

# NEW REGIONAL RAILWAY STATIONS

*An investigation of Sassenheim, Westervoort and Maarheeze*

Name: Robbert van Dijk

Student ID: s0743321

Course: Master Thesis

Programme: Master Planologie

Supervisor: Dr. C.J.C.M. (Karel) Martens

2<sup>nd</sup> Reader: Rob van der Heijden

Date: 28 August 2012

Version: 1.0

## Preface

*To many the beginning of a study is the hardest part.*

This is what Verschuren & Doorewaard claim (2007, p. 9). And rightly so for undersigned. After starting with the thesis in a flow of enthusiasm I quickly saw myself enrolled in a provincial government significantly reducing the amount of time available for research. Ever since there have been waves of attention alternated by periods in which no time at all was dedicated to the thesis. Unfortunately, my supervisor at the time was not very much gifted with the talent to motivate, which contributed to delays on the project. In 2009 I changed employer to another regional government, a full time employment demanding a lot of time and effort. It could also been seen in another light: I was granted the *privilege* to work in two provincial governments already from the start of the work on the thesis. As such I was really close to the objects of study and the persons involved in matters of public transport.

With the completion of this thesis I hope to finish a Master's degree in spatial planning at the University of Nijmegen (the Netherlands). Similarly to the infrastructure projects that are discussed in this thesis, and in part the result of the reasons outlined above, this process has had its due course of delay. The relief that finally it will come to a desirable end is considerable.

An important role in the eventual completion of the thesis is played by dr. Karel Martens who has been most flexible in accepting to supervise my thesis after having unsuccessfully worked on the project under another supervisor. Furthermore I want to thank the my parents for their occasional moral support; Anna-Sophie for her unrelenting belief in the successful completion of the thesis; Casper Stelling and Frans Blanker from MuConsult for their intellectual assistance and support during some dire hours in the progress of the research; my colleagues at the provincial government of Utrecht, in particular Gert, Paul, Ellen, Jan and Cor for their confidence and support; my former colleagues at the provincial government of Noord-Brabant, in particular Roger for his opportunity to launch a career in government; and Thea for her motherly speeches on the completion of the thesis that I was only too ignorant not to put into effect.

## Table of contents

Preface.....	1
Table of contents.....	2
1 Introduction.....	5
1.1 Renewed attention for new regional railway stations.....	5
1.1.1 A spatial-economic trend: growing congestion.....	6
1.1.2 The sustainability trend.....	7
1.1.3 New stations as a catalyst for economic development.....	9
1.1.4 New stations as a structuring force for high-quality spatial development.....	9
1.1.5 Towards an improvement of regional railways: new railway stations.....	10
1.2 Slow infrastructure development.....	10
1.2.1 Problem statement and research question.....	11
1.2.2 Factors for development.....	12
1.3 Societal & scientific relevance.....	12
1.4 Structure.....	13
2 Theoretical framework.....	15
2.1 Literature on (slow) infrastructure development.....	16
2.2 Project development stage model.....	17
2.3 Administrative complexity.....	22
2.4 Exploitation potential.....	25
2.5 Technical demands and investment costs.....	27
2.6 Conclusion.....	28
3 Research strategy.....	30
3.1 Research method: Case studies.....	30
3.2 Cases.....	33
3.2.1 General eligibility criteria.....	33
3.2.2 Delay required.....	35
3.2.3 Accounting for local conditions.....	35
3.3 Sources.....	37
3.4 Presentation.....	39
3.5 Conclusion.....	39
4 Investigation of station projects.....	41
4.1 MAARHEEZE.....	41

4.1.1	Prelude: the old station .....	42
4.1.2	The resurgence of the early 2000s .....	43
4.1.3	The Driebos location.....	44
4.1.4	A temporary station then? .....	45
4.1.5	The bus saga .....	46
4.1.6	The points affair .....	47
4.1.7	Realisation .....	48
4.2	SASSENHEIM.....	51
4.2.1	Initiative for a new station .....	52
4.2.2	Location choice.....	53
4.2.3	Local resistance and a small tunnel.....	54
4.2.4	A new spatial plan and expensive cables .....	54
4.2.5	A station without trains.....	55
4.3	WESTERVOORT .....	58
4.3.1	RegioRail and beyond .....	59
4.3.2	Capacity, curves, slopes.....	59
4.3.3	The '2 <sup>nd</sup> phase' of preparations .....	60
4.3.4	Still another location? .....	61
5	Analysis.....	66
5.1	Duration of station projects .....	66
5.2	Administrative complexity reviewed.....	67
5.2.1	The national level .....	67
5.2.2	The regional level .....	68
5.2.3	The local level .....	69
5.2.4	Infrastructure manager (ProRail) .....	69
5.2.5	Operators.....	70
5.2.6	Conclusion .....	71
5.3	Exploitation potential reviewed .....	72
5.4	Investment costs reviewed .....	74
6	Conclusion and recommendations.....	76
6.1	Conclusions.....	76
6.2	Recommendations .....	79
7	Epilogue.....	83
7.1	Alternative case selections.....	83

7.2	Afterthoughts .....	84
	References .....	86
	Appendix 1 – List of consulted persons .....	97

# 1 Introduction

This thesis is about railway stations. More specifically: newly constructed regional railway stations. In the Netherlands many such new stations are planned. However, progress on realisation tends to be slow. Planned realisation dates are commonly missed by a few years. Reports on delays in some cases seem on-going<sup>1</sup>. This thesis purports to investigate in detail the aspects which cause these delays. As such this thesis presents a learning device with which recommendations can be presented in order improve the pace of the realisation of new railway stations. That is what this thesis is about. The next paragraph sketches the outlook of the introductory chapter.

Section 1.1 deals with the question why new regional railway stations are being developed (to what policy goals do they contribute?) and introduces the problem of the slow development of new regional stations. Section 1.2 briefly sketches the background of slowly developing infrastructure projects of which stations are just one element. In section 1.3 the problem statement and the research question are formulated. Section 1.4 devises a conceptual model for our study consisting of a stepwise approach for our study to answer the research question. Furthermore, sub questions are presented. Section 1.5 outlines both the societal and scientific relevance of the topic under investigation. Finally, section 1.6 provides the outline for the remainder of the thesis.

## 1.1 Renewed attention for new regional railway stations

In the Netherlands there has been an increasing amount of attention for the railways including stations lately. This development goes hand in hand with the growing number of passengers using regional railways (e.g. KpVV, 2008). In political arenas questions are raised about increasing the capacity of regional lines and also locations for new stations are suggested. The increasing political attention for new stations is e.g. exemplified by the *beleidsnota nieuwe stations* (a policy note commissioned by the Dutch transport minister taking stock of all plans for new stations in the Netherlands) of 1999 or more recently requests for new stations at the address of the national government by such widely divergent political parties as SP (Roemer, 2008, pp. 16, 22) and CU (Cramer, 2008)<sup>2</sup>. A CU spokesman states that her party 'claims attention for *slow procedures* and

---

<sup>1</sup> For a recent example see De Gelderlander (2012) about a delay for the proposed railway station Nijmegen De Goffert: <http://www.gelderlander.nl/voorpagina/nijmegen/10766329/Station-Goffert-later%2C-maar-m%C3%A9t-kap.ece>

<sup>2</sup> The SP (Socialistische Partij) is a Dutch political party at the very left wing of the political spectrum while the CU (ChristenUnie) sits rather at the right wing

obsolete norms for the construction of *new railway stations*' (Verkeerskunde, 2009, italics by author).

Public attention for new railway stations is likewise considerable. This is reflected by e.g. extended media coverage and crowded official openings<sup>3</sup>. Two trends can be identified which have contributed to current attention for the railways in general, one of spatial-transportational nature, another of an ecological nature. Furthermore, there are two other trends related to spatial-economic issues that have refocused attention on the development of new regional railway stations. These are the ideas that new stations can work as a catalyst in local/regional economic development and that stations facilitate a high quality of spatial development in their surroundings.

### 1.1.1 A spatial-economic trend: growing congestion

A first trend identified indirectly forming the basis of the attention for new regional stations is of a spatial-transportational nature. The massive growth of the automobile in terms of passenger and freight kilometres during the 20<sup>th</sup> century has seen many main roads grow strongly congested, especially at peak hours (Filarski, 2004). In other words, road use has gained a large part of the *modal split*. The modal split depicts which share each mode has in total mobility. The modal split in the Netherlands in 2007 is shown in figure 1.1.

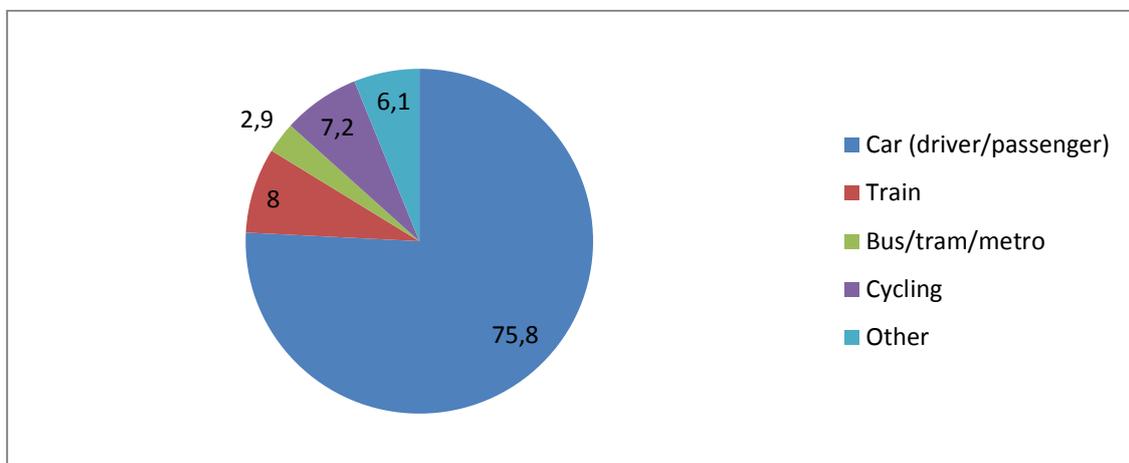


Figure 1.1: Modal split in the Netherlands in terms of passenger kilometres (freight kilometres excluded), 2007, in %; the dominance of the automobile with a share of roughly three quarters is obvious  
Source: Adapted from CBS Statline – Centraal Bureau voor de Statistiek

---

<sup>3</sup> See e.g.: Gelderlander, De (2009). *Grote drukte bij opening station in Molenhoek*. Retrieved 6 May, 2009 from: <http://www.gelderlander.nl/voorpagina/nijmegen/4929852/Grote-drukke-bij-opening-station-in-Molenhoek-.ece>

New regional railway stations can be instrumental to reduce the dominance of the automobile in the modal split thereby decreasing congestion trouble. Automobiles (and trucks) lose substantial amounts of time in traffic jams which leads to economic damage in the form of longer travel times and more fuel consumption (CEC, 2009). Moreover, estimated travel times become less reliable. In a small and very densely populated country such as the Netherlands this problem has special relevance. For example, EVO & TLN estimated that in 2007 total economic damage as a result of congestion in the Netherlands amounts to be more than € 700 mln annually (EVO & TLN, 2007<sup>4</sup>). In contrast to earlier ideas, it has now been widely acknowledged politically that it is not feasible to simply expand the road infrastructure such as to meet the (peak hour) demand for it. The growth of the demand for road kilometres has simply been too strong to accommodate. The *Nota Mobiliteit* (a national mobility plan issued by the transportation ministry) implicitly acknowledged this: its subtitle already is significant. It reads: “Towards a reliable and predictable accessibility” (V&W, 2004). Reliability and predictability can be read here as second-rate alternatives to reducing travel time (Banister, 2007, p. 74). Of course, it should also not be read that no new road infrastructure is envisaged. Nevertheless, accepting that congestion cannot be solved by increasing road capacity alone, it is considered desirable by almost all political orientations that some of the passenger and freight kilometres be transferred to collective modalities such as trains. In other words, this ambition calls for a *modal shift* (towards collective modalities). If more stations are built (bringing access points to the railways closer to where people live, work, etc.) the railways become a more attractive mode of travel and its modal share may be expected to grow. In the words of Van Wee & Dijst (2002, pp. 87-8): “The proximity of a station can play an important role in choosing for public transport”.

### 1.1.2 The sustainability trend

The second trend is of a social-ecological nature. It can be illustrated by a growing emphasis on *sustainability*. The concept of sustainability was first coined in the publication of the Brundtland report in 1987 (WCED, 1987). Ever since, the term has had an enormous development of its own, various parties using the term to their own effect. As a result, today, the concept is open to many different interpretations. The Brundtland report defined sustainability as “forms of progress that meet the needs of the present without compromising the ability of future generations to meet their needs” (ibid.). In other words: Sustainable developments are those that do not harm the interests of

---

<sup>4</sup> We note that EVO and TLN are interest groups defending the interests of the freight industry; they may be expected to overstate the economic damage as a result of traffic congestion (in order to strengthen their claim for solutions to congestion at the address of (national) government).

future generations. A balance should be maintained between the environmental, social and economic spheres. Practically all (policy) sectors have embraced the sustainability discourse. The transportation sector is no exception. A mass of literature has been written on the topic (see e.g. Verhoef & Feitelson, 2001).

In the transportation sector the sustainability discourse has translated into several political ambitions, one being to stimulate the use of environmentally friendly modes of transport such as trains or cycling. It is generally accepted that private automobiles and trucks cause a high amount of pollution relatively. Locally, by emitting e.g. nitrogen oxide (NO<sub>x</sub>) and fine particles (PM<sub>10</sub>) which have the potential to cause damage to respiration organs. Globally, by emitting the greenhouse gas (GHG) carbon dioxide (CO<sub>2</sub>) which is the most important contributor to the enhanced greenhouse effect popularly known as global warming (CEC, 2009). The transportation sector is an important contributor to air pollution, but the effects split down per modality varies strongly. A relatively clean mode of transport is the railway (both passengers and freight, assuming a certain degree of occupation). CBS has calculated for the Netherlands that in 2007 total investments (by companies, households) in the transportation sector with an eye to reducing environmental impact amounted to €653 million, €557 million of which (85%) in road transit (CBS, 2009). Therefore, many governments try to decrease the environmental impact of automobiles by stimulating a *modal shift*: relatively more passenger and freight kilometres should be made by environmentally friendly modes of transport such as trains (Banister, 2007, p. 75-6).

The concept of modal shift was developed by the European Commission which has proven itself to be a staunch advocate of a sustainable transportation system (see e.g. CEC, 2003, 2006 & 2009). A new railway station can (as access and exit points to the railway network) help to attain a modal shift because it decreases the average distance between residents and railway stations on the one hand and destinations (activities) and railway stations on the other. The time needed to reach a railway station is one of the variables that determine which modality is chosen. Annema (in Dijkstra & Van Wee, 2002) identify two additional of such 'resistances to travel' (what people have to invest in order to travel), being costs, and effort. A station in a closer proximity decreases the amount of time needed to access the railways, thus making it a more attractive alternative vis-à-vis other modes. In other words, "making it easier to use public transport" (Banister, 2007, p. 75).

Two additional ideas that have contributed to the attention for new regional railway stations are of a spatial-economic nature. They are discussed next.

### 1.1.3 New stations as a catalyst for economic development

The third trend is the idea the new stations can function as a catalyst for economic development in the vicinity of the station. The underlying rationale is that a new station increases the accessibility of a region making it more attractive for people to reside in or for companies to settle in. New companies bring job opportunities in turn reinforcing the regions attractiveness. As such, these developments go hand in hand. As a result of this expectation with regards to new regional railway stations, many regional governments in the Netherlands have included this as an objective in their 'masterplans' for the region, e.g. *Randstadspoor* (Randstadspoor, 2009), *Stadsregiorail* (Stadsregio Arnhem Nijmegen, 2007) and *OV-netwerk Brabantstad* (Brabantstad, 2009).

### 1.1.4 New stations as a structuring force for high-quality spatial development

Related to the trend described above is the fourth trend which consists of the idea that stations can facilitate a high-quality spatial development around them (Lastdrager & Bonnemayer, 2008). In the domain of spatial policy the concept of spatial quality has gained the status of a central theme (Soeterbroek, Edelenbos & Nootboom, 2003). The underlying rationale is that (new) stations can work as a structuring force where the central pole is represented by the station itself. The station offers travellers a high-capacity entrance or exit to the region with relatively low level negative externalities such as congestion or air pollution. The station is thus the pole of attraction making land (real estate) prices in the closest vicinity of the station highest. Further away from the central pole prices are lower. As such, a hierarchical pattern of spatial development 'naturally' grows around the station. As 'masterplan' which truly revolves around this concept is the *Stedenbaan* programme (Stedenbaan, 2009) in the southern area of the Randstad.

Stations structuring spatial and economic development is in fact central thought in the concept of *transit oriented development* (or *TOD*). A few years ago a sort of 'handbook' entirely dedicated to TOD has been published (Curtis, Renne & Bertolini, 2009). This concept has grown in the United States as an example how to successfully link up public transport and spatial-urban development policies (Van der Bijl & De Zeeuw, 2009). The principal idea is that high quality public transport should be available in very early stages of development (p. 9). For otherwise, in the absence thereof, new entrants to the area will use their private automobile. Once new entrants have chosen one or other modality it has proven very difficult to have them choose another (Lastdrager & Bonnemayer, 2009). Habituation in the choice of modality is a very strong determinant for future choices of modality (Dijst & Van Wee, 2002). So, spatial-urban economic development *follows* public transport development. A central pole in the form of a station could form the basis of this development.

Obviously, this dynamic is not exclusively reserved for *new* stations, it works in the same manner for existing stations (see e.g. Kooij & Schouwstra, 2003).

**1.1.5 Towards an improvement of regional railways: new railway stations**

All four of these trends/ideas have contributed to the contemporary attention for new regional railway stations, either by the idea that a modal shift could be instrumental in decreasing congestion and improving (mainly local) air conditions or by the idea that stations can improve the economic attractiveness and spatial quality of a region. Naturally, these are not the exclusive solutions to the stated problems. For example, the modal shift could also be attained by pricing policies (e.g. road charging thus making car use more expensive). Likewise, regional economic development could also be stimulated by a favourable tax regime (e.g. lower local taxes for companies that settle in the area). Nevertheless, a new regional railway station has the potential to contribute to both the (regional) modal shift and regional (economic) development. In figure 1.2 these relations have been sketched.

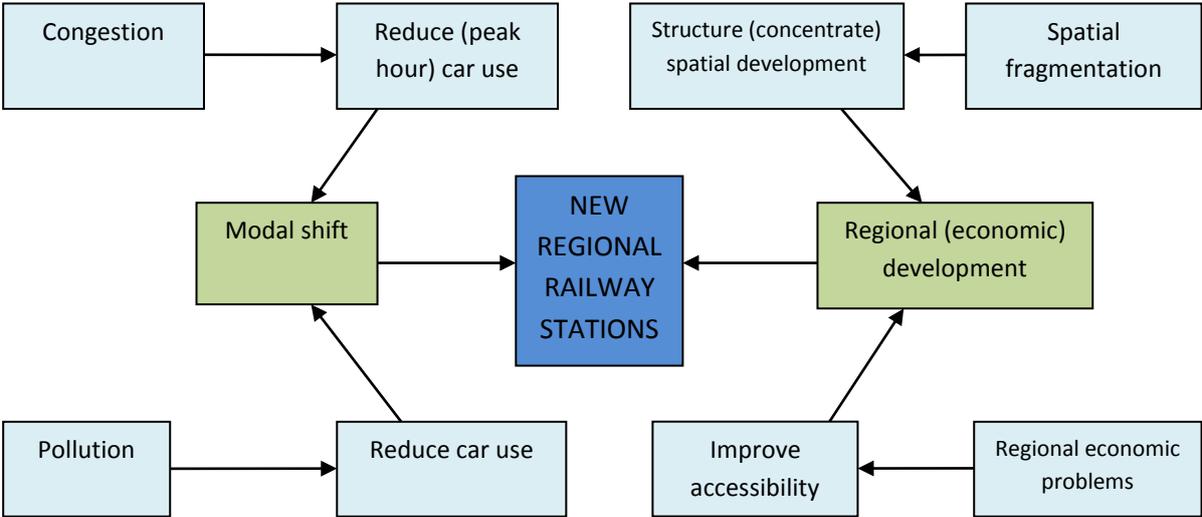


Figure 1.2: Context of new regional railway stations in terms of the societal-economic problems they can help assuage

**1.2 Slow infrastructure development**

In the Netherlands many new stations on the ‘wish list’ are realised at a very slow pace. Stations are just one element in infrastructure networks. Slowly developing infrastructure projects are not necessarily a ‘new’ phenomenon in the Netherlands. In April 2008, the so-called *Elverding*

committee<sup>5</sup> published its report about the acceleration of the realisation of large infrastructure projects. The committee had been installed by the national ministries of transport (V&W) on the one hand and housing, spatial planning and the environment (VROM) on the other as a result of growing discontent with delays on many projects. The attention of the committee, however, has been almost exclusively on highways (more specifically the addition of extra lanes on existing highways)<sup>6</sup>.

That is a missed opportunity, for large railway projects had their share of delays recently as well (high-speed link Amsterdam – Belgian border and the dedicated freight-railway Rotterdam – German border). This thesis complements on the research done by the committee by shedding light on the railways, more particularly regional railway stations. As such, the task set by the committee is rather similar as the task set in this thesis. The committee's task was twofold: first, 'to analyse the true causes of delays in large infrastructure projects'; second, 'to investigate the possibilities to increase the pace of decision-making, make recommendations to this effect, holding in respect a careful balance of interests and participation' (Commissie VBIP, 2008, p. 4; Elverding, 2008). This thesis performs the same tasks, but then with an eye to the development of new regional railway stations. Although such stations are relatively rather small scale (as compared to highways), the complexity associated with their realisation nevertheless proves to be reminiscent of large (highway) projects. This thesis looks back to the findings of the Elverding committee where appropriate<sup>7</sup>.

So, slow development is not exclusively a characteristic of large scale infrastructures such as highways. A report by the independent consultancy firm Goudappel-Coffeng (2009) stated that 6 or 7 years should at least be taken into account for a typical new regional railway station to be realised. Considering the fact that these projects seem relatively easy adaptations to existing infrastructure, this thesis aims to find out what causes these long lead times.

### 1.2.1 Problem statement and research question

The context of the development of new regional railway stations in the Netherlands that has been sketched in the previous section implies the following problem statement: *The development of new regional railway stations in the Netherlands is hampered by delays*. This directly leads us to formulate a research question: *Which factors lie at the basis of the delays incurred in the development of new*

---

<sup>5</sup> Named after its Chairman Peter Elverding

<sup>6</sup> In the committee's final report the term 'public transport' is mentioned only once; the terms 'rail' and 'station' are not mentioned at all

<sup>7</sup> In May 2010 the Ministers of Spatial Planning and Transport informed the Second Chamber that they were moderately content with the progress on the execution of the 22 recommendations that were made as a result of the Committee's work in the *Actieplan Sneller en Beter* (V&W, 2010).

*regional railway stations in the Netherlands?* The next section goes into more detail as to the element of ‘factors’.

### **1.2.2 Factors for development**

Clearly, the scope of this thesis is what can explain the delays incurred in many station projects. Preliminary research has been conducted that has revealed several factors that can be categorised in three different strands: administrative complexity<sup>8</sup>, exploitation potential, and investment costs. Why these strands?

Firstly, the decision to develop a new station is a very political one. Stations are developed by multiple (democratic) governments with overlapping jurisdictions leading to a complex administrative structure. The development of new stations involves plan-making, negotiating and (importantly) decision-making in public and semi-public bodies. Secondly, governments are unable to ignite (and fund) spatial development for which there is no economic (or other) rationale. It is reasonable that when developments swallow public funds, something valuable in terms of the public interest should come from it. Considering the fact that also semi-public bodies such as the railways are involved with their own (financial) considerations, some economic rationale for a new station is a prerequisite for development. Traditionally, in the transportation domain cost-benefit analysis is used to assess the potential contribution of a project to society, but in the case of new stations other devices are used as shall be discussed later. Thirdly, the construction of a new station is an intervention in a complex infrastructure which requires technical standards in order to safeguard a secure operation of the rolling stock on it. Such requirements also involve the structure and layout of stations and their nearby rail infrastructure. In spatially confined areas such requirements are not unlikely to be able to cause problems in design and give rise to higher costs. So, in these three strands the answer to the research question is sought. This is worked out in more detail in the next chapter (2) in which for each factor hypotheses are devised.

## **1.3 Societal & scientific relevance**

Railway stations are essential elements in railway infrastructure networks. Stations allow passengers to board and exit trains (feeder) or perform a junction function changing trains (transfer) (Schoemaker, 2002, p. 85-6). Without train stations no passenger traffic could take place on a railway

---

<sup>8</sup> This is fact the English translation as used by the Dutch Scientific Council for Government Policy (WRR) for the difficult to translate Dutch term ‘bestuurlijke drukte’.

infrastructure network in a safe and organised manner. With their feeder and transfer functions stations are thus vital elements in railway infrastructures. The nearer a station is located to places of departure and / or destination the more attractive it is to use the railways. Making the railways more attractive is an important policy goal with regard to accessibility in general and the modal shift in particular.

