station area aims to achieve this urban dwelling density of 10,000/km², it needs 420 dwellings.

In this quick calculation, the average dwelling is taken from the three precedents in the area, while in fact the typologies of these dwellings differ from student studios to young family apartments.

Typologies desired by the municipality are mainly “regulated rental” and “middle-expensive rental”. They want to build large numbers of new dwellings for students and YUPs, as well as young families.

Source: Gemeente Amsterdam, Woonagenda 2025.
**PROGRAM**

desired functional program

**DWELLINGS**

The station area is \(0.140 \times 0.300 = 0.042 \text{ km}^2\) in total. So if the entire station area aims to achieve an urban dwelling density, it needs 420 dwellings. If we set the average floor size of a dwelling to 80m\(^2\), the total floor area needed for housing is 33,600m\(^2\).

Shown in the above image, the built area is limited by existing buildings, infrastructure and green-blue context.

To preserve the green and spacious character of AUP we need a GSI of maximum around 0.32; the maximum building envelope is shown to the right, and totals about 33,000m\(^2\) - 10% logistic space = 29,700m\(^2\). This means a building perimeter in the area of maximum 0.32*29,700 = 9,500m\(^2\) for all functions. If this is entirely used to accommodate dwelling, it means an average amount of floors: 37,000 (floor area plus 10% logistic space) / 9,500 = 3.90 floors. An estimated minimum average building height of about 3*4=12 meters + a commercial plinth = 15 meters.
**PROGRAM**

desired functional program

**DESTINATION**

what this means: the area not only as starting point but as relevance to other parts of the city: will bring new kind of life and diversification to the area.

Assets of the area complementary to other areas in the city have to be addressed and promoted in the station area.

The green-blue city of Amsterdam Nieuw West is a quality for inhabitants and visitors alike: the Sloterplas is a major attraction for leisure as well as sports like running. There is value in bringing this quality of the “park city” to the station area and connecting these hotspots in Nieuw West. The AUP design was always meant to be the healthy city, with its post-war credo of “light, air, space”.

Establishing the station environment as a centrality for the area means designing a city centre, differently. Urban leisure of shopping, meeting, eating, and gallivanting meets the qualities of green, blue, space and air in the peri-urban area of Lelylaan.

*This is a destination program that does not have to stay limited to a single location, but can also become a means to connect multiple locations.*
PROGRAM
desired functional program

DIVERSITY

Amsterdam wants the area to become a mixed “living-working” area. This means that dwelling is the main function and some working opportunities are added.

To estimate the amount of working space desired, I am looking at “Kavel 2A” on the Zuidas, where a plot area of 5000m² area is translated in the tender to 46,000m² of functions, mixed living working and commercial space.

Location Lelylaan offers 9500m² area, so this should mean about 90,000m² functions including dwelling and (station) amenities, or 53,000m² functions excluding them.

If we estimate the workspace ambition of Lelylaan to be half that of the Zuidas, the floor area needed for working and commercial functions equals around 28,000m².

Source: zuidas.nl
This concludes the development booklet, which together with the thematic research form the input for my design task in terms of concept, context, goals and program.