The fact that the development of new regional railway stations is slow jeopardises the ambitions of modal shift and regional economic development. By failing to realise new stations quickly several localities in the Netherlands fail to profit from (and contribute to) the current growth of the regional railways. In addition other positive effects of stations (such as improved connectivity) are delayed. Some of the people living or working nearby may use other stations in the region or travel by bus but many will also use private transport. This has detrimental effects in terms of local accessibility (congestion) and air quality (pollution from exhaust emissions). It is desirable that the duration of this delay becomes shorter by increasing the pace of decision-making with respect to new regional stations. In the words of the Elverding committee: “acceleration of decision-making is an urgent societal issue” (Commissie VBIP, 2008, p. 4). The scientific relevance of this study lies in the fact that the work of the Elverding committee which has been predominantly on large scale infrastructures (mostly lane extensions on highways) is elaborated towards smaller scale infrastructure developments which regional railway stations are.

Problems causing delays in station projects seem to repeat themselves in various station projects. So, much can be learned from an in-depth evaluation of how station projects have proceeded: can the problems that occurred in earlier projects be prevented? As such time savings could be gained. Interestingly, not one governmental actors involved in the development of new stations ever commissioned such an inquiry. Once parties have wrestled their way through a station project and the first train stops, they seem most willing to forget all about the project and run happily into the next project without any recourse to evaluation. This study attempts to fill in that gap to some extent.

## **1.4 Structure**

In a stepwise approach an answer to the research question is investigated and subsequently formulated. This structure of the thesis is as follows (figure 1.4).

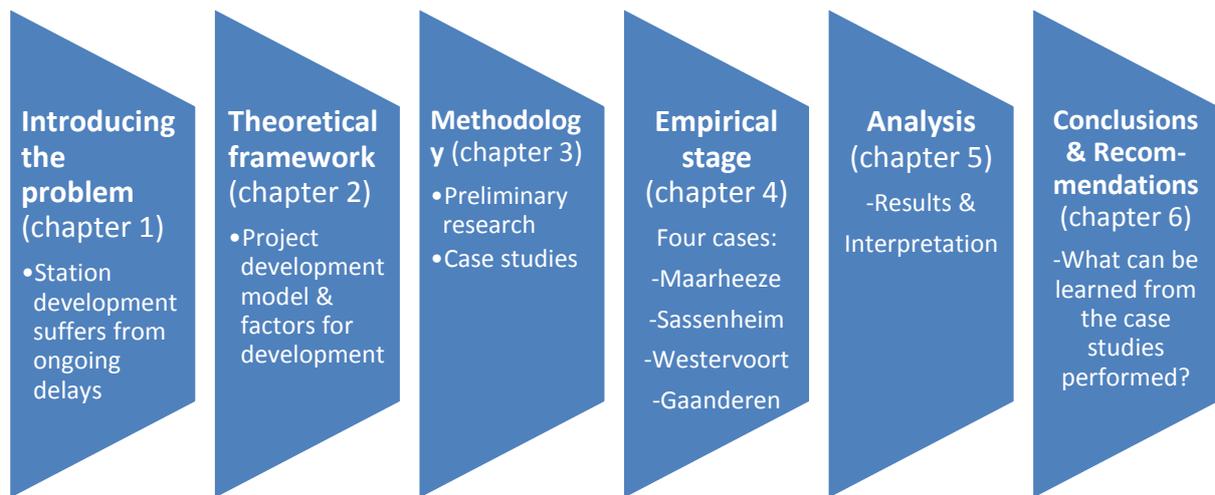


Figure 1.4: Structure of the thesis

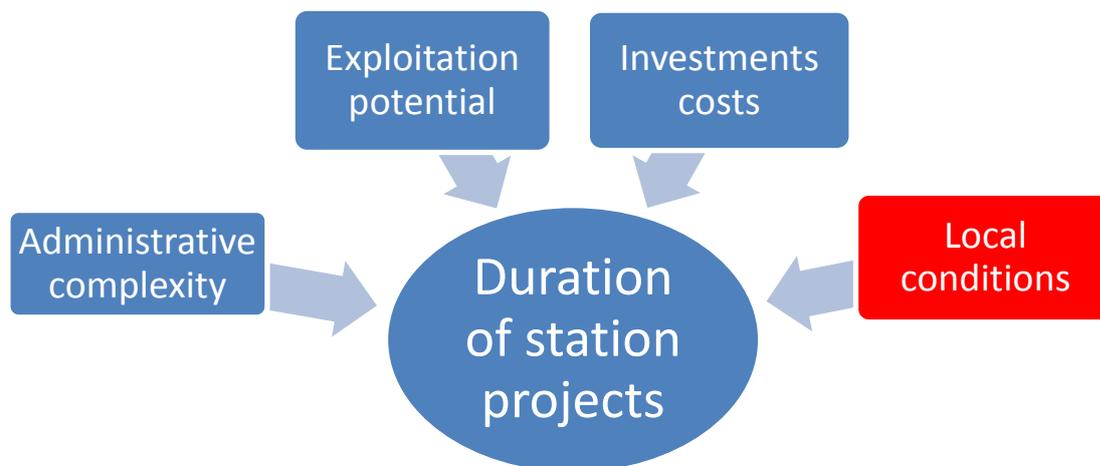
Below the questions are formulated that are dealt with in each consecutive chapter:

- Which hypotheses can be devised that could explain the on-going delays incurred in many station projects? (chapter 2)
- Which methods are best suited in order to tackle the research question given the theoretical framework? (chapter 3)
- What do in-depth case studies tell about the development of events in the realisation of several new railway stations (chapter 4)?
- To what extent can the development of events be supposed to invoke the delays in station projects? (chapter 5)
- Which conclusions can be drawn from the results of the study? Which recommendations can be made to improve the development of new stations? (chapter 6)

A final chapter (7) presents some reflection on the study: the chosen methods, its results and its conclusions. The next chapter discusses the theoretical framework for this study.

## 2 Theoretical framework

In this chapter theoretical concepts are explored and developed in order to aid us in answering the main research question. This question is: *Which factors lie at the basis of the delays incurred in the development of new regional railway stations in the Netherlands?* It indicates that some sort of causal relationship is sought. Delays occur (B); what causes those delays (A)? In other terms: The duration of station projects is the dependent variable. The factors that cause variation (framed in a negative way in this thesis) in this duration are the independent variables. As introduced in the previous chapter, three aspects which are suspected to cause variation in the duration of station projects are administrative complexity, exploitation potential and investment costs. Of course, there can be other factors with similar influences. They are mostly related to local conditions such as the specific spatial layout of the foreseen station location. Is there space available in abundance for platforms? Are there nearby dwellings that require measures for noise reduction? Etc. These factors are summarised here as local conditions.



*Figure 3.1: The causal relation between the factors (independent variables) influencing the duration of station projects (dependent variable)*

Firstly, principal attention is given to the project development stage model by Nozeman et al. (2008). Such a model divides the realisation of a certain physical project into stages. Using this model the process towards realisation of new regional railway station can be mapped. It also shows where opportunities for delay are most likely to occur. Secondly, investigating project development literature gives suggestions for hypotheses with respect to this.

The next section (2.1) starts with an exploration of some literature on slowly developing infrastructure. After this section 2.2 continues by developing the project development stage model. Section 2.3 discusses the project development stage model. Section 2.4 uses project development literature so as to propose a set of hypotheses. Section 2.5 concludes this chapter.

## 2.1 Literature on (slow) infrastructure development

The introductory chapter already mentioned the Elverding Committee, which investigated the slow development of large scale infrastructure in the Netherlands and published its recommendations in 2008. This was, however, certainly not the first trace of slow developments in this sector. Already in 1994 the Scientific Council for Government Policy<sup>9</sup> (an independent think tank for the Dutch national government, abbreviated WRR) delivered a comprehensive report on the delays incurred in the development of large scale infrastructure. The investigation was done on request by the then current government which itself blamed the complex framework of rules as the culprit for delays. The WRR tried in its report to bring more nuance to this idea: long development times for large scale projects are normal and should be more accepted. In an international context the average times needed in the Netherlands were not considered abnormal. Nevertheless, it was argued that (too) many organisations are involved in project development (WRR, 1994).

In the academic debate a seminal contribution was made by Teisman (1995). He introduced his ideas on the way decision-making in large scale projects develops. His central thesis is that decision-making, far from being a sequential process, ‘develops in rounds’ caused mainly by the fact that no actor has control over the process by itself. The sequential decisions, sometimes taken independently, sometimes in partnership with others, causes shifting perspectives on future decisions to be taken. Because all these decisions together are required for one project to succeed, an inter-organisational dependency is established. No actor can realise the project all by itself. A circular movement of actors waiting for and reacting to each other may arise and can act as an important source of delay. There is no clear hierarchy of who’s decisions prevail over those of others or who is supposed to decide first after which the other parties can follow (Nijkamp et al., 2006). Teisman calls this the pluricentral perspective (1995).

In spite of the recommendations of the WRR, the 2000s saw two major multi-billion (€) railway projects escalate substantially in terms of both costs and duration. Firstly, the *Betuwerooute*, a dedicated freight corridor between the harbour of Rotterdam and the German border (see e.g.

---

<sup>9</sup> In Dutch the *Wetenschappelijke Raad voor Regeringsbeleid (WRR)*

Pestman, 2001) and, secondly, the *HSL-Zuid*, a high-speed passenger corridor between Amsterdam and Antwerp. Recent governments have attempted to accelerate development by a new law, the Act on economic crisis and recovery<sup>10</sup>, an economically-informed act nevertheless closely related to large scale new infrastructures. The act was intended as a temporary measure to combat the economic crisis but is currently in the process of being made definite.

In 2009 Boertjes has made a contribution with regard to middle-of-the-road infrastructures in terms of size with a thesis on the institutional capacity present in the Netherlands for the development of light-rail systems. Such systems are burgeoning in e.g. France and Germany, but in the Netherlands no significant developments in this field are made until today (Verkeerskunde, 2012). Boertjes identified, similar to earlier analyses for large scale infrastructures, that “in the development of light-rail project[s] several governmental levels were involved, all with their own interests, competences and responsibilities which more often than once conflicted with each other” (2009, translation by author). In addition, “financial insecurities caused unstable relations [between actors]” (ibid.). In fact, it was another indictment in terms of administrative complexity.

This thesis continues the evaluation of the development of infrastructures but in this case of relatively small ones. The next section provides a theoretical model for the stages a typical project goes through.

## 2.2 Project development stage model

The realisation of anything physical and of a substantial size practically always takes place in a project setting. The realisation of new regional railway stations is not an exception to that. Therefore, a project development model is used in order to clarify which steps have to be taken before the station really is a fact of life and can be used by trains and passengers. For, obviously, one cannot simply start by buying a few bricks at the market place and start building somewhere adjacent to a railway line. The project development model developed by Nozeman (2008) is a useful tool in this respect<sup>11</sup>. It divides a project (from initiation to completion) into several stages. So, from the very first idea towards realisation to the final brick being laid. The stages are:

1. Initiative (exploration)
2. Development

---

<sup>10</sup> In Dutch the *Crisis- en herstelwet*

<sup>11</sup> Many other project development stage models have been developed. This thesis has not the intention to discuss them. Their principal tenets are similar: invariably dividing a project into several stages. The number of stages and their names vary, their essence remains the same. A three-step approach (exploration, study, realisation) is often used, e.g. by Elverding (2008) and Verbouwen & Baggen (2004).

3. Realisation
4. Exploitation

The initiative stage is about agenda-setting. An idea for a new project is easily coined, but how to get in on the agenda? It should be remembered that the development of new railway stations is always a decision which heavily involves the political spectrum, so how to get an idea on the political agenda is what this stage is about.

In the *initiative* stage the idea for a new station is launched by one or more parties. Eventually, the idea must be taken up by an actor with the means to put the issue on the political agenda. The initiators are likely to have some preliminary research conducted in order to prove that the new railway station is valuable and moreover that it is so valuable that it deserves the spending of public funds. This is called *benefit and necessity*. These are to be taken wider than just financial issues. For example the reduction of travel times or the growth of noise pollution can be quantified and integrated. The benefit and necessity is investigated in a so-called *feasibility test*.

A typical feasibility test looks at three aspects: expected passenger numbers, timetable integration, and spatial integration (see e.g. Goudappel-Coffeng, 2009). Firstly, the number of passengers expected is important with regards to the potential financial gain for the operator from ticket sales. The higher the expected financial gains, the more interesting the station becomes. Secondly, integration in the existing (or if available future) timetable is investigated in order to determine whether a new station could be serviced by an existing local/regional train without disrupting the timetable of other trains. If this not possible, propositions are made e.g. to put forward or backward in time some other trains. Thirdly, spatial integration has to do with fitting in the new station in the spatial environment. For relatively small scale regional station this usually includes: platforms, (access) square, Kiss & Ride, taxi rank, bicycle shed, small P+R (Park & Ride), level-crossing or fly over on the sides of the station to provide the opportunity to cross the track(s) (ibid.). All these elements have to be integrated spatially. It is possible that some other land use might be removed or relocated. Possibly it is necessary to acquire land. If the new station proves not to be feasible with regard to these aspects, the project is likely to be abandoned at this stage. In contrast, when feasibility has been demonstrated the project proceeds into the development stage.

In the *development* stage the proposals as brought forward in the feasibility test are worked out in more detail, starting with a programme of requirements. On the basis thereof a design is made: first a provisional or preliminary design, then a definitive design<sup>12</sup>. Testimony to the back-and-forth

---

<sup>12</sup> In Dutch these documents are respectively called: *Programma van Eisen (PvE)*, *Voorlopig Ontwerp (VO)* and *Definitief Ontwerp (DO)*

movement also within stages is that the preliminary design may give rise to new demands in the programme of requirements, which ignites a new preliminary design and consequently a definitive design (Nozeman et al., 2008). In the definitive design all details of the plan are worked out: For example, the platforms are designed and situated, so are the shelter, ticket machine, square, access, bus stop, etc. This is done for the preferred location of the station. If another location is chosen, the entire design process must recommence. At this stage it becomes clear what the (estimated) costs are for the new station. This price tag must be covered. Not before it is determined who pays which share the definitive design can be approved and 'brought to the market' where in a public tender private constructors can vie for the assignment to build the station<sup>13</sup>. This tender finishes the development stage. If, alternatively, the plan has been worked out into a definitive design but finances are not forthcoming, the project may be postponed or dropped altogether.

In the *realisation* stage the station is constructed on the basis of the conditions agreed on in the tender. The necessary permits (e.g. building permits) must be acquired. Perhaps also land must be acquired if it has not been done already during an earlier stage. Usually train traffic at the building location is hold up several periods during the construction process (say several weekends), mostly out of security concerns<sup>14</sup>. When construction is complete, the station can be delivered. Ownership of the station can be transferred to the new owner. As soon as technical clearance has been granted by the infrastructure manager, the operator can start servicing the station in the *exploitation* stage. Theoretically, this last stage ends when the station is demolished or even earlier, when the operator stops servicing the station. The life of railway stations, however, tends to be very long, usually multiple decades at the least. As argued before, the specifics that occur during the exploitation stage may have repercussion for earlier stages. That is why this stage is included in the model. Nevertheless, with regards to the duration of station project our interest lies of course 'from the first initiative to the first train'. When the station is taken into service with the first train, the public benefits of the station for regional development are available and can be enjoyed.

The last stage starts after completion of the project: The exploitation stage. In that phase what is produced is taken into use by one or more parties. The new office HQ is beset by the commissioning company, residents move to their new homes, and new stations are serviced by trains. The inclusion of this stage in theory is important because what occurs at this stage could have repercussion for what needs to be done in the earlier stages. Furthermore, in the total lifecycle of a project it is only

---

<sup>13</sup> To make more use of the private sector (in terms of public-private partnerships or PPPs) experiments are done in which (some of) the design process is left to players in the market; in station development, however, this is not common

<sup>14</sup> In Dutch these periods are called *buitendienststellingen*

just to incorporate it, for only after the abandonment or even destruction of the object, it can be said that the cycle has been completed and can start all over again with a new development on the site. Nevertheless, this thesis is interested in delays in the project *before* it is actually completed, so it holds no relevance here and is omitted henceforth. Additionally, preliminary research has shown that once realisation has started no more substantial delays are incurred. This thesis hence confines itself to the two stages *leading* towards the realisation stage.

Graphically the project development stage model (in its entirety) looks like this:

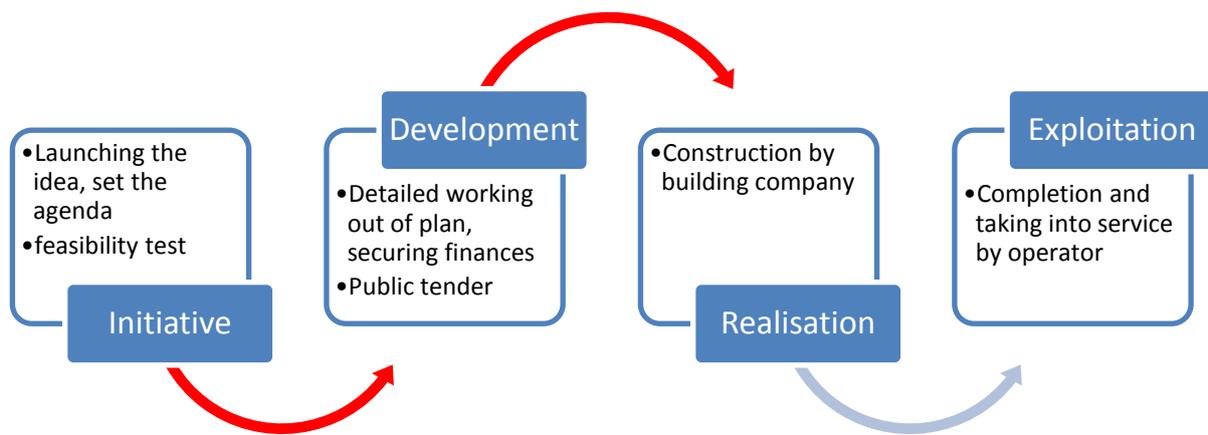


Figure 2.2: Graphic representation of the project (development) stage model

Note that the two red arrows mark the two essential decision-making steps following (1) the feasibility-test and (2) the final go-ahead decision bringing the definitive design to the market in a tender.

It should be noted that this division of projects in several stages is a useful theoretical tool, but not necessarily a mirror image of reality. The stages seem to imply a sequential development through the stages. However, in reality the process goes back and forth in a rather ad-hoc fashion. This is especially the case for the first half of the stage model, the initiative and development stages, during which decision-making plays an essential role. The decision-making process causes considerable dynamism. According to De Bruijn & Ten Heuvelhof: ‘The picture of a decision-making process developing regularly and in linear fashion [can be substituted] for a picture of a process elapsing in *rounds* (2007, p. 36; after Teisman, 1992, italics in original, translation by author)’. In the case that was investigated by Teisman (the *Willemspoortunnel* (railway tunnel) under the river Maas in Rotterdam) the ‘dynamism’ of decision-making is telling: He identified no less than 11 (!) different stages in the decision-making process before a final decision was taken (ibid.). So, we need to be

careful that the project development is a *model* representing reality but not mirroring it. The model is by nature artificial and developed for analytical purposes.

Next the stage model is taken one step forward by introducing some feedback loops which to some extent tries to account for the non-linear fashion in which projects develop. Feedback loops mirror events that happen in any project development, but preliminary research has shown that it happens especially in the development of new regional railway stations. The feedback loops have already been hinted at in the above. At the end of the initiative stage a feasibility test is conducted on the basis of which it is decided to go ahead with the project. Naturally, the decision could be not to proceed. This means the project is abandoned. In practice, however, station projects are never truly done with: they keep recurring on the agenda. As both politics and the public are so keen on developing a new station or being able to use it, it seems practically impossible to rid station projects entirely and forever from the agenda. The feedback loop thus brings back towards the beginning of the initiative stage. The same goes for the end of the development stage when, on the basis of a detailed design for the project, the final decision is taken whether or not to construct it in the first place. The feedback loop here brings back to the beginning of the development stage or even the initiative stage. Graphically it looks like this:

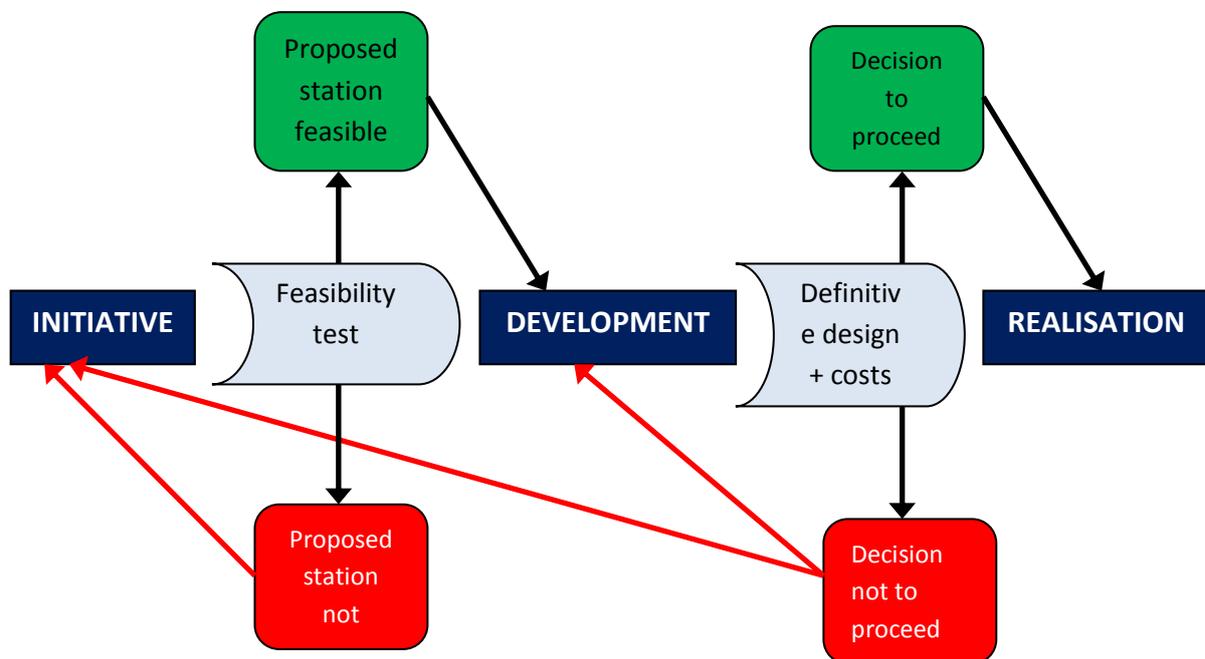


Figure 2.3: From initiative to realisation with feedback loops (the red arrows)

In fact, what has been done is a zooming in on the two decisive decision-making points in time between the initiative and development stages on the one hand, and the development and

realisation stages on the other. In the top half of the figure, both decision-making points are in favour of the station so development proceeds in fluency. In the bottom half of the figure, decisions are taken against proceeding with the project, causing the process to a halt and lapsing back into earlier stages of development.

Even though this adjustment to the model somewhat better reflects reality, it still is a simplification. In practice, the process is likely to proceed in many circles back and forward. Nevertheless, it is now established that to a large extent this cyclic pattern is caused by the two decisive moments in project development. However, knowing that station projects sometimes leap backwards during development following from decisions not to proceed, does not explain *why* such decisions are taken. The next sections lay down hypotheses about why these steps backwards occur.

### 2.3 Administrative complexity

As has been said earlier, the decision to realise a new railway station is a very political one. A number of parties, both fully public and semi-public, are involved in the process. In the Netherlands traditionally quite a few actors are involved in the railways<sup>15</sup> most of which also play a role in developing new regional railway stations. Which are those? At least five distinct parties can be discerned at the minimum being the national (Rijk), regional (provinces, city-regions) and local (municipal) governments, the infrastructure manager (ProRail) and the operator (various but mainly NS). The former three governmental actors naturally are fully public. Whereas the latter two actors in the railways can be considered semi-public hybrids. They are fully state owned but nevertheless enjoy considerable freedom in their actions. The next paragraph discusses the role of all these actors, starting with the railways parties.

In the Netherlands there is a sharp distinction between several scales of public transport. On the one hand there is the urban and regional traffic by bus, tram and subway<sup>16</sup>, on the other the railways. The railways can be further divided in two categories: The national railways consisting of all major national axes and many regional lines the regional railways (railways decentralised to the regional level consisting of some lines with mostly regional functions)<sup>17</sup>. The national government has issued a concession without tender (the *Concessiewet*) for the national railways to the traditional national carrier *Nederlandse Spoorwegen (NS)*. The custody (maintenance, railway planning,

---

<sup>15</sup> An overview of the actors active in the railways in the Netherlands can also be found on the ministerial website (Rijksoverheid, 2011a).

<sup>16</sup> In Dutch the *stads- en streekvervoer*

<sup>17</sup> In Dutch the national network goes by the official name of *Hoofdrailnet (HRN)* and the regional railway are commonly called *decentraal spoor*.

construction of new lines and stations) is given to *ProRail* in another concession (the *Beheerconcessie*). On the regional railways provinces or city-regions can pick their own transporter, but they are obliged by law to do so in a public tender. These lines have been decentralised only in the last decades. One of the reasons to do so was the fact that these lines were not operating profitably. It was thought that regional governments would be in a better position to reverse the financial results of such lines. In return for decentralising lines the national government gives an annual subsidy to regional governments for the exploitation thereof. For the management of the infrastructure there is no difference between the national and regional railways: both reside under the regime of the *Beheerconcessie* which means that ProRail performs the role of infrastructure manager. So even though the national government has decentralised some railways, it remains in firm control of the railways.

In realising new stations it is not different. The national government usually provides funds for the realisation of a new station. Such grants are only given on the basis of regional governments also contributing financially. This finds its origin in the policy note *Basisstations* that was released in 1999. In 2005 some adjustments were performed and the document was retitled *Basisstation 2005, functionele normen en richtlijnen voor stations* (DGP/SPO/U.05.02113) (Model stations 2005 – functional norms and guidelines for stations; translation by author). This note defines basic qualities to which any new station must comply. If these requirements are met, the ministry can contribute a maximum of €6,3 mln (prices 2009) (VenW, 2010b). Nevertheless, it is possible for a regional government not to apply for a national subsidy and fund the new station by itself.

As said, regional governments have the responsibility over the regional railway lines. For that responsibility it receives an annual subsidy from the national government. It also receives such subsidies for the urban and regional public transport, for which the regional governments are obliged to organise public tenders. There are also some municipalities with PTA (public transport authority) status: these are the three major cities in the *Randstad*, the metropolitan area in the west of the Netherlands (being Den Haag, Rotterdam and Amsterdam). That means that in most of the country municipalities have no formal role in public transport. Nevertheless, in terms of realising new stations they do have a role to play. For municipalities are at the pinnacle of power where it concerns land use planning. Municipalities decide what can be built where (including infrastructure). There are some exceptions to this rule, but not many.

The role of the operator varies heavily between the national and regional networks. On the former NS is the operator. On the latter a variety of actors is active. At the time of writing (2012) there are four such parties active in the Netherlands: Connexion, Veolia (both part of Transdev), Arriva (owned by Deutsche Bahn, the national carrier of Germany) and Syntus (half owned by NS).

A picture summing up this section clarifying the role of the different layers of government in the field of public transport in the Netherlands looks thus:

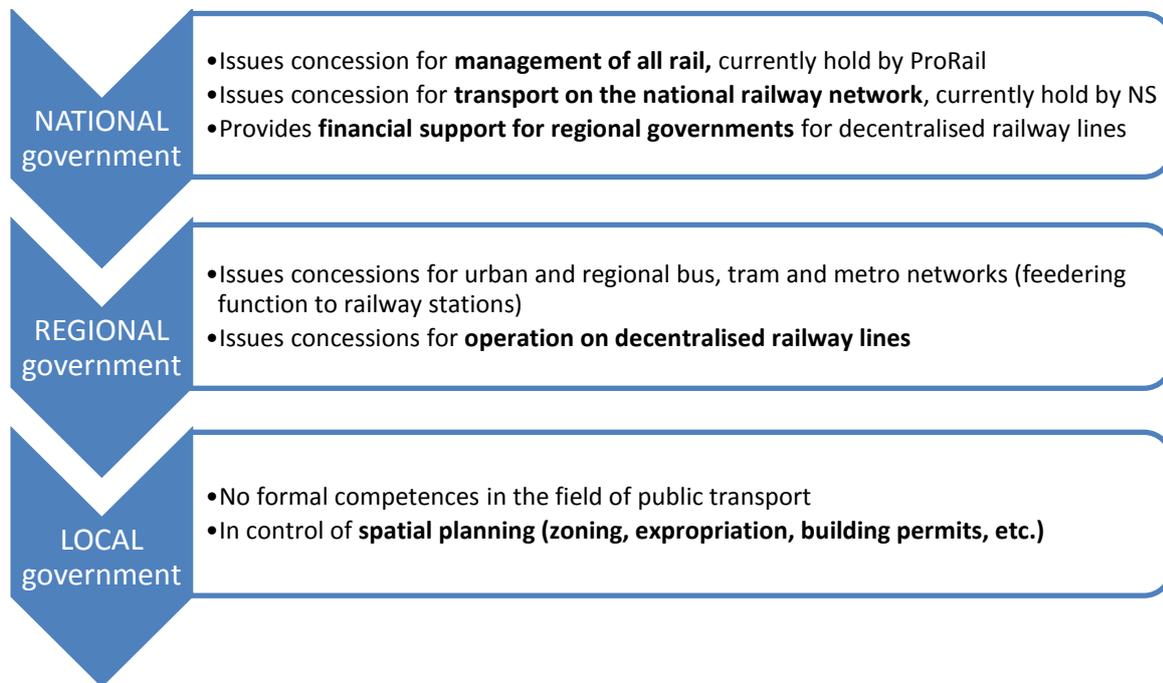


Figure 2.4: Governmental actors and their relation to the organisation of public transport including (new) stations

The Elverding committee (2008) had as one of its main arguments that there are too many layers of government involved in the development of new infrastructure. In a specifically Dutch term this is called *bestuurlijke drukte* and in this thesis it is translated as (excessive) administrative complexity<sup>18</sup>. It manifests itself in several governments harassing each other in continual dissent on how to proceed with a project. Another manifestation is in the heavily varying level of political support from the same government over time usually as a result of some election. As we recall, the development of infrastructure takes multiple years, making it very likely that it cannot be completed within one governmental term. Elections may reshape the political landscape significantly with in some cases due results for the support for one or other project. Administrative complexity is accused of causing delays to projects. When administrative complexity leads to substantial delays on projects, it can be seen as a form of government failure (Twynstra Gudde, 2007). A valid question is whether this is also the case in the development of new railway stations.

---

<sup>18</sup> The problem of administrative complexity is the excessive level thereof. For reasons of brevity, the term excessive is not used in the remainder of the thesis.

The number of parties is, in itself, not a reason to expect delays. Nevertheless, there are reasons to believe it can considering the following. It is thought that in order for developments in the physical realm to take place swiftly, the actor owning a certain societal problem should also have the means to solve it. As such, it is not dependent on other actors for the solution to be implemented. It would make sense that the party responsible for transport (including infrastructure policy) also has the means to shape that policy. In other words: that means coincide with responsibilities.

The concept of production power is helpful here (De Bruijn & Ten Heuvelhof, 2007). Possessing production power means that an actor has an essential asset towards the realisation of something: if this power is much dispersed, the more likely it is that delays occur. The negative influence of a high dispersal of production power is aggravated when parties have different opinions on the way they want to see new station realised. The current transport minister has recently indicated in the publication of the new national vision for spatial development and infrastructure<sup>19</sup> that a maximum of two layers of government should be involved in the development of something. There is no reason why this should not be so for the development of new stations so we translate this into the following hypothesis: There is administrative complexity in case:

1. More than two actors are involved in the development of a new station
2. Production power is not centred in those parties that are in control of transport (including infrastructure) policy, implying the involvement of additional actors

The underlying hypothesis, of course, is that administrative complexity causes delays in station projects. The next hypotheses are related to administrative complexity but merit a discussion of their own.

## 2.4 Exploitation potential

An important aspect deciding the fate of any station project is a positive business case. As argued in the preceding section, the organisational landscape of the railways in the Netherlands has changed in recent decades. The operator on the national network, albeit fully state-owned, is supposed to run as a commercial organisation. Operators on the regional network are privately owned and are by definition commercial agents. So it is no surprise that for these parties that eventually have to stop trains at new stations it is of the utmost importance that some financial profit can be extracted from those new stations. In its simplest form it means that the costs for stopping at the station (time loss

---

<sup>19</sup> The SVIR: *Structuurvisie Infrastructuur en Ruimte*

for transit traffic, decreased reliability of existing train service, additional time needed for actual stopping) must be more than outweighed by the benefits of new passengers to the railways. Needless to say that without the cooperation of an operator, there is no sense in building a station.

A positive business case as such is an important determinant to a successful pass in the feasibility test, even though certainly not the only one. It appears that lacking exploitative value is a constant threat to any project developing. Even if the formal feasibility test is passed, it may return in consecutive phases, exactly in the non-linear fashion described earlier. As such, a lack of exploitative potential can be a source of delay. In most cases, it is a governmental actor vying for the realisation of a certain railway station, not the operator. We believe that in some cases governments are trying to realise a station with too little exploitative potential for the operator.

1. Proposed new stations suffer from a lack of spatial-economic viability (number of passengers to be expected from the near vicinity too low, or underestimated)

In the preceding paragraph it was already hinted at what makes a new station interesting from an exploitative point of view. The most important aspect is the number of passengers (who by buying tickets contribute to the turnover of the operator) that is expected to use the new station. Especially those not previously using the railways (contrary to existing users that divert from other stations) contribute to the exploitative value. The expected number of passengers is to a high extent dependent on the number of nearby dwellings and workplaces. In principle, there is a positive correlation between the number thereof and the number of expected passengers. That means that the exploitative potential of a station can be improved by increasing the number of dwellings and workplaces nearby. This could be especially interesting when the exploitative value of a proposed station is on the verge of being negative. This is of course in the domain of spatial planning, a sector controlled by local government and not by the operator. There are signs too little is done to improve the exploitation value of proposed stations.

In addition to planning policy, mobility policy can have an impact on the exploitative value. In this respect feeding bus services can provide a source of passengers transferring back and forth between bus and train thus increasing the number of passengers for the station. Likewise, parking prices not directly at the station site itself but in the near vicinity could have consequences for the attractiveness of the station. If prices are low, the decision between car use or train use may fall to the benefit of the former. Contrary, if prices are high, it may fall to the latter thus again increasing passenger numbers for the proposed station. If such measures in the sphere of mobility policy are not taken, the exploitative value of a new station suffers.

2. Insufficient spatial programmes or other supporting measures (feeder bus services, parking policy) are proposed nearby a proposed station location to increase the exploitative viability thereof.

Lastly, as already explained above, the feasibility of new stations is determined by investigating expected passenger numbers (benefits) and comparing those to travel time costs for existing passengers (costs). This is a method quite different from the one traditionally used in the development of new infrastructures which is the cost-benefit analysis. This method puts the feasibility question in the hands of the operator which gives ample opportunity for debates on feasibility. The feasibility in terms of costs and benefits for society as a whole may be quite different from that from the (financial) perspective of the operator. Thus:

3. Visions on feasibility are contested.

This section has been about the exploitative potential of a new station. This is unrelated to the investment costs. These are usually borne by governmental actors alone and not the operator. This issue is discussed in the next section, in relation to technical demands that have been set for the design of stations.

## 2.5 Technical demands and investment costs

There are signs that in some cases technical demands (mostly for reasons of security) in the design of new stations (including the nearby rail infrastructure) are high or even excessive. It is in this respect that costs are introduced, for higher technical demands lead to higher costs. 'High' and 'excessive' are normative values which are not easy to operationalise. That is because to an extent these requirements serve the purpose of safety. A safe operation of stations for both trains (containing passengers) and passengers accessing or exiting trains is of course essential. Nevertheless, that does not include setting standards for other reasons. Especially considering the fact that some parties in the field have standard-setting powers, a critical look at those standards can give valuable insights in cost levels.

1. High costs caused by design standards constrain the development of new stations.

Higher costs in turn lead to *longer* periods of securing finances, but not necessarily *delays*. An aspect also given due attention by the Elverding committee was the fact that costs tend to rise during the execution of one or other project. This is quite common for large scale projects. The magazine *Vervoerswetenschap* dedicated an entire edition to this issue recently (Van Wee & Priemus, 2012).

The reasoning is as follows: the parties taking the initiative for a project are eager to see it realised. As such there is a tendency to underestimate costs to garner more support. As soon as the decision to realise the project is taken these underestimations surface. This could already happen in the stage of development even before the final construction decision has been taken. This thesis aims to find out whether such processes also happen in the field of developing new stations. Obviously, if costs fluctuate this presents parties that invest with insecurities. Especially when the fluctuations have an upward trend causing more funds to be needed, delays are likely.

2. Fluctuating costs (upwardly) have a negative influence on the pace of development of new stations.

As said, there are other factors imaginable with an influence on the development of stations. Earlier these were termed local conditions. To put it simply, it is conceivable that it is easier to build a new station in an deserted meadow than in a densely occupied urban area. This is, in fact, a collection of all sorts of factors (implications for land ownership, noise reduction, available space, etc.) which, if worked out, would make matters too complicated. Therefore, in this thesis we have opted to deal with this factor in our case selection. This is explained in more detail in the chapter on research strategy.

## 2.6 Conclusion

This chapter has provided a theoretical framework for the study of the development of station projects. A discussion of the literature on the slow development of (large scale) infrastructure projects in the Netherlands introduced the topic. This thesis aims to find out whether the conclusions from those studies apply equally to the development of a relatively small scale infrastructure, such as a regional railway station.

Subsequently a model for the development of projects in stages was introduced and elaborated upon. The model has highlighted the attention for the potential for delay in two important moments of decision-making. These could present themselves either formally in the foreground, but also work more implicitly in the background, as such decision-making moments can of course be foreseen. Parties willing to see the project realised of course will burden themselves with arranging the project such that these decisive moments can be sustained successfully.

In substantial terms this thesis expanded on three aspects in which a potential for delays in station projects is suspected. These were the aspects of administrative complexity (central tenet from the Elverding committee), exploitation value (important for the operator) and investment costs (important for those parties bearing those). For each aspect several hypotheses were laid down. In

the remainder of this thesis these hypotheses are tested. Before actually commencing on the actual study, the next chapter discusses first *how* it is intended to do so. In other words, we now turn to methodology.

### 3 Research strategy

This chapter is about research strategy or methodology. Methodology describes the way in which we intend to answer the main research question on the basis of the hypotheses that were introduced in the previous chapter. In other words, we want to establish which is the best strategy to conduct our research. The guiding question for the current chapter is: Which methods are best suited in order to tackle the main research question given the hypotheses?

The purpose of our study is to shed light on the perceived problem of the slow realisation of new regional railway stations in the Netherlands. The research purpose is thus to *diagnose*, i.e. “to find out the causes or backgrounds of problems” (Verschuren & Doorewaard, 2007, p. 189, translated by author). How to perform this diagnosis is the topic of the current chapter. As such, this chapter bridges the gap between the previous chapter which set out a theoretical framework for the study and the next chapter presenting the empirical results of the study. The current chapter outlines *how* the desired results are to be achieved. Of course, that what we wish to know is guiding in the choice of strategy. In the words of Verschuren & Doorewaard: A research strategy is “the whole of connected decisions about the manner in which the study is conducted” (p. 159).

Our choices with regard to the research strategy have led to the decision to use case studies as a research method. The body of methodological literature on case studies as a research method is rather scarce (Swanborn, 2003, p. 21), partly because of the lack of confidence in academia in the value of case study research. The next section (3.1) elaborates on case studies as a research method. In section 3.2 the actual case selection is described. Section 3.3 is about sources, whereas section 3.4 rounds off this chapter with a conclusion.

#### 3.1 Research method: Case studies

In order to determine a research strategy inspiration was drawn from Verschuren & Doorewaard’s three *principal choices* (2007, pp. 160-3). These three choices between two conceptual polar opposites are to be taken before the start of the research. All three are related to one another.

The first of the principal choices is between *breadth* and *profundity*. In very simple terms it can be said that breadth implies ‘being able to tell little about many’ and that profundity implies ‘being able to tell much about few’. We have chosen the latter approach. We allow for a loss in terms of external validity, i.e. that the claims can be taken as general claims. That is not to say that the claims made in this thesis have no general relevance at all. As Swanborns says, describing this kind of case studies (*pars-pro-toto*): “case[s] [are] investigated to be able to have claims about a larger set” (Swanborn, 2003, p. 33). Even though this aspect of case studies is contested by many in academia, Flyvbjerg has indicated this is an underestimation of the potential of case study research (Flyvbjerg, 2006).

The second principal choice is between *quantitative* research and *qualitative* research (Verschuren & Doorewaard, 2007). A quantitative approach is in fact quite incompatible with the research questions. For the interest lies not with 'numbers', but in the reasons underlying the observed problems in new regional station development. It would be hard to identify these reasons with a quantitative approach if only because the total amount of new station projects that could potentially be investigated is rather small. New stations amount to only a few dozen projects (of some seniority or completed recently) as can be seen in the *beleidsbrief nieuwe stations* (2000) or the parliamentary note by the CU (2008) that were mentioned before. So our choice for qualitative research is obvious.

The third principal choice is between *empirical* research in which results are acquired by oneself and a *writing desk* research (or simply desk research) in which results acquired by others are utilised (Verschuren & Doorewaard, 2007). Subsequent to earlier decisions a decision has been made to opt for the former, because an in-depth analysis of the process for the stations of our choice is desired.

As is already explicit from our last principal choice, it should be noted that although these choices are polar opposites, they do not imply a choice between two extremes. For example, even though our last choice has been for empirical research, that does not mean we will completely refrain from desk research. Any piece of good research needs desk research to some extent. The principal choices merely determine on which of the opposites the emphasis is placed. So, even though we do not exclude their opposites, in general terms this is a *profound, qualitative and empirical* study. From these decisions flows naturally the choice for a research *method*. That is the topic of the next section.

After the principal choices made in the previous section we should consider which research *method* is best suited to our purposes. We have found that this is the case study, or more precisely, several case studies<sup>20</sup>. In fact, this subsequent 'choice' follows naturally from the principal choices we made earlier. For it is an excellent empirical device to attain a high level of qualitative detail for a few selected cases. In the words of Verschuren & Doorewaard: "A case study is a study in which the researcher tries to achieve a profound and integral insight in one or several time-spatially confined objects or processes" (2007, p. 183, translation by author). As is clear from our theoretical framework, the process we investigate is (part of) the project development process. According to Swanborn this is a *positive* ground for choosing a case study as a research method, for it is directly

---

<sup>20</sup> It is common practice in case study research to speak of a 'case study' instead of 'case studies' let alone 'cases study' even though multiple cases are investigated (Swanborn, 2003, p. 23).

linked to the “nature of the problem statement” (2003, pp. 31-2)<sup>21</sup>. So, the case study is best suited for our approach. Next two characteristics of case studies are discussed.

A first general characteristic of case studies is that they have a small domain, i.e. a small number of objects to be investigated. As will become clear from the subsequent section on case selection, we have opted for a *strategic* selection of objects rather than a *random* selection because this increases the relevance of our claims. If cases were selected randomly chances would be higher that we end up with those cases that cannot tell much about the hypotheses, e.g. because those stations were not much affected by delays. By purposively selecting cases attuned to the hypotheses, it is more likely that we identify comprehensive answers to the research question. As such, the recommendations for other station projects or future stations projects gain strength.

A second general characteristic of case studies is that they require a labour intensive approach combined with an open minded on-site observation (Verschuren & Doorewaard, 2007, p. 183). For the best way to observe the process around a new station project is to get close to those involved in it. The labour intensity furthermore comes forth from our choice to want qualitative results instead of quantitative results. For the former it could suffice to design a question form and send it around to many addressees. A disadvantage of that approach is that (most) questions must be formulated in a closed fashion which is too great a constraint in our study. For we want to be able to accommodate our questions both to the specifics of each individual *unique* case and to the *uniqueness* of each personality that is interviewed. Furthermore, interviewees give much more and more valuable information during a personal interview than in a closed question form. Therefore, personal interviews with persons involved in station projects play an important role in this study.

There are two variants of case study research to consider (Verschuren & Doorewaard, 2007, p.187). The first is a *single case* design in which only one object is investigated. We, however, have opted for a *multiple case* design in which several objects are investigated. This is also called a *comparative case* design because the results for each individual case can be compared with the results for other cases. However, we prefer the terminology *multiple* above *comparative* since implicitly also single case designs are comparative in nature albeit then not with another investigated case but with an ideal or standard model (Swanborn, 2003, p. 23). The different results of the cases will put us in a position to identify constraints and facilitators in the development of new regional railway stations. So, the multiple case study will aid us in providing recommendations as to how this development can be improved.

---

<sup>21</sup> A *negative ground* which “is connected to limitations of the situation in which we want to perform the study” does not apply to our study (Swanborn, 2003, pp. 31-2).

The comparative case study design is performed with the *hierarchical* method. This method knows two phases. In the first phase, all selected cases are investigated in isolation, i.e. separately and independent from each other. Preferably, all cases are dealt with in the same approach. This is important, because there should be no influence from one case to another: results from one case should not influence the approach towards another case in order to maximise the independence in the analyses of the cases. Only in the second phase results of all cases are compared so that the differences between them can be analysed (Verschuren & Doorewaard, 2007, p. 187).

Summing up this discussion about case study research it can be concluded that we have opted for a multiple case design based on hierarchical selection. The next section elaborates on how this approach led to the selection of our cases.

## 3.2 Cases

After establishing that case studies are the proper method to test our hypotheses, it is necessary to select which cases are put under investigation. Time constraints do not permit that all eligible cases are chosen, so a selection has to be made. Because we want the study results to be accurate and reliable it is important that proper cases are chosen. To ensure that that is the case several general criteria for selection have been laid down. Next, attention is given to the fact that the set of cases chosen is relatively uniform in terms of local conditions. This has to do with the fact that some stations are simply easier to realise than others. That is because every station is unique: in a unique place with a unique morphology. The near surroundings of the station play a role in the ease with which realisation can be expected. In short: realising a *plank in de wei* (platform in a pasture) is easier than a two-platform station in the middle of a dense urban area. With the general eligibility criteria and the criteria for the set of cases in place, the actual selection of cases can take place.

### 3.2.1 General eligibility criteria

The problem statement of this thesis already presents the first two criteria: the slow realisation of *new* (1) *railway* (2) stations. From this we deduct firstly that our interest is in *new* stations only: that means that something new must be constructed in a spatial-physical sense in order for trains to be able to (un)load passengers. In some locations where a new station is in demand a station has been in existence in the (mostly quite distant) past. When no traces of these stations are left, these locations in practice face the same conditions for (re)opening a station. So, as long as this is the case, it is not a problem if there had been a station on exactly the same location in the past. This thesis is not concerned with reconstruction of existing stations currently in use.

- 1) The railway station is *new*.

Secondly, although apparently obvious the research is restricted to *railway* stations. That is to say that stations serviced by trams or subway (underground) are excluded. In recent decades there has grown some fuzziness in the borders between such modalities with the arrival of several new modal concepts (hybrids). These new concepts are usually summarised as *light rail*<sup>22</sup>. This group, however, conveys quite a lot of different modalities with various transportation concepts. It ranges from some form of upgraded tram to new forms of regional train traffic. This is not the place for an in-depth discussion of which concept is allowed and which ones are not. In the Netherlands the distinction can be made easily. All (heavy) rail belonging to the railway network is assigned by law. So, the legislator has already made the choice of which railway lines belong to light or heavy rail.

2) The station is a *railway* station.

Thirdly, the station has been opened no more than five years ago (so after 2007) . This criterion has both scientific as well as purely practical aspects. The scientific aspect is to preclude interference by changing circumstances and changing policy landscapes. The railways are in a state of (organisational) flux mostly as a result from the EU-driven policies towards liberalisation (see e.g. Smeenk, 2006). The practical aspect is that the longer ago a new station was opened, the harder it is to investigate it, i.e. to find documents about it and especially to find those people that have been involved in the realisation of it. In addition, memories tend to grow vaguer or even become distorted as time progresses (Swanborn, 2003, p. 39).

3) The station has been *opened no more than 5 years ago*.

Fourthly, the planned railway station must be on an existing railway line. Furthermore, this railway line must be in service. This criterion serves to filter out all those stations that are (re)built as part of a larger project, e.g. to reinstate an abandoned railway line. Within such projects it would not make sense to investigate the realisation of a station in isolation because that station and the larger project are not mutually exclusive. That is to say, the station cannot be realised without the realisation of the larger project. Realising the larger project can be expected to be accompanied by a completely different dynamic (as a much more substantial project) than would apply for the station alone.

4) The railway station is *on an existing railway line*.

---

<sup>22</sup> Defined by Van der Bijl, Van Witsen & Baartman (2009) as: Light rail is “public transport by rail in cities and urban regions that – in contrast to train and metro (underground) – is adaptable to integration in the public space and can be mixed with road traffic”

Fifthly, this thesis investigates the process from initiative to realisation in detail. When this process has not yet been completed, it is too early to conclude anything from it. So, this study is ex-post: the causes of several established problems are evaluated *afterwards* and not during or even beforehand (ex-ante)

- 5) The railway station has been completed and is *in operation*

With these five eligibility criteria in place the total population from which to select cases can be determined. A complete list can be presented relatively easily for the Netherlands as it is being kept update on a Wikipedia page<sup>23</sup>. It numbers little over a dozen.

### 3.2.2 Delay required

Obviously, considering the fact that this thesis investigates the duration of station projects and more specifically delays experienced during realisation, it is best to choose those cases that precisely share those elements. Station that were realised on short notice cannot tell much about the hypotheses. In combination with the general eligibility criteria developed above, the three cases chosen for this research are:

- Maarheeze
- Westervoort
- Sassenheim.

### 3.2.3 Accounting for local conditions

Each station project is unique, for no single station location is perfectly equal in terms of spatial surroundings and conditions on the track. Earlier this was termed 'local conditions'. The impact of these local conditions is not the explicit object of study, but they must somehow be accounted for in the case selection. It is good to realise where local conditions have been 'easy' or in contrast 'difficult'. Moreover, if the cases exhibit similar levels of difficulty in terms of local conditions, the cases are comparable between themselves. In terms of the railways, local conditions comprise among other things of maximum allowed speeds, proximity of signals, presence of freight traffic, etc.), but also off the track (density of housing or other land uses) with its consequences for the availability of space and the need for alleviating measures (e.g. noise reduction). In fact, such local

---

<sup>23</sup> See [http://nl.wikipedia.org/wiki/Lijst\\_van\\_nieuwe\\_spoorwegstations\\_in\\_Nederland](http://nl.wikipedia.org/wiki/Lijst_van_nieuwe_spoorwegstations_in_Nederland) for a full list of new stations opened on the railway network in the Netherlands from the 70s onwards.

spatial conditions determined by the local spatial-physical morphology could be considered an additional factor influencing the dependent variable: duration of station projects.

It is impossible to entirely neutralise the effect of local conditions, because a station is bound to a certain location (where people want to use it) and has no use to be built in a random location. The presence of local conditions, nevertheless, somehow has to be accounted for in the case selection. That is why is defined here in more detail, in two aspects:

*Railway specific conditions*

- 1) There is substantial co-use of passenger trains (intercity trains) or freight trains (more than 5 per direction per day) which more quickly leads to conflicts with other trains
- 2) The site is on double-track: A single-track prevents overtaking and more quickly leads to capacity problems with trains coming from the other direction

*Spatial environment*

- 3) The station is situated in a densely built area (instead of a meadow) leading to higher scarcity for land
- 4) The station is situated in a highly urbanised surrounding implying that more compensatory measures in terms of noise reduction are required

The figure below shows for the case selection how these stations are valued in terms of the above mentioned aspects.

	<b>Substantial co-use</b>	<b>Single / double track</b>	<b>Built / non-built area</b>	<b>Urbanised / non-urbanised</b>
<b>Westervoort</b>	Yes	Double	Semi-built	Semi-urbanised
<b>Maarheeze</b>	Yes	Double	Non-built	Non-urbanised
<b>Sassenheim</b>	Yes	Double	Non-built	Semi-urbanised

*Figure 3.1: Local spatial conditions for the case selection*

The three stations are relatively similar in terms of local conditions. All are on double-track railway sections with substantial co-use of intercity or freight traffic. None of them is in a highly-built or highly-urbanised area. If these aspects are valued in + | 0 | - symbols the picture is clearer (where + means easy conditions, - means hard conditions):

	Substantial co-use	Single / double track	Built / non- built area	Urbanised / non- urbanised
<b>Westervoort</b>	-	+	0	0
<b>Maarheeze</b>	-	+	+	+
<b>Sassenheim</b>	-	+	+	0

*Figure 3.2: Local spatial conditions for eligible new railway stations valued*

All three cases on average are relatively middle way between easy and hard conditions, although slightly more balanced to the ‘easy’ side. Between the three, the conditions for Maarheeze are lightest, for Westervoort hardest. It can thus be expected that these stations do not suffer from disproportional delays arising from local conditions.

### 3.3 Sources

This section is about the sources that have been used in this study. They can be categorised in two: written sources and interviews. To start with the former: for the chapter outlining the theoretical framework recourse has been sought to academic literature, either in the form of books or journals. In addition, use has been made of journals from the field of public transport (trade journals, not necessarily academic journals). For the case investigations extensive use has been made of media sources, mostly newspaper sources disclosed through the internet. Media reports have been excellent to help produce the picture of the stage-by-stage process that the stations under investigation experienced. Newspaper articles, however, usually lack depth and analysis, they merely describe events. That is why a very important contribution to the research comes from interviewees, the second category.

In the empirical stage considerable attention is given to interviews with experts from the field. The interviewees can be divided in two groups: those involved in the development of the stations in the cases; those not involved in those cases. That latter group can in turn be split in two: those involved in the development of another station that was not a case in this thesis<sup>24</sup> and those who were not involved in the development of a specific station but are nevertheless experts in the field of public transport.

---

<sup>24</sup> Why such persons were interviewed at all is the topic of the chapter on the reflection on this thesis at the end

The interviews have been conducted in a semi-structured fashion. Several statements with regard to the development of new regional railway stations were presented to the interviewees to which they could react in freedom. As such, the interviewees were in a position not only to comment on the hypotheses but also to qualify their opinions. It is not only important to have it established that one or other factor causes delay (or not) but especially why this is the case according to the view of the interviewee. They were specifically asked to answer questions from the role in the completed project, but were nevertheless allowed to transcend that position.

With regard to the group of case-specific interviewees: The exact constellation of actor types varies slightly across station projects. Parties that always play a role are the municipality, the operator and the infrastructure manager. Depending on the station location either a province or a city-region is a participant. In some cases, both are. So where the actor types vary only slightly, the actual actors involved provide some more variation, for the operator is not always the same one. The graph below shows for the chosen cases which actors are applicable.

<b>Station</b>	<b>Operator</b>	<b>Infr. Man.</b>	<b>Nat. Gov.</b>	<b>Province</b>	<b>City Region</b>	<b>Municipality</b>
Westervoort	Syntus	ProRail	Rijk	n/a	Arnhem-Nijm	De Liemers
Maarheeze	NS	ProRail	Rijk	Brabant	SRE	Cranendonck
Sassenheim	NS	ProRail	Rijk	Zuid-Holland	n/a	Teylingen

Figure 3.4: An assessment of the actors involved for each case

The graph displays 11 different actors. For each of those an employee involved in the development of the station project is interviewed. An exception has been made for Syntus which, being obliged contractually by the regional government to service the new station, did not play a significant role in the development of the new station. By addressing all actors, they are in a position to state their perception of the facts and their opinions on them (and on other actors). It has to be admitted that actors such as the Rijk are not ‘monolithic’ in a sense that they consist of various departments such as transport, planning and finance. It cannot be supposed that all these departments work towards the same goals in the same manner and that they do not disapprove of each other’s policies and actions (Gallagher, Laver & Mair, 2006). The same goes for provinces, city-regions and municipalities, but it may also be true to some extent for the non-governmental actors: also those are organised according to some sectoral divisions. However, in order not to complicate the already complex constellation of actors, we have decided that it is reasonable not to make this nuance. For in practice,

actors may be internally divided, eventually their actions can be only one. Considering the fact that the eventual action taken is decisive in the station project, it is acceptable not to deal with the process leading towards that action internally.

In order to be able to qualify the statements by all the interviews, additional interviews have been conducted with several experts from the field of transportation. Most of those are active in the sector as consultants and are regularly involved in the development of railway stations. There have also been interviews with two persons member of a non-profit foundation dedicated to the realisation of one the cases. Even though their focus is thus specifically centred on one case, they have not been a formal party to the project and can thus be considered as relative bystanders. The major contribution of these additional interviews especially of those in the consultancy sector lies in the fact that these interviewees have a high level of expertise and moreover are (more) independent than interviewees from actors directly involved in one of the discussed cases. A list of those interviewed can be found in the appendix.

### **3.4 Presentation**

For each of these cases a detailed timeline is developed. On this timeline all developments with regards to a particular station project are brought together. Specific highlights are laid on those developments that have repercussions for delays as presented in the hypotheses to this study. Naturally, if developments with the potential for delay outside of the hypotheses are detected, these are also discussed. The timelines also serve to highlight the moments in time when the two important decision-making moments take place as suggested by the project development stage model. These are firstly the decision to proceed with plan making after a demonstration of positive feasibility, secondly the decision to construct the station on the basis of a detailed design including a cost specification. The timelines include a column with a listing of the expected data of completion and the expected amount of costs. As such, the process of incurring delay and upwardly fluctuating costs can be made visible. As such, it can be shown how the linear process going from initiative to realisation in reality gets distorted into a non-linear pattern and if and why this leads to delays.

### **3.5 Conclusion**

This chapter has discussed the methodology of this thesis. First a research strategy was chosen and in line with that decision the method of case studies. An elaborate case selection process followed in which, firstly, several criteria were presented and, secondly, provisions were made to ensure that the whole set of cases is balanced in view of the unique local conditions of every station location. Five

cases were subsequently selected. These are performed in order to shed light on the validity of the hypotheses that were drawn up in chapter 2. The results thereof are presented in the next chapter.

## 4 Investigation of station projects

The Netherlands is a country of some 16.5 million inhabitants and 41.500 square kilometres in size. It is a relatively small country that is densely populated. Unsurprisingly the rail network is as a result also rather dense measuring some 6.830 kilometres in length (ProRail, 2011) on which 391 stations can be found. On most tracks trains are run at relatively high frequencies. In fact, the Dutch railways are frequently claimed to be the most busy in all of Europe (Lloyd, 2009, or Treinreiziger, 2009). The proportion of goods traffic is relatively small (ibid.), probably due to the fact that Netherlands have an attractive competitor for freight traffic in the form of inland waterways.

Several dozen of the current 391 stations have been opened in the past few decades. In the previous chapter three stations have been chosen for an in-depth investigation. The results of that investigation are presented in this chapter. Each case is discussed in turn. The order of the cases is random: Maarheeze (section 4.1), Sassenheim (4.2), and Westervoort (4.3). In chapter 5 the case findings are followed by an analysis.

### 4.1 MAARHEEZE

Maarheeze is a small town situated in the south-eastern part of the Netherlands in the province of Noord-Brabant. It is a part of the municipality of Cranendonck which hosts some 20.000 inhabitants. A little over 5.250 of them live in Maarheeze. The other inhabitants are shared between the towns of Budel (9.050), Budel-Dorplein (1.550), Budel-Schoot (2.100), Gastel (650), and Soerendonk (1.700) (Cranendonck, 2010). As can be seen in figure 4.1 below displaying a map of Maarheeze and its surroundings, all these town centres are rather dispersed spatially. The railway line between Eindhoven and Weert passes the town of Maarheeze on its eastern flank. The western flank is delineated by the A2 motorway linking the same cities. Considering this geographical layout, a new station in Maarheeze would benefit first and foremost the citizens of Maarheeze. The inhabitants of the other localities in the community of Cranendonck are less directly affected. Eventually, the station has been opened on 13 June 2010.

The case report of Maarheeze is structured as follows: In 4.1.1 the history of train stations in Maarheeze before the renewed demand for the current station is briefly sketched. In 4.1.2 the process is described as to how the new station was put on the political agenda. Sections 4.1.3 – 4.1.6 deal with the progress of this aim ever since culminating in the station's realisation in section 4.1.7. Section 4.1.8 concludes this case with a summary in the form of a timeline.

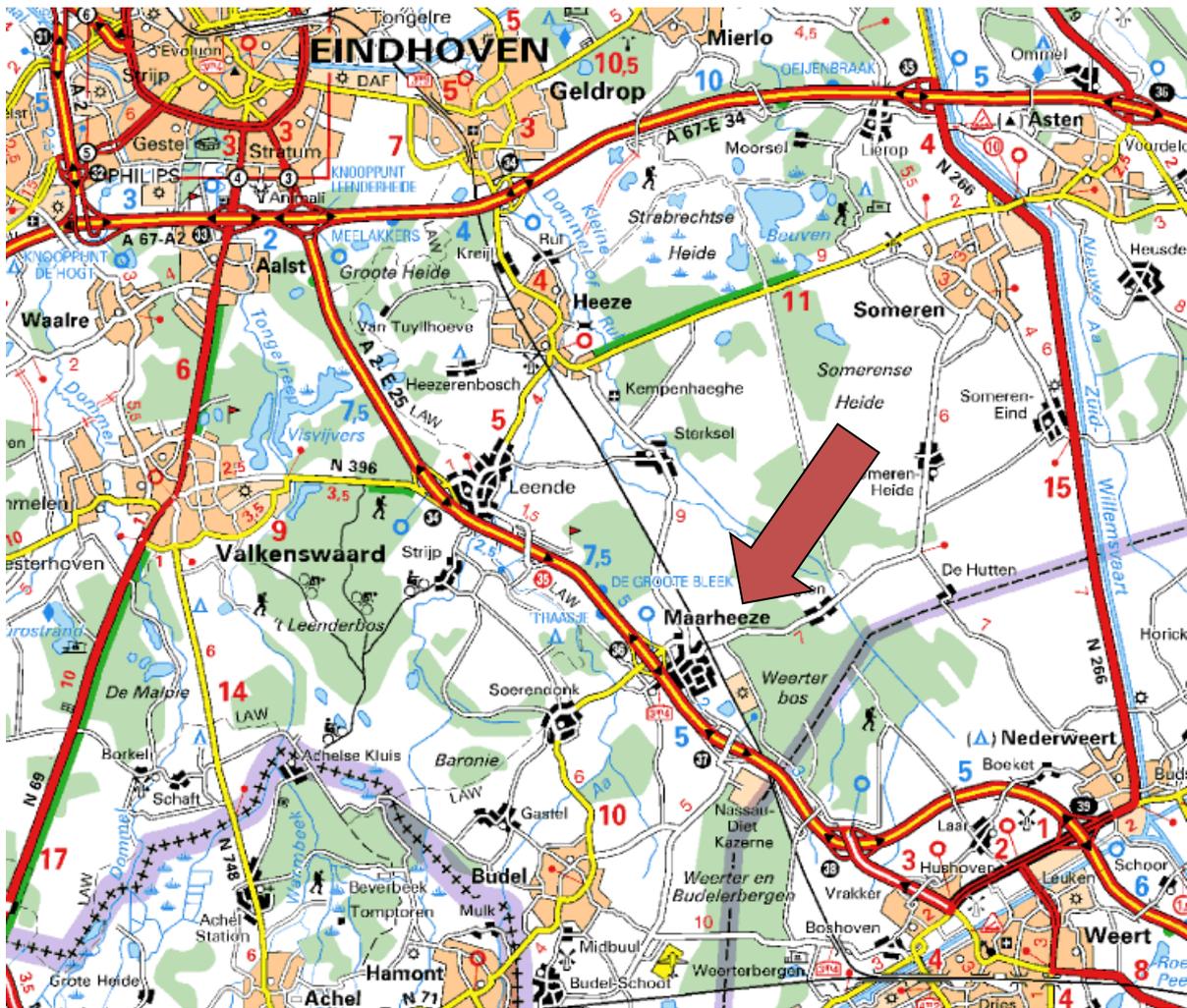


Figure 4.1: Map of Maarheeze and environs: source: [www.viamichelin.com](http://www.viamichelin.com)

#### 4.1.1 Prelude: the old station

Maarheeze already once had a railway station at its disposal, albeit a relatively small period of time. This has been from 1913 to 1938, so merely 25 years. The remnants of the station were cleared up in 1966 (terminal) and as recently as the early 90s (other infrastructures) (Stationsweb, 2012a). Paradoxically, with the clearing up of the station the demand for the reopening of the station grew. Already in 1985 a feasibility study was performed in which a moderately positive answer was given to the question whether the station would be economically feasible at all (Hofstra Verkeersadviseurs, 1984-5). Another feasibility study published more than a decade later (1998) was rather negative about the potential of a new station in contrast (Cranendonck, 2007). Nevertheless, the demand for reopening surged amounting to debate in political assemblies such as the municipal and provincial councils. In the early 2000s a new feasibility study was announced by the regional government SRE (Stadsregio Eindhoven).

#### 4.1.2 The resurgence of the early 2000s

The announcement in January 2001 (ED, 2001) by the city-region SRE (Stadsregio Eindhoven) to conduct another feasibility study for the station of Maarheeze can be seen as the starting point which eventually led to the opening in 2010. This is considered the start of the initiative phase. Of course, it can be argued that the feasibility study of 1984-5 should be the starting point, but we feel that the long period in between during which no developments whatsoever could be recorded is simply too long (more than a decade) to be considered part of the same process. That is not to say that events suddenly were high paced after the announcement in January 2001. More than two years later, in February 2002, the provincial government entered the arena by sending plans for the station to the national transport ministry. Near the end of the year another statement is issued, this time by the transport ministry, SRE, and the municipality of Cranendonck jointly, consisting of a wish to study the feasibility of a station before proceeding with plan development. At the time, all parties involved expected that as soon as 2006 a new station could be opened, provided that its feasibility was demonstrated (ED, 2002a, 2002b, 2002c).

In 2003 there have been practically no developments on the station project itself. More importantly in the background, however, was the policy vision issued by the provincial government on the intended spatial-transportational direction for the region. Several 'scenarios' for this future were produced between which at the end of the study the policy makers could choose. The choice fell on the so-called *Stadsrandscenario* in which spatial development was supposed to be concentrated on the edges of existing urban centres preferably along railway lines that could offer quick transport to and fro the city centre, usually by building a new station along an existing line (ED, 2004a). Maarheeze is not such a place, it is not situated close enough to any of the larger urban areas in the province. Therefore, no station in Maarheeze was envisaged in this scenario implying that (to say the least) no financial support from the province could be expected. A station in Maarheeze was part of another scenario (the so-called *Weidescenario* in which spatial development was mostly situated away from existing congested urban areas) but that was considered less attractive by the policy makers. Paradoxically, this choice has proven to be a milestone in the development of a new station, for an unsuspected reason: The rejection of a new station in Maarheeze by the choice for the *Stadsrandscenario* was the direct cause for the establishment of what was later to be called the

Stichting Station Maarheeze (SSM)<sup>25</sup>. This is a civil initiative of several inhabitants of Maarheeze that did not agree with the rejection of the station.

#### 4.1.3 The Driebos location

The *Stadsrandscenario* was chosen early 2004. Nevertheless, it was envisaged in the study that a new station in Maarheeze could potentially attract as much as 2.750 users in 2010 (ED, 2004b). In terms of average numbers of users of stations all around the Netherlands this is a very high number indeed. Naturally, this fuelled debate as to whether the station had potential regardless of its falling outside the preferred spatial scenario.

The SSM almost immediately on its foundation gave a new twist to the debate. So far, the attention had been on the reopening of a new station on its ancient location near the town centre where the former station had been. The SSM, however, argued that a location more to the south called Driebos had more potential. The argument was that, in spite of the fact that the location Driebos is further away from the town dwellings, its access routes especially in relation to the A2 motorway are excellent. By this and other road links the new station would also be much more accessible for the other town centres in the municipality of Cranendonck (ED, 2004c). This idea quickly materialised politically. In a rare event the Dutch national carrier NS wanted to discuss this idea with both the SSM and the national transport ministry (ED, 2004d, 2004e). Political support for the station was becoming widespread: Cranendock (SSM, 2004), SRE, and the parliamentary commission in the provincial government (CC, 2004a). The regional government, however, continued to turn down the idea after already rejecting the station in the *Stadsrandscenario*. Nevertheless, the city region of SRE announced a new feasibility study (again!) for the station halfway 2004 (ED, 2004f). Near the end of the year the SSM demonstrated there was also considerable societal support by presenting the mayor of Cranendonck some 7.000 autographs (CC, 2004b), “nearly half of the population of Cranendonck” according to a member of the SSM.

---

<sup>25</sup> On its foundation the SSM was called *Collectief Station Maarheeze*.



Figure 4.2: the contested locations for the station of Maarheeze; below the out-of-town Driebos location that eventually won the contest; source: Google Maps

At the beginning of 2005 the business case that was announced by city region SRE halfway 2004 was presented (ED, 2005). It stated, interestingly, and with a feeling for understatement that “for a considerable time already there have been discussions on the construction of a station in Maarheeze” (Goudappel Coffeng, 2005). Another interesting feature about the study was that, even though the SSM has grouped actors in favour of the Driebos location, the business case suggested that the location in the town centre should be preferred. The SSM reacted by claiming that the potential P+R function of location Driebos had been underestimated. Surprisingly, it was supported in this claim by the ANWB, traditionally a cyclists union, today mostly an car owners association. As a result of its constituency (membership) the ANWB is a very powerful interest group. The support of this group was thus heartily welcomed by the SSM.

#### 4.1.4 A temporary station then?

At the start of 2006 the idea for a temporary ‘skeleton’ station surfaced, a station built with the lowest possible standards as to minimise costs. This idea came out of the vaults of the provincial headquarters, so far the party proving to be the least supportive of the station. It was thought that a skeleton station could be built both easily and quickly. As such, the station could ‘prove’ itself in reality (De Grenskoerier, 2006). When successful (many users) the station could be rebuilt or refurbished to become a ‘regular’ station. When unsuccessful (few users) the station could be

deconstructed at small costs. As such, high costs for repeated studies into the users potential could be prevented. In addition, a temporary station could be an attractive idea because of the upcoming major reconstruction works on the A2 motorway that runs parallel to the railway line. It was clear by then that a 'normal' station could never be completed in time before the construction work would start. Eventually, the temporary station would never surface.

It was at the same time (early 2006) that the SSM succeeded in placing the issue on the national political agenda. Eventually the station even became the subject of formal questions addressed to the national minister by a member of parliament in the Second Chamber (SSM, 2006a). Eventually this resulted in the minister claiming (in the Second Chamber of Parliament) that the station could be realised as early as 2007 (SSM, 2006b). At the provincial political level a resolution was accepted unanimously which said that the provincial government should instruct the infrastructure manager to start working out a detailed plan for the realisation of the station. In October this became reality (ED, 2006a). The resolution also reserved €1,25 million as a contribution for the preparation and construction costs of the station. It nevertheless turned out quickly that 2007 would be too soon for the new station. In March 2007 the municipality issued a project plan with a detailed planning section: opening foreseen in December 2008 (SSM, 2007). A few months later, however, the infrastructure manager reacted by stating the early 2009 would be the earliest possible date for the station to open (ED, 2007a). Nevertheless, and importantly, in November 2007 the national minister announced that the transport ministry would make a considerable financial contribution for the realisation of a station in Maarheeze (ED, 2007b) Early 2008 Cranendonck followed suit with a contribution of € 0,5 million (ED, 2008). At around this time, however, the first signs of another important 'side discussion' emerged, paradoxically about buses.

#### **4.1.5 The bus saga**

In January 2008 the discussion about bus lines gained momentum. It revolved around the question how the bus network around Maarheeze should be organised after completion of the station. City region SRE had proposed a network with quite a few changes which ignited some concern among local dwellers. Some were concerned that with the new bus network they would be (far) worse off, even with the station realised. This discussion soared in local and regional media and would last as long as until the end of 2009. It thus lasted almost two years.

At the heart of the discussion was the so-called 'feeder-philosophy' which says that trains are the main bearer of regional public transport. Buses should feed passengers to the train network. Bus connections should not run parallel to trains and connect directly. Rather, they should connect stations to and fro. Buses and trains as such reinforce each other in an integral network. The idea is

that this philosophy guarantees the fastest connections for the greatest number. Moreover, it reduces 'unnecessary' parallel running of bus and train and as such is more efficient (speaking in terms of costs mostly).

However, not all are enthusiastic about this philosophy. Complaints can be summarised in the following items, all of which played also in the discussion around the new station of Maarheeze; the new public transport 'grid':

- Necessitates additional transfers
- Forces me to make a detour
- Requires me to buy a separate ticket for both train and bus (less comfortable, more costly)

Because of the wider legal framework in the Netherlands the third complaint could not be dealt with in any way by regional actors (at the time ticket integration was controlled by the national government). The first and second, however, were mitigated by effecting some changes to the proposed new bus grid. This could only be done after negotiations with the train operator who demanded extra payments for halting at the new train stop also when passenger numbers were lower than expected. The train operator feared that if the bus network was not downgraded to some extent, the station would lose competitive power to it.

The bus discussion played significantly and not only in the background. In June 2009 a delegation from a political party (the SP, very left wing socialists) with three prominent party members<sup>26</sup> visited the town of Maarheeze and declared their support for keeping the existing bus network intact (ED, 2007-2009<sup>27</sup>). All this attention presented policy makers with a dilemma: either giving in to the demands of NS and have the station, but at the costs of significant local discontent. If this were not enough, another surprise surfaced in the wake of the bus network discussion.

#### **4.1.6 The points affair**

Halfway 2007 a consultancy firm commissioned by the infrastructure manager reported on the conclusion of a design study. A total of four variants were proposed ranging from €4,66 to €14,25 million of which the cheapest was given preference. More importantly, it was asserted that relocation of a nearby points<sup>28</sup> was not necessary (ProRail, 2007a). That was important considering the fact that relocating points is a costly affair.

---

<sup>26</sup> These were: Jan Marijnissen, Agnes Kant & Emile Roemer

<sup>27</sup> Because of the flood of newspaper coverage on this debate, the reference is here simplified

<sup>28</sup> Points are interchanges between tracks; so at points trains can change tracks

Preparations continued with the municipality adjusting the spatial plan in order to make the development of the station possible with regards to its physical integration. As said, early 2008 financial contributions from the national ministry and the municipality were made. In May 2008 the train operator sent in its guarantee to service the station upon completion. The realisation of the station finally seemed to have gained momentum. In September of the same year, however, a major 'shock' settled in. While working out a provisional design to a more detailed design it was found out the relocating the nearby points was not inevitable after all (ED, 2009). Estimated costs of this change: €1,6 million. Relative to the €4,66 million for the entire station as was envisaged until then, the additional €1,6 million can be called a substantial cost increase. Interestingly, the 'discovery' was made by the same independent consultancy firm that initially stated that the points relocation was *not* necessary.

This discovery no doubt delayed the arrival of the station, as more financial resources had to be secured. Very reluctantly, the municipal council of Cranendonck accepted a budget increase from €0,5 to €1,0 million. The provincial assembly followed suit by increasing its contribution with €1,7 million. Finally, also the national ministry raised its contribution with €0,75 million. By then, some three quarters of a year had lapsed. Ironically, when the infrastructure manager eventually organised the tender for the construction of the station, the agreed sum was no less than €1,5 million *lower* than the estimate. This was partly a result of the economic crises that was budding at the time. It could be said that three quarters of a year was lost searching for money that eventually turned out not to be needed.

#### **4.1.7 Realisation**

At the start of 2010 construction of the station could finally start. The estimated date of opening of the new station was set on 13 June (SSM, 2009). This date was met. No drawbacks were experienced during the construction stage. So, after more than nine years after SRE had first declared its intent to have a feasibility study conducted for the station, a train finally really halted in Maarheeze. In 2002 still it was asserted by the province of Noord-Brabant that realisation could be matter of fact in 2006; in 2006 the national minister claimed in Parliament that the station could be realised by 2007. The business case in 2005 estimated total costs between €2,5 and €2,75 million. Eventually, the station had cost some €5 million. What does that money get you? Two platforms of some 200 meters length, bicycle sheds on the both sides of the tracks (160 places), 75 parkings lots and a new bus stop. And not to forget, 2 trains halting each hour in both directions.

The timeline summarises all major events for the station of Maarheeze. This is done in a standardised format which eases comparisons with the other cases to come. As starting year has

been chosen the announcement by the city region to have a feasibility study conducted. Even though this could be considered the third (!) feasibility study in a row, it is felt that after the first two periods of inactivity were simply too long (more than 10 years after the first, 3 years after the second) that these could not seriously be taken as starting points. They are nevertheless mentioned below.

<b>MAARHEEZE - timeline</b>				
<b>Year since start</b>	<b>Quarter</b>	<b>Event</b>	<b>Expected year of opening</b>	<b>Estimatd costs (in million €)</b>
-16	NN	Feasibility study (1) by Hofstra Verkeersadviseurs		
-3	NN	Feasibility study (2) by RailNed		
0	1	SRE announces feasibility study (3)		
1	3	Ministry does not want to act before feasibility study is published	After 2006	
	4	SRE executive vies for station	2005 / 2006	
2	3	Policy vision on PT by SRE hesitant on Maarheeze, a 'possible' development		
3	1	Policy vision on spatial development by Province: no station for Maarheeze	Withdrawn	
	1	Foundation of civil initiative (CSM, later SSM)		
	1	First mention of Driebos location by SSM		
	1	SSM in provincial parliamentary commission: parliamentary majority support, provincial executive nevertheless refuses station		
	2	SSM invited by NS to discuss ideas		
	2	All parties discuss 'transferium' station		
	4	Station included in regional transport plan by SRE	2006	
	4	SSM presents maire 7,250 autographs		

<b>4</b>	1 Automobile and cyclists union (ANWB) joins supporters of station		
	1 Publication of feasibility study (3); positive feasibility confirmed; preference for old location	2006 (dec)	2.5 to 2.7
	1 Province, SSM & ANWB disappointed in lack of attention for P+R potential; province withdraws		
	2 SRE & Cranendonck present feasibility study to NS & ProRail		
<b>5</b>	1 Province re-enters with idea for temporary 'skeleton' station		
	1 Station emerges on national political agenda: formal questions in Second Chamber		
	2 New provincial executive in support of station		
	2 Province reserves €1.25 mln		
	3 NS states in letter to province that 'at first sight' a station in Maarheeze has potential	2007	
	4 All regional parties commission ProRail for design study		
	4 Message from Minister to Second Chamber: "In 2007 Maarheeze will have a station again!"	2007	
<b>6</b>	1 Planning for station issued by municipality: no station before December 2008	2008 (dec)	
	2 Publication of design study: 4 variants, no relocation of nearby point required	2009 (jun)	4.7
	4 Minister announces financial contribution of €1.25 mln		
<b>7</b>	1 Start of discussion on proposed changes to the bus network		
	1 Municipality reserves €0.5 mln		
	1 SRE contributes €1 mln; province raises to €2 mln		
	2 to 4 Municipality adapts spatial plans		
	2 NS issues guarantee to service station		
	3 Provisional design shows that nearby points must be relocated after all; costs: €1.6 mln		6.3
<b>8</b>	1 Station delayed to mid-2010	2010 (june)	6.6
	1 Municipality reluctantly raises to €1 mln		
	1 Province raises to €3.7 mln		
	2 Contract between province, municipality and ProRail for construction of station		
	2 Ministry raises to €2 mln		
	3 Tender presents financial leeway: €1.5 mln less costly than estimated		5
	4 NS and SRE reach agreement on financial risk of keeping bus network intact: less than 1,000 passengers are compensated; ending the role of the bus discussion for station development		
<b>9</b>	1 Construction starts		
	2 Opening		

## 4.2 SASSENHEIM

The next station that is discussed here is Sassenheim. Sassenheim is a town in the province of Zuid-Holland in the western part of the Netherlands also known as the Randstad. Until 2006 it was a municipality of its own, but from the 1<sup>st</sup> of January that year the municipality merged with two other towns (Warmond and Voorhout) under the new name of Teylingen. The new municipality hosts some 35.000 inhabitants of which some 15.000 reside in Sassenheim. Figure 4.2 displays a map of the region around Sassenheim. The town is situated right next to the A44 motorway linking Amsterdam and Leiden / The Hague. Parallel to the motorway runs the railway line connecting the same urban centres. The railway line is called the *Schiphollijn* after the national airport that can be seen in the top right corner of the map.



Figure 4.3: Map of Sassenheim and environs: source: [www.viamichelin.com](http://www.viamichelin.com)

The municipality of Teylingen is rather compact. The town of Voorhout is close by. The town of Warmond is somewhat further away across the A44 motorway. Warmond is practically part of the agglomeration of Leiden. Voorhout has a station of its own (since 1997) but on another railway line, the one linking the urban areas of Leiden and Haarlem (Stationsweb, 2012b). A new station in Sassenheim eventually opened in December 2011.

The case report of Sassenheim is structured as follows. In 4.2.1 the initiative phase of the station is discussed. Sections 4.2.2 to 4.2.5 discuss the development phase culminating in a construction decision. Lastly, section 4.2.6 deals with the construction and opening of the station.

#### **4.2.1 Initiative for a new station**

In 2004 the first signs for the initiative can be traced. In July of that year the then still independent municipalities of Warmond, Voorhout and Sassenheim requested the provincial government of Zuid-Holland to investigate the potential for a station in Sassenheim on the location Warmonderdam (HR, 2004a). The idea was debated in the municipal partnership Holland-Rijnland<sup>29</sup>. It was claimed that a station in Sassenheim had “a very high chance to be realised” as it complied “with ease to all criteria set by NS and ProRail” (HR, 2004b). This signifies a lot of confidence in the successful bid for a new station on behalf of the municipalities. Interestingly, this forum already opted for another location for the new station: Wasbeek. In its reply to the municipal letter the province left no doubt as to the location to be preferred. It said that if a station on the location Warmonderdam be realised, an annual contribution of € 250,000 to NS would be required in order to cover exploitation losses. In other words: that location would not attract passenger numbers high enough to outweigh the costs of stopping at the station. It is not clear how this figure was exactly calculated. It is not unlikely that the province overestimated to some extent the financial contribution in order to strengthen its call for a station on the location Wasbeek. It was also said that a station at the Warmonderdam would mean a delay in the realisation of a station as a result of the spatial programme at that location. A station at Wasbeek could be realised “in the short term” without annual financial contributions to NS. The short term was then defined as early as December 2006 (HR, 2004c).

---

<sup>29</sup> Holland-Rijnland is a partnership of no less than 15 municipalities in the southern part of the Randstad. The municipality of Teylingen is one of them. The partnerships rests on voluntary cooperation and has no formal powers.



Figure 4.4: Contested locations for station Sassenheim; top right the location Wasbeek that was eventually preferred; source: Google Maps

#### 4.2.2 Location choice

In the beginning of next year (2005) more good news followed: the national transport minister announced a financial contribution for the new station (HR, 2005a). The contribution amounted to € 8.5 million but had to be shared with another station project in the same region (near Schiedam). The minister did not indicate a partition of the contribution between the two stations (ZoetermeerOV, 2005). The first half of the year there is more quarrel as to the station location. The municipality prefers the Warmonderdam, while the province prefers the Wasbeeklaan. Even though contrary to its preference, the province co-finances additional studies to the Wasbeeklaan location. There results thereof nevertheless convinced all parties of the location Wasbeeklaan in September (HR, 2005b).

Now that the location choice had finally been taken in favour of the Wasbeeklaan, the regional partners decided to request ProRail to conduct a design study for that location. The half year lost in the uncertainty about the location directly lead to a half year delay; the station was now expected to be up and running mid 2007 (HR, 2005b). It would not be the last delay.

### **4.2.3 Local resistance and a small tunnel**

In 2006 and 2007 not much progress could be recorded on the station project as resistance among the local dwellers mounted. The resistance centred on the effects of the proposed new road layout around the station. Initially it was planned to 'selectively' close the road crossing the rails (with a tunnel, so non-level) for all traffic except those locals that needed to get through in order for them to reach their homes. Both NS and ProRail rejected this idea as they considered this would worsen unacceptable the level of safety for both pedestrian and cyclists trying to reach the station. In response the municipality then proposed to block the road completely, but this ignited strong resistance from the locals. The resistance had some success, as in October 2006 the municipality decided that a total block was off the program (Leidsch Dagblad, 2006).

The road tunnel passing underneath the railway posed a problem in another way. As a condition for its support for the station NS demanded that the station at least be serviced by one regional bus service. The idea is that such a bus service brings travellers to the train as the station functions as a transfer opportunity. The only way to cross the station, however, is by the tunnel. In 2007 it appeared that the then current tunnel was too small for buses to pass through. This meant that the tunnel had to be widened, a costly affair which would in principle have to be borne by the municipality (the party responsible for the local roads). In May 2008 the province came to aid financially by providing a million € to the municipality. By then, the expected date of opening had already lapsed more than two years to December 2009 (Leidsch Dagblad, 2008).

### **4.2.4 A new spatial plan and expensive cables**

In June 2009 the municipality organised a public information meeting, partly to assuage local resistance against the station. At the time the municipality was undertaking the required acquisition of land and changes to the spatial plan, the last of which open to complaints by all legal persons. A complaint was made by seven legal persons, all were eventually rejected. In November the adjusted spatial plan was irrevocably set by the municipal council. In the third quarter the municipality commissioned the study for the non-rail related aspects of the station. The expected date of opening lapsed another year to settle at December 2010 (HR, 2009).

In January of the subsequent year (2010) the Wasbeeklaan road again got to the centre of attention. The municipal councillor considered that 'additional delay' is not unrealistic. The reason: In addition to widening the tunnel underneath the rails, it had also to deepened (so that higher vehicles could pass). However, at the site 'expensive cables' are directly beneath the surface which have to be moved in order to be able to deepen the tunnel. Costs so high that it was now considered to build an altogether new road as access route to the station (!) (De Teyding, 2010a). An idea that the was not

followed up eventually, but the councillor was right in his estimation of more delay. In June he proclaimed that the station would be fact of life mid 2011. In the same month the municipality was finally able to issue the building permit for the construction works to start (De Teyding, 2010b). At the end of the month the construction actually started.

#### **4.2.5 A station without trains**

The construction works on the station were finished in April 2011. It was expected at the start that trains could halt at the station by mid 2011 when the operator performs small changes to the timetable (as it does each year in the middle of the year). However, the municipality needed the remainder of the year to work on the access to the station, including the works on the tunnel. After this additional half year, the first train could finally halt at the new station in December 2012.

The total costs for the station were € 10.0 million. The national ministry contributed substantially with € 8.0 million (Rijksoverheid, 2011b). The contribution was much higher than initially foreseen, and thanks to the inclusion of the station in the multi-annual programme on spatial planning and transport (MIRT). Incorporation in this programme yields significant additional financial resources from the national level. The province contributed the remainder of € 2.0 million. The municipality only had to incur costs for the preparation of the access routes, the square and the bus stop. What does one get for that amount of money? Four (peak hours) or two trains halting each hour in both directions, 300 hundred parking places for P+R opportunities, 630 bike sheds. It is expected that on a daily basis 2.000 passengers will use the station (NOS, 2011; De Teyding, 2011).

## SASSENHEIM - timeline

Year since start	Quarter	Event	Expected year of opening	Estimatd costs (in million €)
<b>0</b>	2	Request by municipality to province to investigate potential for new station		
	3	High confidence in station potential displayed in Holland Rijnland executive		
	4	Response of province: location Warmonderdam unfeasible, location Wasbeeklaan high potential	2006 (dec)	
<b>1</b>	1	Transport minister reserves € 8.5 million to be shared with other station		
	1	Municipality in principle supporting Wasbeeklaan, nevertheless conducting additional studies for Warmonderdam		
	3	Additional studies not showing any other perspective than before, so location now definitie (Wasbeeklaan); design study requested	2007 (mid)	
<b>2</b>	4	Municipal decision to annull road closure of Wasbeeklaan after local protests		
<b>3</b>	2	NS demands bus line to service station; the only possible road goes through the tunnel which is too small for buses to pass		
<b>4</b>	2	Province announces € 1.0 million in subsidy to the municipality, a.o. for adjusting the tunnel	2009 (dec)	
	4	Province raises its contribution to € 2.0 million including the station in the Stedenbaan programme		8.1
<b>5</b>	3	Municipality commissions design for non-rail aspects of station	2010 (dec)	
	4	All complaints against adjusted land use plan rejected		
	NN	Inclusion in MIRT project book		

<b>6</b>	1	Tunnel adjustments require replacement of 'expensive cables' --> alternative access route to station investigated		
	2	More delay announced	2011 (mid)	10.0
	2	Building permit issued to ProRail		
	3	Construction works start		
<b>7</b>	1 & 2	Station completed		
	3 & 4	Non-rail aspects (square, access routes, tunnel) under construction		
	4	Opening		

### 4.3 WESTERVOORT

The next case is the station of Westervoort that was opened in December of 2011. Westervoort is a town in the eastern part of the Netherlands in the province of Gelderland. It is a municipality of its own and hosts some 15,000 inhabitants. Figure 4.3 shows a map of Westervoort and its environs. The town is situated close to the city of Arnhem, nevertheless separated from it by the IJssel river. A bridge on the nearby provincial road connects the two sites. A little further away lies the A12 motorway with its own river crossing. Directly next to the provincial road bridge lies the railway bridge of the line connecting Zevenaar with Arnhem. Apart from being in the province of Gelderland, Westervoort along with 19 other municipalities also takes part in the city region of Arnhem-Nijmegen (seen in the bottom of the map).



Figure 4.5: Map of Westervoort and environs: source: [www.viamichelin.com](http://www.viamichelin.com)

#### 4.3.1 RegioRail and beyond

Just like Maarheeze also Westervoort already once had a station before, from 1856 to 1936 (Stationsweb, 2012c). The first mention of a new station in Westervoort could be traced in the *Ontwerp netwerknota* that was adopted by the provincial government in 1999 (Provincie Gelderland, 1999). In a regional masterplan for public transport that followed some two years later also the city region of Arnhem Nijmegen saw it fit to reopen the station of Westervoort. This masterplan was called *RegioRail KAN* at the outset but is nowadays known as *Stadsregiorail*. The main tenet of the programme is to offer high-frequent (light) train services across the city-region. Apart from Westervoort, the programme also aims for the development of railway stations on other sites. One of those has already been completed in May 2009 (Mook-Molenhoek). Two others (Zevenaar-Oost & Nijmegen Winkelsteeg / De Goffert still await realisation, while two more have been scrapped from the list because of too low feasibility (Arnhem Business Park & Wijchen-West) (Stadsregiorail, 2012).

The *Stadsregiorail* masterplan was started in 2001, but preparations for the new stations did not follow suit. When the masterplan was adopted it was thought that a new regional railway station at Westervoort could open before 2006, but the first feasibility study for the station of Westervoort was conducted in 2003. We consider this as the start of the initiative stage, because directly after the adoption of the *Ontwerp netwerknota* and *Regiorail KAN* nothing concrete was initiated. The study indicated a positive feasibility for the station in terms of expected passenger numbers (V&W, 2009b). In March 2004, the municipal council of Westervoort agreed on the realisation of a new station. No definite choice was made for a location at the time (Stadsregio Arnhem Nijmegen, 2004a). This was followed in April 2004 by the choice for a so-called 'preference-alternative' for the entire RegioRail plan. The station of Westervoort then was thought to be realised still before 2006 (Nijmegen, 2004). More good news followed later that month from the national level: the transport ministry was to contribute an additional €10.4 mln. for the RegioRail project. In her policy note to Parliament the minister claimed that the among the two first projects to be realised was the station of Westervoort (Stadsregio Arnhem Nijmegen, 2004b). Later that year the municipal council of Westervoort chose a location for the station near the centre of the town, which left nothing wanting as to start development (Westervoort, 2004).

#### 4.3.2 Capacity, curves, slopes

In 2005 the first problems arose in the development of the station. The problems can be categorised in two different elements. The first one is the 'discovery' that at the intended station location the rails are both in a slight curve and a slope. At the site the railway is already gaining altitude for the river crossing (bridge) in the direction of Arnhem. Even though the curve and slope are very minor

(see the map in figure 4.6 to see the alignment of the 'curve'), ProRail has a policy in which practically no curve or slope are permitted. ProRail, trying to be a 'constructive' partner proposed to alter the station location more to the east (further from the bridge). However, this was a location away from the town centre and not the location approved in the municipal council. The location was also not included in the feasibility study, which meant that were this location really an option, some sort of feasibility test had to be redone. The attitude of ProRail caused major discontent with the project partners and halted development: ProRail refused to continue on the original envisaged location.

The second problem that came to the forefront was the lack of capacity of the railway. Or not exactly the railway in Westervoort, but the platform capacity of the nearby main station of Arnhem. The development study showed that not enough platforms were available if the additional stop in Westervoort had to be made. The situation was not helped by the fact that the operator (Syntus) was running relatively old trains that accelerate relatively slowly. It might well have been that this problem inflicted the *coup de grâce* for the station plans, were it not for the fact that significant reconstruction works at the station of Arnhem were envisaged including an extension of platform capacity. Arnhem is one of six stations in the Netherlands with a high-speed train stop about which the national government decided to finance large scale reconstruction works to make these stations attractive multi-modal transport nodes. Arnhem was one of the first of these stations to be reconstructed, but its realisation was at the time still lying in the future. Moreover, the size of the project meant it to be a multi-annual event and unfortunately, this project experienced significant delays of its own.

#### **4.3.3 The '2<sup>nd</sup> phase' of preparations**

In February 2006 an agreement was made between the city region and the municipality which regulated mutual responsibilities including financial contributions (Stadsregio Arnhem Nijmegen, 2006). An interesting discursive aspect here is that the agreement was framed as the start of the *second* phase of preparations, a misnomer for the scarce development of the years before. By now it was already clear that a station by 2006 was no longer realistic. The regional executive indicated when the agreement was signed that the end of 2008 would be more realistic. Nearing the end of the year, however, it lapsed to 2009 already. It appeared that the city region was in a deep struggle with ProRail. The latter party indicated that it was useless to further develop the station before the reconstruction of the station of Arnhem was completed. The city region, however, believed that it could convince ProRail of the possibility to have a stop in Westervoort even before an additional platform in Arnhem was realised. A detailed proposed timetable was sent to ProRail to that effect, but without the desired result. In the words of the combative regional executive: "And if ProRail says

2009 is not an option, then we struggle as long as necessary until we are proven right". He furthermore claimed that a new station by 2012 (when the reconstruction of the station of Arnhem was foreseen) was unacceptable. He nevertheless admitted that his own organisation, the city region, has not been sufficiently expeditious over the recent years (SP, 2006).

Testimony to the confidence at the city region's headquarters was the leaflet about the state of affairs of the RegioRail project issued early 2007: In the words of the municipal executive "the station is realised by the end of 2009" (Stadsregio Arnhem Nijmegen, 2009). In May 2007 the city region formally requests ProRail to investigate a timetable *with* the station of Westervoort for 2009. Half a year later the unsurprising formal reaction came: the station cannot be realised before 2012 even in line with the suggested timetable. A highly displeased regional executive prostrated with the national minister for support. Testimony to his chagrin was his suggestion to let another party than ProRail realise the reconstruction of Arnhem (SP, 2007a). Early December one of the highest managers of ProRail reconfirmed that in no way a station could fit in the timetable before 2012. He added that it is not even unlikely that even that date cannot be met (SP, 2007b). By now, the city region seemed to acknowledge it could not win this 'battle'. As a 'compromise' ProRail suggested early 2008 that already all necessary procedures could be started so that as soon as the reconstruction of Arnhem was completed the station could be inaugurated.

#### **4.3.4 Still another location?**

In the course of 2008 ProRail thus started to continue preparations, but in October surprised the city region and the municipality by suggesting another location after all for the new station. This obviously did not land well. The municipality felt that already some time ago the municipal council has decided the location for the station and that ProRail should not mingle in that. Moreover, the municipality had integrated the station project in a wider town centre renewal scheme. The city region claimed to be stunned that after five years of the project this 'discovery' should turn up (De Gelderlander, 2009). Nevertheless, after intervention by the national minister, the city region saw itself forced to have the alternative location investigated. Moreover, the city region should cover the costs of this additional research (SP, 2008).



Figure 4.6: Contested locations for the station of Westervoort; the top left location near the town's commercial centre was eventually chosen; source: Google Maps (note that the station sign placed by Google Maps is somewhat off the mark)

In May 2008 ProRail presented for both locations several (preliminary) design alternatives. Some of the alternatives were rather drastic. In order to overcome the slope on the original location, one alternative proposed to elevate the tracks over a distance of 400 to 500 metres (!) The preferred alternative included a new tunnel under the railway. This alternative was developed further. The location put forward by ProRail earlier was thus abandoned. At the end of the year the preliminary design was concluded. It was indicated that because the chosen location did not fit in with minimal design standards the operator had to take measures to minimise the 'gap' between the platform and halting trains (in Dutch this is infamously called the *instapspleet*). In addition, an exemption to the standards had to be applied for with the national railway inspection. The city region decided to demand a higher financial contribution from the municipality. At the end of 2009 a new project manager was appointed by ProRail. As a result some changes had to be made to the design; costs (€35,000) to be borne by the city region. In March 2010 the municipal council agrees to increase the financial contribution for the realisation of the parvis and the parking lot. In May the definitive design was completed after which the wait began.

As was already indicated by ProRail, there was no use in realising the station before the completion of the reconstruction of Arnhem. No less than a year later the construction works on the

actual station started. Half a year later the station was officially opened, almost ten years after the feasibility test was conducted. Total costs: €10.3 million, the brunt of which borne by the city region (€9.7 million), the rest by the municipality (€0.6 million). Interestingly, even though four trains each direction pass the station during most of the day, only two of those actually stop. It was intended that all four were to stop at Westervoort, but the trains currently employed are not capable of accelerating quickly enough. From the end of 2012 it is expected that also the other two trains can stop at Westervoort as new trains are being brought in by a new operator having won the tender for the provision of public transport in the region.

## WESTERVOORT - timeline

Year since start	Quarter	Event	Expected year of opening	Estimatd costs (in million €)
-4	3	Policy vision "Ontwerp netwerknota" approved by provincial government in which Westervoort is highlighted as a location for a new station		
-2	2	Adoption of masterplan for public transport in city region Arnhem Nijmegen in which a new station of Westervoort was announced	Before 2006	
0	3	Publication of feasibility study: positive feasibility		
1	1	Municipality agrees with station plans		
	2	City region adopts preference-alternative for RegioRail	Before 2006	
	2	Transport ministry contributes additional €10,0 million to RegioRail, part of which intended for Westervoort		
	4	Municipality chooses location for station near city centre		
3	1	Agreement between city region and municipality on mutual responsibilities and cost division		
	4	ProRail indicates dependence on completion of reconstruction of station in Arnhem; city region refuses	2009	
4	1	Leaflet of RegioRail; municipal executive claims: by 2009 a new station		
	2	Formal request by city region to investigate timetable alternatives to fit in station without waiting for completion at Arnhem		
	4	Formal reply by ProRail: even proposed timetable alternatives not feasible	2009 / 2012	
	4	City region suggest to minister to have other party than ProRail to conduct the reconstruction at Arnhem		

<b>5</b>	1	Turmoil in local council on position of ProRail; city region still adamant to realise the station long before 2012		
	3	ProRail 'suddenly' wishes to investigate new location because of curve and slope at the originally intended location		
	3	Municipality declines proposal, but after intervention of the minister the city region admits and finances additional studies for alternative location		
	4	Start of design phase		
<b>6</b>	2	Preliminary design alternatives for both locations completed: alternative location abandoned and preference for new tunnel at originally intended location	2011 (end)	
	4	Preliminary design concluded: measures required by operator to minimise 'gap' between platform and train; derogation procedure required by city region at the national inspection for transgressing minimal design standards		9.7
<b>7</b>	1	Adjustments to design at the request of new project leader at ProRail		
	2	Municipality agrees with additional financial contribution		
	2	Definitive design concluded and adopted		
<b>8</b>	2	Start construction works		10.3
	4	Opening		

After this discussion of three cases of station development in the Netherlands, the next chapter wraps it all up and analyses the development in the light of the hypotheses that were laid out at the start.

## 5 Analysis

This chapter brings together the results of the three case studies that were presented in the above. It starts by wrapping up the actual duration of the different development stages. Secondly, a concise analysis per case follows, leading, thirdly, to an analysis in which all three are taken together and attention is paid to the hypotheses of this study.

### 5.1 Duration of station projects

Now that for three stations the development process has been laid out in detail, this process can be divided in the stages of project development: initiative, development, realisation. As said before, this division simplifies reality, but has analytical value. It is therefore useful to compare the stations in this regard.

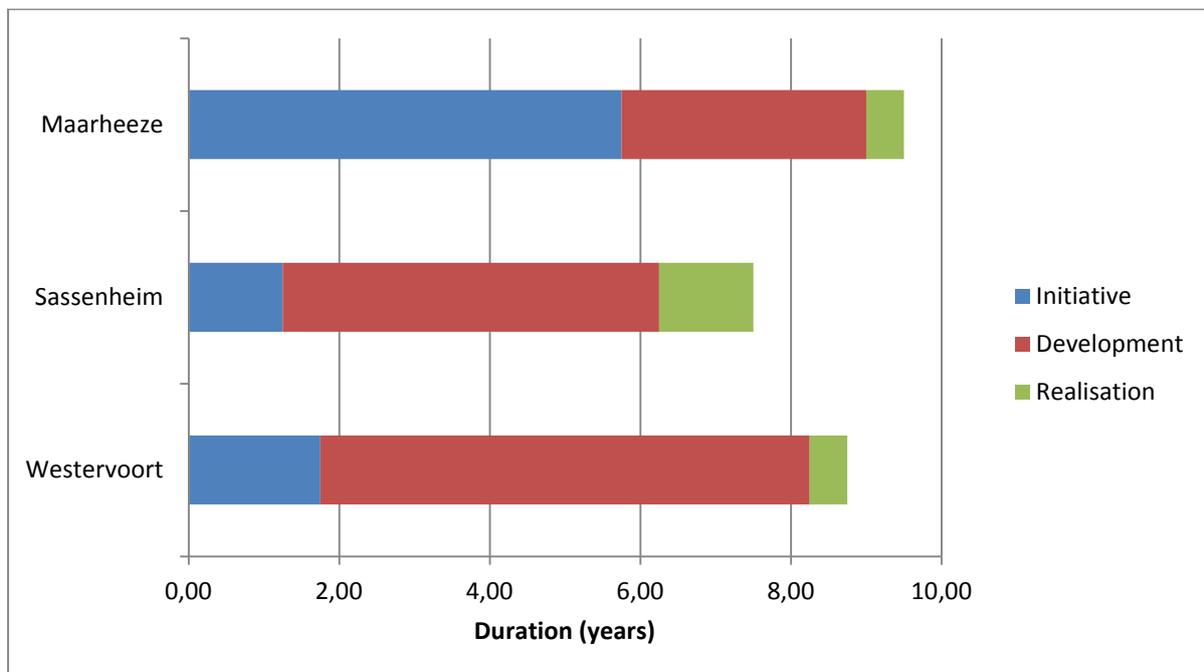


Figure 5.1: The duration of project stages of the station project cases

In total, the station projects lasted from 7 years and 3 quarters (Sassenheim) to 9 years and 2 quarters (Maarheeze). These figures should be taken with some caution. Especially the start of the initiative stage is sometimes difficult to establish. This has already been explained for Maarheeze, but for the other cases something similar applies. Nevertheless, the figures give a good indication of project duration. As was assumed in the theoretical part, the realisation stage indeed seems rather unproblematic, taking only half a year for both Maarheeze and Westervoort. Sassenheim required a year and a quarter but this was not due to construction works on the station itself which was

completed in roughly half a year as well. The works on the tunnel railway crossing conducted by the municipality caused the additional construction time in display here.

The development stage has taken roughly between 4 and 6 years for the three cases, Maarheeze being the quickest. Nevertheless, precisely this station experienced a very long initiative stage of almost six years. For Sassenheim and Westervoort this took less than 2 years. The reason is simple and will be elaborated upon in the analysis below: Maarheeze had to struggle long against negative feasibility. Sassenheim only faced this problem on an alternative location and for Westervoort negative feasibility was never a question at all.

The *duration* of stages does not necessarily say something about *delay* even though they provide a signal. Therefore, a closer look must be taken at the events that were discussed in detail in the previous chapter. Next follows the analysis in the order of the hypotheses.

## 5.2 Administrative complexity reviewed

The first hypothesis centred on the Elverding thought about administrative complexity, the excessive amount of participating actors and their mutual dependencies. Two dimensions are relevant here: the amount of actors active in the station project and the dispersal of production power among them. The question is whether production power is centred in those parties which have control over transport policies. It is easiest to discuss both these elements actor by actor. The (core) actors identified are at least four parties: a regional (province of city-region) and a local government (municipality), the infrastructure manager, and, the operator. In most cases, however, a fifth player in the form of the national government is present. In some cases a sixth actor plays a role where both a provincial government and a city-region are responsible to some extent for public transport. Next follows a discussion for each individual actor in which the level of initiative for new stations is contrasted with the level of production power.

### 5.2.1 The national level

A very frank question about the involvement of the national level could be: Why should the national minister responsible for national (transport) policies and projects be bothered by new stations that only have a local and regional function? The national Parliament from time to time lobbies for the realisation of one or other regional station. The minister typically replies that it is a matter for the regions to decide. Is the minister right and are MP in Parliament wasting his/her and their own time? Not exactly, for the financial aid by the national ministry can be quite significant. However, this does not prevent that at times ministers have issued statements in Parliament (about expected opening dates, the most notable example being Maarheeze about which the Parliament was informed

repeatedly of opening dates that eventually turned out not to be met. In addition, the regional players have no formal position themselves versus the railway parties (both NS and ProRail) which are commissioned by the national ministry. The national ministry, however, has not proven itself to provide strong guidance for the railway sector even though it is the owner of both NS and ProRail. Such guidance is certainly not given where it concerns, from a national perspective, relatively small scale new stations. Moreover, the national level certainly does not initiate plans for new stations itself.

Formally, the minister must allow any new station to be developed, but in reality, the minister simply takes over the recommendations of ProRail in this light. If ProRail sees fit for the station to be realised, the minister agrees. The financial contributions by the national level could be considered as some production power, but it should not be forgotten that this contribution is not obligatory (!). That is to say: The regional and local governments can decide to refrain from applying for a national subsidy and finance new stations themselves. Taking these elements together, the production power of the national level is qualified as 'some'.

### **5.2.2 The regional level**

The regional level consists of provinces and city-regions. They are true entrepreneurs for new stations. Usually regional governments have masterplans for the development of the transportation network including the realisation of several new stations. They assume leadership in projects for new stations and, moreover, invest considerable financial resources towards their realisation.

In some areas, where a city-region and a province share jurisdiction, both can be active in the development of one and the same station. This has been the case for Maarheeze. It had detrimental effects for the development of the project, because the leadership was not clearly defined. Moreover, the political support especially from the provincial level is best described as a flashlight going on and off continuously: Where ironically the provincial decision not to develop a station in Maarheeze proved to be the turning point in the realisation of the station, eventually the provincial government spent several million euros as subsidy on the station. In the case of Westervoort, the provincial government chose not to play a role in the development of the project and left it to the city-region. In the case of Sassenheim, no 'double jurisdiction' applies.

Nevertheless, even though in cases provinces and city-regions can work against each other, they are the parties taking the initiative for new stations. However, this is not matched by a high level of production power. As said, their financial contributions are highest of all, but apart from that they possess no other production power. That makes them very dependent on other actors which do possess these production powers.

### 5.2.3 The local level

The local level consists of municipalities. In practically all instances they are staunch supporters of a new station in their constituencies. This is perhaps not so surprising as a new station in the first place implies better accessibility for the locality itself. In addition, for local politicians it is a nice project to demonstrate leadership and ability. Even so, they leave the project leadership to the regional government and their financial contribution is modest. They nevertheless in cases exert strong opinions on, for example, the exact location for the station e.g. in the case of Westervoort where a strong link was made by the municipality between the masterplan for the town centre and the new station. Admittedly, this master plan was adapted to integrate the new station and costs for the master plan were borne by the municipality. Otherwise, except for the costs for adjustments in the nearby infrastructure (parking spaces, bus stop), municipalities seem to expect to get stations almost for free.

Municipalities, however, exert some production power in the form of their spatial powers. They are at the pinnacle of power controlling land use and permits for construction works. A new station always requires a construction permit to be issued. Moreover, the municipality must cooperate in integrating the station with the surroundings (accessibility by road, bike sheds, etc.). Theoretically, this power can be overruled by a provincial government. This is a rare event. The option has not existed for a long time yet, but it seems not to relate well with the typically Dutch consensus culture. Their position seems not to be in jeopardy. Municipalities thus possess a moderate level of production power.

### 5.2.4 Infrastructure manager (ProRail)

The only infrastructure manager in the Netherlands is ProRail. That means that it governs a rail network several thousands of kilometres in length. At the same time ProRail has to lead large scale projects of supra-regional or even national scale and projects of a more local scale such as new stations. Naturally, ProRail has, like any organisation, constraints to its organisational capacity, so it cannot do all projects at once and at the same time. In terms of the development of new stations ProRail has a rather passive stance. New stations are not the projects the organisation can show off with in the public realm, and, importantly in terms of priority setting, there are plenty of stations on demand by local and regional governments from which to choose. This explains why ProRail perhaps cannot be expected to meet local demands as quickly as some regional and local politicians might wish to see.

The infrastructure manager has most production power of all. Its cooperation in a station project is vital, because without the support of ProRail no alterations whatsoever are possible to the rail network. It is the only party with the legal right to make changes to the existing railway network (a new station is considered such a change), either by itself or in commissionership. It also implies that ProRail is required to cooperate with governments, which does not mean simply accept all their demands. On the contrary, ProRail has proven itself rather a strict enforcer of norms.

Most of the minimum norms to which new stations must comply have been established by ProRail itself, such as the *Basisstations* norms (minimum quality standards for new stations). Another example are the norms for determining whether a new station fits in the existing timetable. In the case of Westervoort this was a problem. While ProRail simply said 'no', the city region tried hard to convince ProRail of a 'yes', even going so far as to hire expertise on the market making an own calculation on a hypothetical new timetable. The infrastructure manager could not be convinced. Lastly, the norms for alignment in curves and slopes have also played a role in the case of Westervoort. These norms are meant for security purposes, but as already discussed, there is a trade-off with effectiveness and efficiency. Meeting norms usually implies costs, but ProRail does not bear any costs by itself, so from that perspective ProRail itself has no incentive to lower norms or make them more flexible. The norms are never evaluated in those terms, at least not publicly.

### 5.2.5 Operators

The main operator in the Netherlands is NS. This discussion limits itself to that player since the other operators all reside under regional tenure. Regional governments can simply require the cooperation of an operator by integrating it in its concessionary arrangements. Except in the case of NS because that party falls under the responsibility of the national ministry. Which, as said, is not using its powers (ownership) to move the operator in one or other direction where it concerns the development of new stations.

At the same time, the NS is a huge economic player in the Netherlands and thus has considerable power of its own. Similarly to ProRail, it has to deal with thousands of kilometres of railway tracks on which its trains run, which could explain why local demands for new stations typically are not welcomed wholeheartedly. Ever since the reorganisation of the railways (with the separation between operators and the infrastructure manager) NS has not made any proposals by itself for new stations. It thus follows the demands made on it by local and regional governments. In terms of production power, NS is in a relatively strong position. Its cooperation in a station project is essential. NS does not have to give formal approval for the construction of a new station, but it

would be rather awkward if a regional government finances a new station after the completion of which NS is not willing to stop its trains at. So, NS is in a position to make demands on new stations. Being expected by the national ministry to run a commercial business, for NS it simply is a matter of financial potential, in this case a synonym for feasibility. No traditional cost-benefit analysis is conducted which incorporates public losses and gains. Instead, in simple terms gains are represented by new passengers, while costs are represented by lower ticket sales from transit passengers discouraged by a longer travel time. If the balance is negative, NS is not likely to give its support to the station implying the abandonment of, or at least a significant delay to the project.

Such feasibility studies are made by NS itself. The results thereof are not (publicly) shared. NS typically considers data about travel movements as sensitive in the market environment (even though as of today NS has a monopoly position and does not have to accept any competitor at all) and is unwilling to share those publicly. This has the negative side-effect that local and regional governments are not always likely to be convinced that indeed there is too little feasibility for one or other proposed station. This may lead to on-going belief on behalf of the parties having the initiative for development in trying to keep the station on the agenda (with due delays included). It is not known whether NS gives recommendations to municipalities for raising the feasibility potential of a new station.

### 5.2.6 Conclusion

The twofold hypothesis for administrative complexity is:

1. More than two actors are involved in the development of a new station

This hypothesis clearly has been found true for all investigated cases. At the minimum four actors are required in any station project: the regional government leading the project, the municipality for its spatial powers, ProRail in its role as exclusive controller of the railways and NS in its role as monopolist operator. Obviously, these four actors do not always agree on station development. In relation to the second hypothesis for administrative complexity, this turns out to be a serious cause for delays. This second hypothesis is:

2. Production power is not centred in those parties that are in control of transport (including infrastructure) policy, implying the involvement of additional actors

The above section describing the role of each actor and its instruments in station development (production power) can be summarised in the following figure:

Actor	Initiative (level)	Production power
National government	Low	Moderate
Regional government	High	Low
Local government	High	Moderate
ProRail	Low	High
NS	Low	High

Figure 5.2: the dispersal of production power among participating actors

Interestingly, those parties taking the initiative for new station are those parties with the lowest levels of production power. As such, these parties are highly dependent on other actors (which do have the missing production power), in the first place ProRail and NS. If one of these parties does not want to continue to realise the station, it is inconceivable that the station be realised. Being in this position these parties are able to make demands without any risks involved. As has been shown, the national ministry is the only party which can formally command and control ProRail and NS but in practice turns out to leave these parties to conduct a very independent course of action. Demands that are made (in terms of a minimum number of expected passengers or a maximum alignment in the slope etc.) have a major to potential to cause delays to station projects.

### 5.3 Exploitation potential reviewed

The hypothesis that was formulated for the exploitation potential of new stations was:

1. Proposed new stations suffer from a lack of spatial-economic viability (number of passengers to be expected from the near vicinity too low, or underestimated)

In the three cases discussed it is clear that the station of Westervoort at no time suffered from too low feasibility. Also in the case of Sassenheim feasibility did not play a significant role, especially later in the project. However, the initiative for the station was started somewhat prior to the fusion of three municipalities into one. One of the 'old' municipalities (Warmond) for some time persisted in developing the station on the Warmonderdam. This location suffered from too low feasibility of which the regional government could convince the municipality relatively early in the project.

In the case of Maarheeze, feasibility has played a very important role. In hindsight, it can be said that Maarheeze has always hovered on the edge between positive and negative feasibility. Repeated investigations showed either a small plus or a small minus. This explains the at times lacklustre cooperation of the operator NS. An important role in this respect was played by the SSM which was able to convince NS of the P+R potential for a station on an out-of-town location, n.b. a location that

was investigated to have lower feasibility than the inner-town location (!) This process, however, has taken many years.

The next two elements of the feasibility hypothesis apply where low feasibility has been a problem, so in this case only Maarheeze:

2. Insufficient spatial programmes are proposed nearby a proposed station location to increase the exploitative viability thereof.
3. Insufficient supporting measures in the sphere of mobility policy (feeder bus services, parking policy, mobility management) are taken to increase the exploitative value of new stations.

In a way it is striking that considering the fact that feasibility was such a problem for Maarheeze the municipality (which strongly advocated for the station) did not do anything to raise the feasibility of the station. Not a single home was erected which could increase the amount of expected passengers. This otherwise is core business for municipalities. Of course, the (home)building sector in the Netherlands currently does not have good prospects due to the financial crisis, this was not so at the time the station was in development. That it can be done is proven by another case, in fact one of the earlier cases in this research: Amsterdam Science Park. Of course, Amsterdam as a municipality is in an altogether different league than the small municipality of Cranendonck. Nevertheless, Amsterdam succeeded in convincing a wary NS of the attractiveness of a station near Science Park after disowning several sports fields and subsequently developing housing.

The only thing recorded in our study in terms of feasibility-raising for Maarheeze has been the involvement of a nearby bus transporter which was considering to have the site near the new station developed as a hub for nationwide travellers. It was thought that perhaps some of the incoming and outgoing travellers could be carried by rail, which would save the bus transporter several bus trips. Eventually, another site was chosen to this effect. According to those involved, this did not contribute to convincing the operator of sufficient feasibility, the P+R discourse on the out-of-town location, however, did.

Apart from spatial developments, another typical way to improve feasibility is to link other public transport modes to the station. This has been the topic of intense discussion in Maarheeze. Clearly, the NS wanted the bus services on the same corridor adjusted to feed the new station. From a cost-effective perspective this idea makes sense. However, it was precisely the municipal council which for a long time persisted in refusing all too dramatic changes to the bus network. Obviously, this did not stimulate the NS in continued support for the project.

Also in the case of Sassenheim some scepticism is justified. The municipality itself added to delay on the project by not being able to garner sufficient public support for the station plan and for

consequently losing time on the adaptation of spatial plans, deconstruction works and construction works on the tunnel railway crossing.

#### 5.4 Investment costs reviewed

The hypothesis with regard with regard to design standards and investment costs has proved to be somewhat flawed. This third and last hypothesis was divided in two elements:

1. High costs caused by design standards constrain the development of new stations.
2. Fluctuating costs (upwardly) have a negative influence on the pace of development of new stations.

The research has shown that there is evidence for both hypothesis, albeit inconclusive. Starting with the first, it has been seen that on several occasions high design standards led to high costs. In the case of Westervoort such standards led to the 'sudden' realisation on the part of ProRail that the location that had been developed so far should be forfeited for exceeding maximum allowed levels of the alignment for curves and slopes. The development on the initial location by that time was already in a late stage. This ignited a feedback loop to a new round of development (new provisional design and study). Proposals for an alternative location eventually turned to no effect because the other parties in the project held on to the initial location. ProRail thus saw itself forced to adapt the already made designs for the original location and proposed a multi-million mass land excavation scheme which would eradicate the slope at the site of the station. Eventually, also this plan could be forfeited because the other parties in the project decided to go for an exemption procedure with the national inspection for transport matters.

The second part of this hypothesis was only found to be true for Maarheeze. Westervoort and Sassenheim did not suffer from sudden substantial cost increases. The cost increases for Maarheeze were impressive and often sudden. For example, the sudden surprise of the points (a site where trains can change tracks) relocation. After establishing in preliminary research that the relocation of a nearby points was not necessary, the subsequent design phase showed that it was necessary after all. In this case, no exemption was possible and an additional €1,5 million had to be incurred. Ironically, the public tender for the construction of the station was so much overestimated that in the end the cost increases were almost completely dampened.

Both these issues have caused delay in the project as they 'rewinded' the stage the project was in (the feedback loops in the stage development scheme in figure 2.3). In spite of this, it does not appear that these costs and standards are so important after all. Most of the interviewees, especially

those in consultancies, confirmed that costs are not really an issue at all. When the local and / or regional government decide that they want to have a certain station realised, they will proceed with it, no matter the costs. Initial high costs may put them off, but rising costs half way do not. That has mostly to do with the commitment that local politicians make for specific stations. Once they have committed themselves to it and the first investments are made in preparation (both in terms of personnel and finances) they find it very hard to retreat from the project.

The case of Maarheeze especially has shown that money is not a problem. The above-mentioned surprise requirement of a points relocation led to huge discontent in especially the local council. However reluctantly, eventually all parties swiftly agreed to raise their share of the financial contribution. Some time was lost as in all assemblies this must be talked about, thought over, and voted upon, but eventually the budgets were raised. So, even though the cost aspect of design standards does not cause delay, they do cause delay in the sense that they may lead to a situation in which ProRail rejects one location in favour of another location.

## 6 Conclusion and recommendations

This thesis was ignited on the observation that many new stations in the Netherlands are realised at a very low pace. The path of their realisation seemed full of problems causing delays. The problem statement of the thesis thus was:

*The pace of the development of new regional railway stations in the Netherlands is hampered by delays.*

The aim of the study has been to identify the causes for delay. The research question was:

*Which factors lie at the basis of the delays incurred in the development of new regional railway stations in the Netherlands?*

Factors were identified in three strands: administrative complexity, exploitation potential and investment costs. In every strand a multi-part hypothesis was developed. In order to test the hypothesis, this study has opted for the research method of case studies. Three such case studies were performed of stations that were built in the Netherlands around 2010: Sassenheim, Westervoort and Maarheeze. The study has led to the following conclusions (section 6.1) and recommendations (6.2).

### 6.1 Conclusions

In the process of selecting valuable cases, it was acknowledged that no station is equal to another. That is a result of the fact that any station in a sense is a case *sui generis* because the exact location on which the station is supposed to be realised is unique, an aspect that was denominated as 'local conditions'. A uniqueness both in terms of the direct spatial surroundings (e.g. space available for construction of platforms) and the nearby railway infrastructure and the traffic on it (e.g. co-use of freight trains or intercity services). It has been established that all cases in the selection can be considered middle-of-the-road in terms of the expected difficulty of realising the particular station. The stations, among themselves, thus are comparable. The findings for each case can be summarised in following graph:

	Duration (yrs)	Exploitation potential	Administrative complexity	Investment costs
<b>Maarheeze</b>	9 ½	-	-	--
<b>Sassenheim</b>	7 ¾	+	-	0
<b>Westervoort</b>	8 ¾	++	-	-

Figure 6.1: Scores per station on each independent variable.

The three stations in our selection needed between 7 ¼ and 9 ½ years to materialise, indeed quite a long time considering the middle-of-the-road local conditions that applied. A slight correlation can be established between the factors identified for delay and the output in terms of duration and delay. The strength of the correlation varies for each hypothesis.

The aspect of administrative complexity was found to be true for all cases. The research has shown that there is a strong relation with delay. This delay manifested itself in several ways. For example, all stations suffered some time (Sassenheim) to a long time (Maarheeze) from quarrels on the exact location choice. Especially Westervoort experienced this problem where a location already in development was rejected by ProRail for reasons of alignment norms. In the case of Maarheeze the original location was forfeited for an out-of-town P+R location which convinced several parties to continue with the project, not in the last place NS. Nevertheless, in a subsequent new feasibility study for both locations, the original location again won the battle leading to several actors making another shift or restating their preference for that location. In short, the haggling on location choice has led to delays in these cases.

An element which functions as an important contributor to on-going discussions such as those on the location choice is the sheer amount of actors involved in station projects. At least four different actors participate, two governments (the regional and the local level) and the two parties in the railways (NS and ProRail). In the background a significant role can be played by national government. The abundance of actors with interest and preferences stimulates discussion, especially so considering the fact that those parties vying for new stations do not have the power to realise those. That is the role of production power.

Production power is an essential contribution to a certain development. Without that contribution the development cannot be completed. The production power in terms of new stations is very unevenly distributed among parties. It lies mostly in the hands of parties that cannot be considered to be very interested in the realisation of relatively small new stations. As such, regional governments are at the same time responsible for public transport in their regions but not able to have a station realised without the cooperation of both ProRail and NS. That means that these actors are in a very strong position to have whatever demands they like (to serve their interests). The national government which is, theoretically, in control of these organisations (not only as legislator but also by ownership) is rallying in a discourse of independence of and distance from the parties in the railway. The national government refrains from exerting its control over ProRail and NS in terms of new stations. Alternatively, societal pressure is too weak to function as a stimulus to ProRail and NS for new stations only having local status.

Interestingly, in terms of exploitation potential, a doubtlessly sufficient potential is no guarantee for quick station development. The case of Westervoort experienced significant delays in its realisation even though from the start it was clear that the station had a high economic potential. Also the case of Sassenheim showed a positive feasibility, at least for its eventual location. The case of Maarheeze has shown, however, that a questionable feasibility can lead to long delays. The exploitation potential for a station in Maarheeze has been a bone of contention for many years. It has been especially difficult to convince the NS of positive feasibility, a process in which the SSM played an important and well recognised role (ED, 2004, 2006) by suggesting an alternative location for the station with good potential for P+R development.

Interestingly, no significant proposals were done by the municipality (in control of spatial powers) to improve the feasibility of the station. Municipalities, traditionally strong supporters of a new station in their jurisdiction, are at the pinnacle of power in terms of spatial planning. As such, they are in a position to raise the exploitation potential of a certain location. It could do this by building housing or (small) offices, mobility management, parking prices, etc. None of this, however, has been done in the case of Maarheeze.

In terms of (sudden) cost increases, only the case of Maarheeze experienced those. The hypothesis was thus not found to be true for Westervoort and Sassenheim. The case of Maarheeze on several occasions experienced substantial cost increases. One of the most fundamental of those was the realisation in the design phase (development stage) that at the intended location a points had to be relocated costing €1.5 million. The cost increase was a surprise to all actors, most notably the regional governments (both the province and the city-region) and the municipality. Some time was lost in finding additional budgets and have these approved in all the assemblies. Not to mention the fact that 'surprises' such as these definitely soured relations between the project partners. Ironically, the cost increase of the points relocation was dampened completely by a better-than-expected public tender for the actual construction of the station rendering the budget-raising scene in essence useless.

Nevertheless, several interviewees have indicated that money in most cases is not a problem after all. And so that cost increases are not very problematic. This has to do with the fact that at some point a station acquires such a state of development that the initiating parties feel that there is 'no way back'. This feeling can be explained by the reasoning that it would be a waste to stop projects for which already money has been spent. A more negative interpretation could be that a station project becomes so entrenched in local politicians that the project is personified in them and, as such, closely related to the electoral success in the next round of elections. In the same vein, the

station could have been a 'promise' to society before the elections after which the promise must be held.

An important other aspect about costs should be made about the role of ProRail. As has been clear from the above, this organisation plays an essential role in station development. In fact, it is the only party which is allowed to change the railway infrastructure. A new station is considered such a change. By all its actions most notably that of setting norms ProRail has an enormous influence on the cost layout for new stations. Nevertheless, no finances of its own flow into new stations. Governments pay the bills for new stations, most notably the regional ones. That means that ProRail itself can be expected to be rather careless about costs. One way which this manifests itself is in the contracts (agreements) signed between ProRail and governments. In an agreement between ProRail and a municipality presented to us by one of the interviewees, it could be seen that in the section on costs it was determined that "all costs" that must be made by ProRail in order to realise the station are to be borne by the municipality. ProRail has confirmed this is standard practice for all projects it performs. As such it has no financial incentive to reduce costs. That is significant in a sense that there is thus also no incentive for ProRail in the earlier discussed trade-off between minimum (security) standards and the costs (not only in terms of finances) and as such is likely to favour maximum security (regardless of costs).

To conclude it can be said that most of the hypothesis that were developed for this study have been found true if applicable. The hypotheses on administrative complexity generally were held to be true. The hypothesis on exploitation potential was in fact only relevant for one case; in the other two cases there has not (significantly) been a discussion on exploitation potential. For the one case in which it was applicable, it was nevertheless found to be true. The hypotheses on investment costs were found to be true but at the same time not to be an important contributor to delays. The next section goes one step further by giving recommendation for improvements.

## 6.2 Recommendations

How can the development of stations be organised so that it less likely to be hampered by delays? This is in fact a corollary to the research question which leads to the formulation of recommendations. The recommendations are principally addressed to all actors in the field and follow logically from the conclusions that were drawn in the above.

- 1) Choose a definitive location early (and stick to it)

As has been demonstrated, haggling over the location for the station in some cases contributed to delays in the development of the station. In fact, what happens is that the next step towards

development is not initiated as long as the quarrel persists. Apart from an early joint location choice, it is important to stick to that location. Any new location is likely to require new studies in terms of feasibility and design which require additional time and costs.

2) Do not rely on quick scans for cost estimations (but rather a profound study)

A quick scan is appealing because there are low costs involved in them. It might be considered a success if on the basis of the quick scan the next stage of development can be initiated. Nevertheless, there are risks involved in a sense that a quick scan is only, what it says, a quick scan. This may lead to omissions which sooner or later are bound to surface with due results such as cost increases, the requirement to do additional studies or a changing focus to an altogether new location.

3) Re-evaluate the effectiveness and efficiency of the (design) norms set for new stations in terms of the trade-off between security and affordability

As said, there is a trade-off between norms for safety and security and the costs involved in meeting these norms. A discussion on those norms set by ProRail (in terms of alignment of curves and slopes, fitting in timetables, basic station quality) could be instrumental. Currently, these norms prevail which has, as shown, serious repercussions for the development of station projects. ProRail is in a position to pose these norms without any risks because the regional and local governments have no formal position to enforce anything on behalf of ProRail. Furthermore, ProRail is completely insensible to costs that must be made to meet these norms, because these are not borne by ProRail itself. The national ministry (as legislator and owner) is the only party in a position to give guidelines to ProRail but, at least in the sphere of new stations, refrains from doing so. An evaluation of the norms in which the balance between safety and security on the one hand, and effectiveness and efficiency (affordability) on the other could result in more sensible norms.

4) Minimise participating actors in station projects

It has been demonstrated that many actors participate in station projects. Some of them could be conceived to be outside the project development. In the first place this goes for municipalities. Even though their participation in the project is required for their spatial powers, there is no reason they should mingle in the day-to-day project development. How bad is it for a municipality if it does not have its voice heard? Considering the division of competences and production power it is likely that a municipality does not get its way anyway. Apart from that: a municipality receives a new station at very few costs for the municipality, so it would be reasonable to suggest that its financial contribution be mirrored in a more distant project involvement.

It goes almost without saying that in cases where both a city–region and a province have jurisdiction it is probably wisest if one of the actors simply leaves the project to the other. There is little reason to suspect that the other would jeopardise the interests of the other actors since both are basically responsible for the same in this field: regional public transport. That interest is not necessarily different for a city region as for a province. To prevent competition between the actors, it would be best if one of the two simply stepped out of the project.

Another actor that could be forfeited is the national government. In some cases there is a dependency on the national actor for its financial contribution. This dependency can be overcome by investing in the station by the regional (and local) governments themselves. For example, in the case of Maarheeze there was a constant gaze to the national level for a substantial financial contribution. As Boertjes indicated: the dependence on a financial contribution by the national government leads to insecurities for the project. This in turn leads to uncertainties at the level of the actors running the project, causing to halt decision-making (2009). Regional and local authorities can position themselves more independently and finance new stations themselves. This happened in the case of Westervoort.

To sum up this subsection, an eloquent quote by the chairman of the city-region Arnhem-Nijmegen can be used, indicating that administrative complexity is not always a problem of ‘others’ but that any participant is an integral part of itself:

*“Excessive administrative complexity, this is what you are yourself. Do not consider it something that is external. You are part of the problem, and so you are also part of the solution.”* (Twynstra Gudde, 2007, translation by author)

##### 5) Indications by national government to ProRail and NS

The development of new stations knows quite a lot of dependencies, especially on the parties in the railways, ProRail and NS. It would be instrumental if the parties responsible for regional public transport also had the tools to organise that public transport. In terms of the development of new stations, regional governments do not have these tools. This thesis is, however, not going to give recommendations on a different institutional layout for the sector. This has not been the topic of research and, moreover, it will have other ramifications far beyond the development of stations alone. Nevertheless, we feel that part of the problem could be taken away if the national government would take its role more seriously and act towards ProRail and NS when desirable (e.g. when station projects collapse or are in the doldrums). If the national legislator feels it cannot leave this role to the regional governments it should take the responsibility to take the role itself and not leave it unused.

6) If feasibility is questionable, be creative to raise feasibility

In cases where feasibility is only just sufficient or just below that level: be creative in raising passenger potential. This could be done by more strict feeding of the regional bus network. Cut direct lines and 'feed' the new station. Another option could be the use of mobility management: start a campaign with local employers trying to tempt their employees to use public transport (and hence also the new station). Furthermore, raise parking prices in the city / town centre or even better, the parking prices in a neighbouring city (although that in most cases is in another jurisdiction). Higher parking prices make the use of the railways relatively more attractive. Finally, and strongest: Initiate spatial developments in terms of housing or (small) offices. These are very likely to lead to a higher amount of passengers to be expected as users of the new stations. All these measures could possibly raise the exploitation potential of a new station, making it more attractive for NS to cooperate.

These six recommendations will, if implemented, not be a wizard formula for quicker station development. Nevertheless, they could definitely be effective in accelerating the development of new stations in the Netherlands.

## 7 Epilogue

This section sketches some of the specifics of the process during which this thesis has been completed. Even though the result reads as a continuous line, in reality the research went through several different stages with different scopes. Section 7.1 zooms in on the many alternative case selections that this thesis has known. Lastly, section 7.2 spends some afterthoughts on the results of this project.

### 7.1 Alternative case selections

This study has known many case selections in the process of its completion. Initially, it has been an objective to compare the development of new stations not only in the Netherlands but also in Germany. The idea was that in Germany the development of station projects was significantly higher paced than in the Netherlands. By comparing Dutch and German cases critical success factors could be enlightened for the swift development of station projects. However, reality turned out to be more nuanced. Also in Germany many stations suffer from long delays.

Another difficulty in selecting cases in Germany was that it would add another complex institutional arrangement (in terms of rules, procedures, actors, etc.). The organisation of the railways is highly complex, both in the Netherlands and in Germany. Nevertheless, the arrangements between the two countries differ. The research had to face these differences in order not to have the case comparisons interfered by this aspect. Neutralising the effect of two different complex institutional arrangements was a task too challenging. These reasons combined led us to eliminate the German cases.

Also in the Netherlands more cases were once under investigation. However, similar to the German-Dutch comparison, the local conditions on which projects develop, varies to such an extent that it has proven to be hard to standardise. Each case to a high extent is a case *sui generis*. That is not to say that no lessons can be learned from them, as can be from the three cases in the final selection. Those latter cases have remained after deleting all other cases some of which were more 'successful' in terms of the pace of development. The three cases finally selected in fact are the 'worst case scenarios' in many respects. The idea is that with these cases most problems related to station development could thus be investigated. Still, the evidence from stations that were eventually left out of the case selection has been used in the development of hypothesis and in a few instances it provided good examples of how station projects could be conducted with more success.

In the end, three cases were left in the case selection. We feel that this has been too little. Some of the hypothesis were not applicable for all stations, even further diminishing the relevant cases in which the hypothesis can be tested. There is room for additional research in this respect. It would be

especially interesting to do cases studies for stations that were realised in easy local conditions or alternatively very hard local conditions. Is there a causal relation between the weight of such local conditions and the time needed for stations to be realised?

## 7.2 Afterthoughts

As has been abundantly clear from the conclusions, if the railway parties NS and ProRail do not want something in terms of the development of new stations, it does not happen. Regional nor local governments are capable of enforcing development of any kind. Of course, it could be that NS and ProRail are not necessarily *against* some kind of development (although sometimes they *are*), the priority it has for them (being national players with multiple thousands of kilometres of railways to care for) rests entirely on a lower level than it has for e.g. a municipality which jurisdiction is limited to the municipal boundaries. If it is looked at from that perspective, the unwillingness of ProRail and / or NS to cooperate might merely be a question of priority.

However, although it is very difficult to prove, there is some evidence that the parties in the railways have at times either abused their power position or dogged behind the rules (norms) they set up themselves. This is, however, an interpretation that cannot be defended by this thesis alone. What this thesis has demonstrated is that NS can be adamant about a norm for the minimum amount of new passengers required which is not met by some 40% of all current stations. Moreover, the norm is very random in a sense that it is taken in complete isolation from other more cost-related aspects, such as whether an additional train set is needed to fulfil the exploitation of the line (*ceteris paribus*). Lastly, NS is not very transparent about the research that is conducted in which these norms are tested. A little more openness on behalf of NS could be very instrumental in terms of convincing other actors of a lack of exploitation potential. This could also be taken as a starting point for a discussion with the other actors how to raise the potential of the station.

ProRail for another has proven very rigid in procedural terms. Norms have been established by itself for the development and design of new stations. Such norms can lead to grotesque plans (Westervoort) but also to smaller problems which are definitely not less significant. It could be argued that such procedural strictness is used to fend off a tsunami of enthusiastic municipalities vying for a great many stations. That is, however, probably besides the mark. Interviewees both in and outside the organisation have argued that the procedural strictness is probably more of a cultural reason. Which is: a culture to reduce risks. Where development means taking risks (things are changing), keeping all the same keeps matters at routine. Here lies ample opportunity for further research in terms of the role of organisational culture.

This thesis has been rather negative about the role of ProRail in station development. However, without diluting the conclusions and recommendations of this study, some caution about the verdict on ProRail is required as it has had a substantial amount of negative publicity in recent years (see e.g. the report of the Netherlands Court of Audit, December 2011; and a reaction by the interest group for public transport travellers Rover, 2011). Most of this is totally unrelated to project development but rather to daily operations. Especially in winter seasons when in recent years days of complete breakdown seemed impossible to prevent, the negative emotions about ProRail surfaced. The fate of ProRail (which is ultimately in the hands of Parliament) is very unsure at the time of writing these last words (see e.g. SpoorPro, 2012). This uneasiness is probably not going to be a stimulus to shy away to some extent from the risk aversion so pervasive in the culture of the organisation today. To illustrate the emotions which ProRail can evoke in a station project, one of our interviewees termed ProRail a “Kafkaesque mobsters” organisation. Strong feelings that were mirrored in more than one interviewee.

## References

- AGV-Movares (2008). *Haalbaarheidsonderzoek nieuw station Berkel-Enschot/Udenhout*. Retrieved 19 February 2011 from: [http://www.agv-movares.nl/NL/AGV/Onze\\_projecten/Haalbaarheidsonderzoek\\_nieuw\\_station\\_Berkel-Enschot\\_Udenhout/beschrijving.aspx](http://www.agv-movares.nl/NL/AGV/Onze_projecten/Haalbaarheidsonderzoek_nieuw_station_Berkel-Enschot_Udenhout/beschrijving.aspx)
- ANWB (2011). *Filezwaarte door de jaren heen*. Retrieved 9 March 2011 from: <http://www.anwb.nl/verkeer/nederland/verkeersinformatie/Filezwaarte.html>
- Banister, D. (2007). *The sustainable mobility paradigm*. *Transport Policy* 2008: 15, pp. 73-80
- Bijl, R. van der, M. Van Witsen & J. Baartman (2009). *Nieuwe definitie light-rail*. *OV-Magazine* 2009: 6
- Bijl, R. van der & F. de Zeeuw (2009). *Integratie openbaar vervoer in gebiedsontwikkeling*. *Openbaar Bestuur*: 2009, nr. 8, pp. 2-7
- Brabants Dagblad (2008). *Vierde NS-station is onzeker*. Retrieved 19 February 2011 from: <http://bd.nl/nieuws/tilburg-stad/vierde-ns-station-is-onzeker-1.19068>
- Brabantstad (2004). *Verkenning OV-Netwerk Brabantstad*. Retrieved 2 July 2008 from: <http://www.stationmaarheeze.nl/achtergrond.php>
- Brabantstad (2009). *Stadsrandstations / voorstadshaltes*. Retrieved 12 December 2009 from: <http://www.brabantstad.nl/cms/publish/content/showpage.asp?pageid=405>
- Bruijn, J. A. (de) & E. F. ten Heuvelhof (2007). *Management in netwerken: over veranderen in een multi-actor context*. Den Haag: LEMMA
- Bruijn, J. A. de, E. F. ten Heuvelhof & R. J. in 't Veld (2008). *Procesmanagement: over procesontwerp en besluitvorming*. Den Haag: Academic Service
- CBS – Centraal Bureau voor de Statistiek (2009). *Milieu-investeringen in het verkeer fors hoger*. Retrieved 17 October 2009 from <http://www.cbs.nl/nl-NL/menu/themas/natuur-milieu/publicaties/artikelen/archief/2009/2009-2929-wm.htm>
- CEC – Commission of the European Communities (2003). *Europe at a crossroads: The need for sustainable transport*. Luxembourg: Office for Official Publications of the European Communities. Retrieved 6 September 2009 from: <http://ec.europa.eu/publications/booklets/move/39/en.pdf>
- CEC – Commission of the European Communities (2006). *Keep Europe moving: Sustainable mobility for our continent*. Mid-term review of the European Commission's 2001 transport White Paper. Retrieved 6 September 2009 from: [http://ec.europa.eu/transport/strategies/doc/2006\\_keep\\_europe\\_moving.doc/2006\\_3167\\_brochure\\_en.pdf](http://ec.europa.eu/transport/strategies/doc/2006_keep_europe_moving.doc/2006_3167_brochure_en.pdf)
- CEC – Commission of the European Communities (2009). *A sustainable future for transport: Towards an integrated, technology-led and user-friendly system*. Commission Communication COM(2009) 279/4. Retrieved 4 September 2009 from:

- [http://ec.europa.eu/transport/strategies/doc/2009\\_future\\_of\\_transport/20090617\\_en\\_communication\\_future\\_of\\_transport.pdf](http://ec.europa.eu/transport/strategies/doc/2009_future_of_transport/20090617_en_communication_future_of_transport.pdf)
- CEC – Commission of the European Communities (2010). *Railway packages*. Retrieved 16 January 2010 from: [http://ec.europa.eu/transport/rail/packages/packages\\_en.htm](http://ec.europa.eu/transport/rail/packages/packages_en.htm)
- CPB – Centraal Planbureau (2006). *Kosten Zuiderzeelijn zijn hoog, baten laag*. Retrieved 29 August 2009 from: [http://www.cpb.nl/nl/news/2006\\_28.html](http://www.cpb.nl/nl/news/2006_28.html)
- Commissie VBIP – Versnelling Besluitvorming Infrastructurele Projecten (2008). *Sneller en beter*. Retrieved 1 September 2009 from: [http://www.verkeerenwaterstaat.nl/Images/webversieRapportelverdingsnijtekenstijd1146\\_tcm195-219331.pdf](http://www.verkeerenwaterstaat.nl/Images/webversieRapportelverdingsnijtekenstijd1146_tcm195-219331.pdf)
- Cramer, E. (2008). *Nieuwe stations, nieuwe passagiers*. Retrieved May 27, 2009 from: [http://www.christenunie.nl/nl/library/download/320441?format=save\\_to\\_disk&return\\_uri=%2Fnl%2Fpage%2F7611](http://www.christenunie.nl/nl/library/download/320441?format=save_to_disk&return_uri=%2Fnl%2Fpage%2F7611)
- Cranendonck (2007). *Station Maarheeze: gemeente Cranendonck. Bestuursopdracht – Plan van aanpak*. Retrieved 2 June 2008 from: [http://www.stationmaarheeze.nl/downloads/rapporten/2007-020%207Plan\\_van\\_aanpak\\_Station\\_Maarheeze\\_d\\_d\\_\\_26\\_februari\\_2007.pdf](http://www.stationmaarheeze.nl/downloads/rapporten/2007-020%207Plan_van_aanpak_Station_Maarheeze_d_d__26_februari_2007.pdf)
- Cranendonck (2010). *Gemeente Cranendonck – Over Cranendonck – Feiten en cijfers – Inwoneraantal*. Retrieved 17 October 2010 from: <http://www.cranendonck.nl/index.php?mediumid=7&pagid=311>
- CC – Cranendonck Courier (2004a). *Collectief Station Maarheeze gesterkt door steun Provinciale Staten*. Retrieved 23 June 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- CC – Cranendonck Courier (2004b). *7250 handtekeningen voor station Maarheeze*. Retrieved 23 June 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- CU (2009). *Stations op nieuwbouwlocaties op tijd opleveren*. *Verkeerskunde* 2009: 6.
- Curtis, C., John L. Renne & L. Bertolini (Eds.). *Transit Oriented Development: Making it Happen*. Ashgate: Farnham/Burlington
- CVOV – Centrum Vernieuwing Openbaar Vervoer (2005). *Spoorboekje: De spoorwijzer voor decentrale overheden*. Nijkerk: Van de Ridder
- CVOV (2005b). *Kostenkengetallen openbaar vervoer*. Retrieved 27 February 2011 from: [http://www.kpvv.nl/files\\_content/kennisbank/Kostenkengetallen%20.pdf](http://www.kpvv.nl/files_content/kennisbank/Kostenkengetallen%20.pdf)
- Dijst, M. & B. van Wee (Eds.) (2002). *Verkeer en Vervoer in Hoofdlijnen*. Bussum: Coutinho
- De Bruijn, J.A., G.R. Teisman, J. Edelenbos & W. Veeneman (2004). *Procesmanagement: Meervoudig ruimtegebruik en het management van meerstemmige processen*. London: Thames & Hudson

- Dichtbij (2010). *Station Sassenheim pas in 2011 gereed*. Retrieved 27 May from: <http://www.dichtbij.nl/duin-en-bollenstreek/regionaal-nieuws/artikel/1778298/station-sassenheim-pas-in-2011-gereed.aspx>
- ED – Eindhovens Dagblad (2001). *Studie naar haalbaarheid station in Maarheeze*. Retrieved 19 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2003>
- ED – Eindhovens Dagblad (2002a). *“Maarheeze krijgt snel station”*. Retrieved 16 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2003>
- ED – Eindhovens Dagblad (2002b). *Minder forse ozb-stijging Cranendonck*. Retrieved 16 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2003>
- ED – Eindhovens Dagblad (2002c). *Regiobestuur ijvert voor NS-station in Maarheeze*. Retrieved 16 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2003>
- ED – Eindhovens Dagblad (2004a). *Station in Maarheeze van de baan*. Retrieved 22 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2004b). *Cijfers pleiten voor plan station Maarheeze*. Retrieved 22 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2004c). *‘n Station is goed, een transferium beter*. Retrieved 26 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2004d). *Gesprek met NS over station Maarheeze*. Retrieved 26 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2004e). *Station weer op de agenda*. Retrieved 26 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2004f). *Onderzoek naar haalbaarheid station Maarheeze*. Retrieved 26 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2004x). *‘Nog steeds inzetten op NS-station’*. Retrieved 25 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- ED – Eindhovens Dagblad (2005). *‘Station in Maarheeze is mogelijk’*. Retrieved 20 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2005>
- ED – Eindhovens Dagblad (2005x). *‘Weert moet halte intercity blijven’*. Retrieved 29 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2005>
- De Grenskoerier (2006). *Provincie: tijdelijk station in Maarheeze*. Retrieved 22 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2006>
- ED – Eindhovens Dagblad (2006a). *ProRail maakt schets station in Maarheeze*. Retrieved 9 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2006>

- ED – Eindhovens Dagblad (2006x). *'Er moet in Maarheeze gewoon een station komen; punt uit'*. Retrieved 20 September 2008 from:  
<http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2006>
- ED – Eindhovens Dagblad (2007a). *Station Maarheeze in 2008 niet haalbaar*. Retrieved 13 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2007>
- ED – Eindhovens Dagblad (2007b). *Maarheeze krijgt simpel stationnetje*. Retrieved 15 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2007>
- ED – Eindhovens Dagblad (2007-2009). *Several articles*. Retrieved 20 September 2008 from:  
<http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2008> &  
<http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2009>
- ED – Eindhovens Dagblad (2008). *Half miljoen voor station Maarheeze*. Retrieved 17 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2008>
- ED – Eindhovens Dagblad (2009). *Station Maarheeze kost ruim 2,2 miljoen meer*. Retrieved 22 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2009>
- Elverding, P. (2008). *Besluitvorming infrastructurele projecten kan sneller en beter*. Press release dated 21 April 2008, retrieved 10 August 2009 from:  
[http://www.verkeerenwaterstaat.nl/Images/Persbericht%20Commissie%20Elverding\\_tcm195-219329.pdf](http://www.verkeerenwaterstaat.nl/Images/Persbericht%20Commissie%20Elverding_tcm195-219329.pdf)
- EVO & TLN (2007). *Economische Wegwijzer: prognose 2007*. Retrieved 6 September 2009 from:  
[http://www.evo.nl/evo\\_fs3/fs3\\_site.nsf/adminViewMenu/ECE719FCF76B589BC1257417003E4733/\\$FILE/EconomischeWegwijzerPrognose\\_2007.pdf](http://www.evo.nl/evo_fs3/fs3_site.nsf/adminViewMenu/ECE719FCF76B589BC1257417003E4733/$FILE/EconomischeWegwijzerPrognose_2007.pdf)
- Filarski, R. (2004). *The rise and decline of transport systems: changes in a historical context*. Den Haag: Rijkswaterstaat, Ministerie van Verkeer en Waterstaat
- Flyvbjerg, B. (2006). *Five misunderstandings about case-study research*. *Qualitative enquiry*, 12:2, pp. 219-45.
- Gallagher, M., M. Laver & P. Mair (2006). *Representative government in modern Europe*. New York: McGraw-Hill
- Gelderlander, De (2005). *Weer probleem NS-station Westervoort*. Retrieved 16 April 2010 from:  
[http://www.ov-website.nl/ovnieuwsbrief/edities/OVNieuwsbrief\\_729.pdf](http://www.ov-website.nl/ovnieuwsbrief/edities/OVNieuwsbrief_729.pdf)
- Gelderlander, De (2009). *Tempo achter raillijn Kleef*. Retrieved 15 March 2010 from: <http://viev.nl/>
- Goudappel-Coffeng (2005). *Business case station Maarheeze: eindrapport*. Retrieved 2 June 2008 from:  
[http://www.stationmaarheeze.nl/downloads/rapporten/Businesscase\\_station\\_Maarheeze.pdf](http://www.stationmaarheeze.nl/downloads/rapporten/Businesscase_station_Maarheeze.pdf)
- Goudappel-Coffeng (2009). *Nieuwe stations in Overijssel [New stations in Overijssel]*. Feasibility study commissioned by the Provincie of Overijssel presented in August 2009. Retrieved 3 February 2009

from: [http://provincie.overijssel.nl/contents/pages/181460/edop-959335-v1-eindrapportage\\_nieuwe\\_stations.pdf](http://provincie.overijssel.nl/contents/pages/181460/edop-959335-v1-eindrapportage_nieuwe_stations.pdf)

Grenskoerier, De (2004). *Bijna de helft van de Cranendonckse bevolking zette een handtekening*. Retrieved 23 June 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>

Groenendijk, J. V. (1998). *Overheidsinvloed in het openbaar vervoer: een vergelijkend onderzoek naar deregulering, privatisering en verzelfstandiging in Europa*. Unpublished dissertation presented to the University of Utrecht

Hofstra Verkeersadviseurs (1984-5). *Verkennde Voorstudie Heropening Spoorweghalte te Maarheeze*. Retrieved 6 July 2008 from: <http://www.stationmaarheeze.nl/achtergrond.php>

HR – Holland Rijnland (2004a). *Locatie station Sassenheim*. Letter from municipalities of Warmond, Voorhout and Sassenheim to the provincie of Zuid-Holland. Retrieved 3 May 2010 from: [http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/04-02-05/pho\\_VV\\_0402\\_agp\\_03\\_I1\\_Locatie\\_station\\_Sassenheim-1.pdf](http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/04-02-05/pho_VV_0402_agp_03_I1_Locatie_station_Sassenheim-1.pdf)

HR – Holland Rijnland (2004b). *Station Leiden-Merenwijk in het kader van Stedenbaan*. Proposal to Holland-Rijnland executive for meeting 8 November 2004. Retrieved 7 May 2010 from: [http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/08-11-04/pho\\_VV\\_0811\\_07\\_oplegnotitie\\_agp\\_7.doc](http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/08-11-04/pho_VV_0811_07_oplegnotitie_agp_7.doc)

HR – Holland Rijnland (2004c). *Locatie station Sassenheim*. Letter to municipalities of Warmond, Voorhout and Sassenheim from provincie of Zuid-Holland. Retrieved 8 May 2010 from: [http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/04-02-05/pho\\_VV\\_0402\\_agp\\_03\\_I1\\_Locatie\\_station\\_Sassenheim-1.pdf](http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/04-02-05/pho_VV_0402_agp_03_I1_Locatie_station_Sassenheim-1.pdf)

HR – Holland Rijnland (2005a). *Standpunt Station Sassenheim in het kader van Stedenbaan*. Proposal to Holland Rijnland executive. Retrieved 10 May 2010 from: [http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/04-02-05/pho\\_VV\\_0402\\_oplegnotitie\\_agp\\_12\\_station\\_Sassenheim.doc](http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/04-02-05/pho_VV_0402_oplegnotitie_agp_12_station_Sassenheim.doc)

HR – Holland Rijnland (2005b). *Stedenbaan / station Sassenheim*. Proposal to Holland Rijnland executive. Retrieved 12 May 2010 from: Proposal to Holland Rijnland executive. Retrieved 10 May 2010 from: <http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/02-09-05/agenda-en-stukken-van-het-portefeuillehoudersoverleg-verkeer-en-vervoer-02-september-2005>

HR – Holland Rijnland (2009). *Stand van zaken projecten*. Informatie notice to Holland Rijnland executive. Retrieved 12 May 2010 from: <http://www.hollandrijnland.net/vergaderingen/pho-verkeer-en-vervoer/archief/18-09-09/PHO-VV-180909-punt-09-stand-van-zaken-projecten.doc>

Kooij (vd) & Schouwstra (2003). In: Binnenlands Bestuur. Over gebiedsontwikkeling rond bestaande stations

- KpVV – Kennisplatform Verkeer en Vervoer (2008). *Regionale trein is een blijvertje*. Retrieved 17 October 2009 from: [http://www.kpvv.nl/files\\_content/kennisbank/KpVV%20Bericht%202008-058%20eBook.pdf](http://www.kpvv.nl/files_content/kennisbank/KpVV%20Bericht%202008-058%20eBook.pdf)
- Lastdrager – Van der Woude, E. & L. Bonnemayer (2008). *Regionaal openbaar vervoer – Verbinden van mobiliteit en ruimtelijke richting: een methodische aanpak*. Paper presented to Habiforum, september 2008
- Leidsch Dagblad (2006). *Plan station door zonder afsluiting Wasbeeklaan*. Retrieved 2 February 2009 from: [http://www.alphen.com/roverleiden/nieuwsbericht/plan\\_station\\_door\\_zonder\\_afsluiting\\_wasbeeklaan/](http://www.alphen.com/roverleiden/nieuwsbericht/plan_station_door_zonder_afsluiting_wasbeeklaan/)
- Leidsch Dagblad (2008). *Een miljoen voor station Sassenheim*. Retrieved 2 February 2009 from: [http://www.leidschdagblad.nl/nieuws/regionaal/duinenbollen/article3474934.ece/Een\\_miljoen\\_voor\\_station\\_Sassenheim](http://www.leidschdagblad.nl/nieuws/regionaal/duinenbollen/article3474934.ece/Een_miljoen_voor_station_Sassenheim)
- Llyod (2009). *Nederland heeft drukst bereden spoornet van Europa*. Retrieved 16 February 2011 from: [http://www.lloyd.be/nieuws/id23765-Nederland\\_heeft\\_drukst\\_bereden\\_spoornet\\_van\\_Europa.html](http://www.lloyd.be/nieuws/id23765-Nederland_heeft_drukst_bereden_spoornet_van_Europa.html)
- Mobycon (2010). High-level studiereis Zürich, Straatsburg (en Karlsruhe). Unpublished information brochure surrounding a high-level study trip around public transport systems in February 2010.
- Netherlands Court of Audit (2011). *Besteding spoorbudgetten ProRail; review op de cijfers van het ministerie*. Retrieved 10 July 2012 from: <http://www.rekenkamer.nl/dsresource?objectid=92992&type=org>
- Nijkamp, P., W. Begeer & J. Berting [eds.] (1996). *Denken over complexe besluitvorming: een panorama*. Den Haag: SDU
- Nijmegen (2004). *Cie SO RegioRail KAN voorkeursalternatief*. Retrieved 9 September 2008 from: [www2.nijmegen.nl/mmbase/.../Cie\\_SO\\_05-04-04\\_KAN\\_-\\_regiorail.pdf](http://www2.nijmegen.nl/mmbase/.../Cie_SO_05-04-04_KAN_-_regiorail.pdf)
- Nozeman, E., J. Fokkema & K. van Dullemen (2008). *Handboek Projectontwikkeling: Een veelzijdig vak in een dynamische omgeving*. Doetinchem: Reed Business
- NOS (2012). *Minister opent NS-station Sassenheim*. Retrieved 27 Mat 2012 from: <http://nos.nl/artikel/320882-minister-opent-nsstation-sassenheim.html>
- NS (2011). *Visie*. Retrieved 15 February 2011 from: <http://www.ns.nl/cs/Satellite/ns2007/nl/artikel/include/1222254305816/visie?p=1252507138430>
- Omroep Brabant (2009). *Station Berkel Enschtot stap dichterbij*. Retrieved 19 February 2011 from: <http://www.omroepbrabant.nl/?news/129031532/Station+Berkel+Enschot+stap+dichterbij.aspx>
- Pestman, P. (2001). *In het spoor van de Betuweroute: Mobilisatie, besluitvorming en institutionalisering rond een groot infrastructureel project*. Amsterdam: Rozenberg

- ProRail (2007a). *Rapportage haalbaarheidsstudie halte Maarheeze*. Retrieved 21 October 2008 from: <http://www.stationmaarheeze.nl/downloads/rapporten/HaalbaarheidsstudieHalteMaarheezeProRail.pdf>
- ProRail (2007b). *Correspondence to the city-region of Arnhem-Nijmegen d.d. 7 November 2007* (kenmerk: 20723434).
- ProRail (2011). *Wat doet ProRail*. Retrieved 15 February 2011 from: <http://www.prorail.nl/Over%20ProRail/watdoetprorail/Pages/WatdoetProRail.aspx>
- ProRail (2011b). *Nieuwe stations*. Retrieved 18 February 2011 from: <http://www.prorail.nl/Overheden/nieuwestations/Pages/Nieuwestations.aspx>
- Provincie Gelderland (1999). *Verbinden en ontsluiten: Ontwerp netwerknota openbaar vervoer provincie Gelderland*. Adopted 28 September 1999.
- Randstadspoor (2009). *Ontwerp*. Retrieved 12 December 2009 from: <http://www.randstadspoor.nl/>
- Rijksoverheid (2011a). *Wie doet wat op het spoor?* Retrieved 18 February 2011 from: <http://www.rijksoverheid.nl/onderwerpen/spoorvervoer/wie-doet-wat-op-het-spoor>
- Rijksoverheid (2011b). *Schultz opent station Sassenheim?* Retrieved 10 March 2012 from: [http://www.rijksoverheid.nl/onderwerpen/spoorvervoer/nieuws/2011/12/09/schultz-opent-station-sassenheim.html?ns\\_campaign=nieuwsberichten-over-het-onderwerp-spoorvervoer&ns\\_mchannel=att](http://www.rijksoverheid.nl/onderwerpen/spoorvervoer/nieuws/2011/12/09/schultz-opent-station-sassenheim.html?ns_campaign=nieuwsberichten-over-het-onderwerp-spoorvervoer&ns_mchannel=att)
- Roemer, E. (2008). *Spoorboekje: SP-plannen voor beter vervoer per trein*. Retrieved May 27, 2009 from: [http://www.sp.nl/service/rapport/081201\\_spoorboekje.pdf](http://www.sp.nl/service/rapport/081201_spoorboekje.pdf)
- ROVER (2008). *Standpunten: het ROVER-beleidsplan 2008-2012. Zonder gezeur van deur tot deur*. Retrieved 6 September 2009 from: <http://www.rover.nl/info/beleidsplan.php?hfd=10>
- ROVER (2010). *IJs en weder dienende*. Retrieved 26 December 2010 from: <http://www.rover.nl/nieuws/columns/column.php?id=col101220>
- ROVER (2011). *Bende bij ProRail*. Retrieved 10 July 2012 from: <http://www.rover.nl/index.php/actueel/blogs/g-blog-archief/104-bende-bij-prorail.html>
- Schooneveld, R. (2008). *Veolia helpt ook Limburg aan de visgraat*. Article published in *De Reiziger*, 2008:5. Retrieved 6 September 2009 from: [http://www.rover.nl/dereiziger/artikelen/print\\_artikel.php?id=art0805](http://www.rover.nl/dereiziger/artikelen/print_artikel.php?id=art0805)
- Schoemaker, T. (2002). *Samenhang in vervoer- en verkeerssystemen*. Bussum: Coutinho
- Smeenk, B. (2006). *De Europese Unie en transportbeleid*. Chapter 6 of *Capita Selecta* to B. van Wee & M. Dijkstra (Eds.) (2002), *Verkeer en Vervoer in Hoofdlijnen*. Bussum: Coutinho
- Soeterbroek, F, J. Edelenbos & S. Nooteboom (2003). *Dilemma's bij sturing op ruimtelijke kwaliteit*. *Rooilijn*: 36:10, pp. 490-5

- SP – Socialistisch Partij (2006). *Station is er op z'n vroegst in 2009*. Retrieved 21 September 2009 from: [http://westervoort.sp.nl/bericht/30059/061128-station\\_is\\_er\\_op\\_zn\\_vroegst\\_in\\_2009.html](http://westervoort.sp.nl/bericht/30059/061128-station_is_er_op_zn_vroegst_in_2009.html)
- SP – Socialistisch Partij (2007a). *Minister werkt aan verbetering spoorlijn*. Retrieved 24 September 2009 from: [http://westervoort.sp.nl/bericht/30064/071117-minister\\_werkt\\_aan\\_verbetering\\_spoorlijn.html](http://westervoort.sp.nl/bericht/30064/071117-minister_werkt_aan_verbetering_spoorlijn.html)
- SP – Socialistisch Partij (2007b). *ProRail: station zeker niet voor 2012*. Retrieved 27 September 2009 from: [http://westervoort.sp.nl/bericht/30066/071201-prorail\\_station\\_zeker\\_niet\\_voor\\_2012.html](http://westervoort.sp.nl/bericht/30066/071201-prorail_station_zeker_niet_voor_2012.html)
- SP – Socialistisch Partij (2008). *Toch nieuw onderzoek station Westervoort*. Retrieved 22 September 2009 from: [http://westervoort.sp.nl/bericht/30068/081101-toch\\_nieuw\\_onderzoek\\_station\\_westervoort.html](http://westervoort.sp.nl/bericht/30068/081101-toch_nieuw_onderzoek_station_westervoort.html)
- SpoorPro (2012). *VVD wil ProRail onderbrengen bij Rijkswaterstaat*. Retrieved 15 July 2012 from: <http://www.spoorpro.nl/management/2012/05/10/vvd-wil-prorail-onderbrengen-bij-rijkswaterstaat/>
- SSM – Stichting Station Maarheeze (2004). *Gemeente Cranendonck ook positief*. Newsletter from 13 April 2004. Retrieved 20 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2004>
- SSM – Stichting Station Maarheeze (2005x). *Voortgang lopende zaken*. Newsletter from 6 november 2005. Retrieved 20 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2005>
- SSM – Stichting Station Maarheeze (2006a). *Opnieuw Kamervragen over station Maarheeze*. Newsletter from 25 February 2006. Retrieved 27 September 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2006>
- SSM – Stichting Station Maarheeze (2006b). *Peijs: in 2007 station in Maarheeze*. Newsletter from 1 November 2006. Retrieved 2 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2006>
- SSM – Stichting Station Maarheeze (2007). *Opening station Maarheeze in december 2008*. Newsletter from 23 March 2007. Retrieved 11 October 2008 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2007>
- SSM – Stichting Station Maarheeze (2009). *Station Maarheeze opent 13 juni 2010*. Newsletter from 22 July 2009. Retrieved 3 March 2010 from: <http://www.stationmaarheeze.nl/nieuwsarchief.php?jaar=2009>
- Stadsregio Arnhem Nijmegen (2004a). *Gemeenteraad stemt in met komst station*. Retrieved 12 September 2008 from: [http://www.destadsregio.nl/news\\_detail.asp?NewsID=73](http://www.destadsregio.nl/news_detail.asp?NewsID=73)
- Stadsregio Arnhem Nijmegen (2004b). *10 miljoen extra voor RegioRail KAN..* Retrieved 12 September 2008 from: [http://www.destadsregio.nl/news\\_detail.asp?NewsID=17](http://www.destadsregio.nl/news_detail.asp?NewsID=17)

- Stadsregio Arnhem Nijmegen (2006). *Komst station Westervoort in zicht*. Retrieved 11 September 2009 from: [http://www.destadsregio.nl/news\\_detail.asp?NewsID=73](http://www.destadsregio.nl/news_detail.asp?NewsID=73)
- Stadsregio Arnhem Nijmegen (2007). *Stadsregiorail*. Retrieved 12 December 2009 from: <http://www.destadsregio.nl/images1/stadsregio/bestanden/brochure-Stadsregiorail.pdf>
- Stadsregio Arnhem Nijmegen (2009). *Stadsregiorail: meer treinen, meer stations, meer reizigers*. Retrieved 23 September 2012 from: <http://www.stadsregioarnhemnijmegen.nl/images1/stadsregio/bestanden/brochure-Stadsregiorail.pdf>
- Stadsregio Arnhem Nijmegen (2010). *Mobiliteit*. Retrieved 12 December 2010 from: [http://www.destadsregio.nl/page.asp?menu\\_id=8&menu2\\_id=10&thema\\_id=2](http://www.destadsregio.nl/page.asp?menu_id=8&menu2_id=10&thema_id=2)
- Stadsregiorail (2012). *Nieuwe stations*. Retrieved 10 June 2012 from: <http://www.stadsregiorail.nl/nieuwe-stations.aspx>
- Stationsweb (2012a). *Station Maarheeze (oud)*. Retrieved 29 April 2012 from: <http://stationsweb.nl/station.asp?station=maarheeze>
- Stationsweb (2012b). *Station Voorhout*. Retrieved 30 October 2009 from: <http://stationsweb.nl/station.asp?station=voorhout&vraag=voorhout>
- Stationsweb (2012c). *Station Westervoort*. Retrieved 6 June 2012 from: <http://www.stationsweb.nl/station.asp?station=Westervoort>
- Stedenbaan (2009). *Stations*. Retrieved 12 December 2009 from: <http://www.stedenbaan.nl/page/Stations>
- Swanborn, P. G. (2003). *Case-study's: wat, wanneer en hoe?* Amsterdam [etc.]: Boom
- Tatenhove, J. van, B. Arts & P. Leroy (2000). *Political Modernisation and the Environment: The Renewal of Environmental Policy Arrangements*. Dordrecht: Kluwer
- Teisman, G. R. (1992/5). *Complexe besluitvorming*. 's-Gravenhage: Elsevier
- Teyding, De (2010). *Uitstel station Sassenheim 'niet ondenkbaar'*. Retrieved 27 June 2011 from: [http://www.deteyding.nl/index.php?option=com\\_content&task=view&id=4611&Itemid=5](http://www.deteyding.nl/index.php?option=com_content&task=view&id=4611&Itemid=5)
- Teyding, De (2011a). *Minister opent NS-station Sassenheim*. Retrieved 27 May 2012 from: [http://www.deteyding.nl/index.php?option=com\\_content&task=view&id=6528&Itemid=5](http://www.deteyding.nl/index.php?option=com_content&task=view&id=6528&Itemid=5)
- Teyding, De (2011b). *Bouwvergunning voor station Sassenheim*. Retrieved 27 May 2012 from: [http://www.deteyding.nl/index.php?option=com\\_content&task=view&id=5092&Itemid=5](http://www.deteyding.nl/index.php?option=com_content&task=view&id=5092&Itemid=5)
- TransTec (2009). *Culturele verschillen tussen Nederland en Duitsland: toegespitst op het openbaar vervoer en de openbaar vervoerautoriteit*. Retrieved 12 September 2009 from: [http://www.transtecadviseurs.nl/images/stories/inside/PDF/culturele\\_verschillen\\_nederland\\_duitland.pdf](http://www.transtecadviseurs.nl/images/stories/inside/PDF/culturele_verschillen_nederland_duitland.pdf)

- Treinreiziger (2009). *Nederlandse spoor zeer intensief gebruikt*. Retrieved 16 February 2011 from: [http://www.treinreiziger.nl/kennisnet/nederlandse\\_spoor\\_zeer\\_intensief\\_gebruikt](http://www.treinreiziger.nl/kennisnet/nederlandse_spoor_zeer_intensief_gebruikt)
- Trouw (2007). *Zuiderzeelijn geschrapt, noorden krijgt geld*. Newspaper article retrieved August 29, 2009 from: <http://www.trouw.nl/nieuws/economie/article1510470.ece>
- Twynstra Gudde (2007). *Verkenning Bestuurlijke drukte 'filevorming in de polder': Ervaringsverhalen van overheidspartners*. Retrieved 7 July 2012 from: <http://www.twynstragudde.nl/pdf/publicaties/Verkenning%20Bestuurlijke%20drukke.pdf>
- Van Wee, B. & H. Priemus (2012). *Grote infrastructuurprojecten, kosten-baten analyse en kostenoverschrijdingen*. *Vervoerswetenschappen*: 48:2
- VenW (2004). <http://www.geluidnieuws.nl/2004/juli2004/tunnel.html>
- VenW (2009). *Beleidsbrief nieuwe stations*. Policy note issued by Transport Ministry addressed to the Second Chamber of Parliament (VenW/DGMO-2009/10739).
- VenW (2009b). *Spoor: Vervoer- en beheerplan*. Policy letter addressed to the Second Chamber of Parliament. Vergaderjaar 2008-2009, 29 984, nr. 186
- VenW (2010). *Voortgangsrapportage adviescommissie Versnelling en Verbetering Besluitvorming Infrastructuur (VVBI)*. Policy letter addressed to the Second Chamber of Parliament. VenW/DGMO-2010/2795
- VenW (2010b). *Onderbouwing subsidiebijdrage Basistation*. Policy letter addressed to the Second Chamber of Parliament. VenW/DGMO-2010/5270
- Veeneman, W., D. van de Velde & L.L. Schipholt (2007). *Scheiden van de markt? Een analyse van de effecten van aanbesteding op het Nederlands openbaar vervoer*. Antwerpen: Bijdrage aan het Colloquium Vervoersplanologisch Speurwerk (november 2007)
- Vergouwen, J. & J. Baggen (2004). *Een integraal afwegingskader voor nieuwe treinstations: Breda-Oost als voorbeeld*. Paper published as a contribution to the Colloquium Vervoersplanologisch Speurwerk 2004.
- Verhoef, E. T. & E. Feitelson (2001). *Transport and Environment: In Search of Sustainable Solutions*. Cheltenham [etc.]: Edward Elgar
- Verkeerskunde (2012). *S-Bahn gaat aan Nederland voorbij*. Retrieved 9 July 2012 from: <http://www.verkeerskunde.nl//system/xmail/statistics/s-bahn-gaat-aan-nederland-voorbij.28635.lynkx>
- Verschuren, P. & H. Doorewaard (2007). *Het ontwerpen van een onderzoek*. Den Haag: Lemma
- WCED – World Commission on Environment and Development (1987). *Our common future*. Oxford: Oxford UP
- Westervoort (2004). *Gemeenteraad zegt ja tegen station, locatie centrum*. Retrieved 10 September 2008 from:

<http://www.westervoort.nl/document.php?fileid=4231&m=1&f=7bf2b938c637f668a77b5f4d1dfa035a&attachment=1&c=3368>

Wikipedia (2010). *Station Westervoort*. Retrieved 28 June 2010 from:  
[http://nl.wikipedia.org/wiki/Station\\_Westervoort](http://nl.wikipedia.org/wiki/Station_Westervoort)

WRR – Wetenschappelijke Raad voor Regeringsbeleid (1994). *Besluiten over grote projecten*.  
Rapporten aan de regering (nr. 46).

ZoetermeerOV (2005). *NS akkoord over Stedenbaan*. Retrieved 21 May 2010 from:  
<http://www.zoetermeerov.nl/nieuws/nieuws.php?z1=803>

## Appendix 1 – List of consulted persons

### CASE INTERVIEWS

<b>Name</b>	<b>Organisation</b>	<b>Type</b>
Jozef van Asten	Cranendonck	Municipality
Carl Bieker	Gelderland	Provincial government
Rob Boekee	NS	Operator
Rik van Haaren	ProRail	Infrastructure manager
Cor Hartogs	Arnhem-Nijmegen	City-region
Karin van Helmond	ProRail	Infrastructure manager
Eddy LeCouvreur	Zuid-Holland	Provincial government
Bertrand Leushuis	Transport ministry	National government
Ruud Liebregts	Stichting Station Maarheeze	Foundation
Pieter Onderwater	DHV	Consultancy
Dion Steenberg	Westervoort	Municipality
Harry Vorst	Stichting Station Maarheeze	Foundation
Hendrik de Vries	Teylingen	Municipality
Etienne Wieme	Noord-Brabant	Provincial government
Niels Zondag	Westervoort	Municipality

### ADDITIONAL INTERVIEWS

<b>Name</b>	<b>Organisation</b>	<b>Type</b>
Frans Blanker	MuConsult	Consultancy
Reinhard Gessen	Not bound	None
Teun Groothedde	Voorst	Municipality
Paul Jansen	Limburg / Heerlen	Government
Wolfgang Jureck	Deutsche Bahn	Operator
Thomas Klemens	KnowLinx	Consultancy
Kai Mohnen	City of Aachen	Municipality
Erik van Veldhuizen	AGV-Movares	Consultancy
Lars Vervoort	KnowLinx	Consultancy
Andreas Warnecke	Aachener Verkehrsverbund (AVV)	Public transport authority
Joachim Wirths	Nahverkehr Rheinland	Public transport authority