From value creation to value capture
Instruments of indirect value capture to fund investments in road infrastructure projects

Author: Irene Slegtenhorst
Student number: 1511025
Date: 19-8-2013

Delft University of Technology
Master Construction Management & Engineering

Thesis committee:
Prof. dr. ir. M.J.C.M. Hertogh (TU Delft)
Ir. drs. J.G. Verlaan (TU Delft)
Ir. H.W. de Wolff (TU Delft)
Mr. E.J. Schuurman (Rijkswaterstaat)
PREFACE

With this thesis I finish my master Construction Management and Engineering in Delft. In December 2012 I began my research at Rijkswaterstaat. After a slow start, I finally can say that the journey was worth the effort. But this research could not have been done without the help of many people.

I would like to thank my graduation committee for their supervision. Marcel, your enthusiasm helped me to remain enthusiastic and believe in the research. Jules, for the critical note and coaching. And Herman, for the knowledge about the subject and helping me with the structure of the research. The discussions during the meetings provided me better insight into the subject.

Furthermore I would like to thank everyone from Rijkswaterstaat who gave me the opportunity to do this research and helped me during the process. Especially Evert Jan, for your feedback and many discussions about the subject. Those discussions were really valuable for my research. Also I owe thanks to the interviewees, for their time and effort to help me with my research.

Last, I would like to thank my friends and family for their support. Especially thanks to Bas, Wilke, Wout en Jella who helped me a lot, by listening to me when I needed feedback. Thanks to my parents for giving me the support I needed.

Irene Slegtenhorst
Delft, 19-8-2013.
SUMMARY

Because of the increased mobility, there is a higher demand to increase the capacity of the roads. With the current budget cuts it becomes harder to increase the capacity of the roads than before. To realize the capacity planned without cuts, projects have to be performed with a smaller budget. This creates a gap between costs and budget, which has to be filled. Alternative funding is necessary to fill the gap. (Agentschap NL, 2013)

An opportunity of investments in infrastructure projects is that, besides the value for the user, value is created for other parties. An indirect effect is value creation through land value rise, higher economic activity and higher performance of businesses. Value capturing is a set of instruments. It targets creation of value for different parties, caused by a measure of public action. The increase in value can be captured with these instruments, to cover costs. (Huisman, 2006)(Offermans & Velde, 2004)

In the diagram below the value capturing process is described. First, the situation is a project with insufficient funding, which leads to a funding gap. In this thesis this is the initial situation.

![Figure 1: Funding gap](image1)

Then, value capturing is used. Other parties profit from the project as well. The extra revenues of other parties are created through the project. By capturing these revenues the total budget for the project increases and the costs can be covered.

![Figure 2: Value capturing](image2)

Another option is the following: By changing the scope, and accept the demands of other parties, extra value can be created. These might be willing to make a contribution. This is beneficiary when the costs do not exceed the profit.
The research question is: How can value capturing contribute to an improved financial feasibility of investments in state road projects? To answer the main research question, the sub-questions have to be answered. To answer these questions, literature research and case studies are done. In this thesis the most promising instruments of value capturing are selected and case studies are chosen. Three case studies are chosen, namely N201+ (voluntary contributions – benefit sharing), A2 Maastricht (benefit sharing and internal value capturing) and a fictive case based on A2 Maastricht (tax increment financing).

First the sub-questions are answered. The first sub-question is What strategies for value capturing can be used in road infrastructure? The focus of this thesis is on indirect value capturing. Indirect value capture is for direct beneficiaries. This can be a land owner, who benefits by an increase in land value, or a retailer who benefits from a higher accessibility and therefore a higher performance of his business. Within this form, three strategies are found: (1) active land policy; (2) collaboration; (3) contributions. Active land policy means that the government is responsible for land exploitation and acts like a developer. Within contributions a distinction can be made between voluntary contributions and obligatory contributions. (Offermans & Velde, 2004) (Huisman, 2006)

The second sub-question is Which instruments related to the strategies are promising? Based on the main goal, to improve the financial feasibility, the criteria risk, legal embedding, social acceptability and value, the most promising instruments are scored. In the case studies the instruments internal value capturing, benefit sharing and tax increment financing are investigated.

Internal value capturing can be used whenever a project is performed as an integral project. By internally cross subsidizing a project it can performed more efficiently in financial terms. For example, the revenues of land development can be used to fund infrastructure. This can be done by assigning multiple sub-projects to one project developer. (Offermans & Velde, 2004)

Benefit sharing means that agreements are made about the sharing of benefits that are caused by public investments. It can be agreed that the private party makes a contribution when a certain output level is achieved. Another option is that private parties contribute all profit, up to a certain amount. (Offermans & Velde, 2004)

According to Nichols (2012) tax increment financing is: "A special district created during a development period, where the tax base is frozen at the pre-development level (based on the assumption redevelopment would not occur in the area without public investment or intervention). Property taxes continue to be paid, but taxes derived from the increases in assessed values (the tax increment) resulting from new development either go into a special
fund.” In the Netherlands tax increment financing can be done through OZB. The value can be determined with WOZ values.

The relation between the strategies and instruments is presented below.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Instrument</th>
<th>Stakeholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active land policy</td>
<td>1. Internal value capturing</td>
<td>Developers, municipalities</td>
</tr>
<tr>
<td>Collaboration</td>
<td>1. Internal value capturing</td>
<td>Developers</td>
</tr>
<tr>
<td>Contributions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
  a. Voluntary  
    1. Benefit sharing | Owner-users, users, developers, public institutions |
|                   | b. Imposed                          | Owners/owner-users                   |

Table 1: Strategies and instruments for value capturing

Next, with the case studies the effects of these instruments are determined. The third sub-question is *What is the effect of these instruments on the financial feasibility?* The case studies show that voluntary contributions have a positive effect on the financial feasibility. The effect of internal value capturing at A2 Maastricht was negative. With tax increment financing the effect can be neglected.

These instruments also have other effects. The fourth sub-question is *What are other effects of these instruments?* First the effect on risk is presented. Because of the change in scope associated with voluntary contributions and internal value capturing, the risk becomes higher. With tax increment financing this remains the same. Because the scope has changed, the value becomes higher as well. The instruments voluntary contributions and internal value capturing do not interfere with the legal system, however to use tax increment financing more effectively adjustments have to be made in the legal system.

When one wants to use these instruments, some conditions have to be met. The last sub-question is: *Under what conditions can these instruments be used?* The most important conditions will be mentioned. Voluntary contributions, by benefit sharing, can be used in every project when other parties benefit from the project. By involving these stakeholders, and keeping the scope flexible for their demands, it is more likely that these parties make a contribution. Internal value capturing can be used whenever land development plans are made in a surrounding area. By involving land development plans, and creating an integral project, revenues of land development can be used to fund the infrastructure. However, to use it effectively for improvement of the financial feasibility of a project, the extra revenues have to be higher than the extra costs. Tax increment financing does not work effectively in the current Dutch system. Especially on large projects, such as state roads, the profit can be neglected. Therefore a change in the Dutch system is necessary to make the instrument more effective.

Which instrument can be used, depends on what value one wants to capture. This is presented in the figure below.
In order to use the instruments effectively, conditions have to be met as well. These conditions are summarized in the figure below.

**Figure 5: Conditions value capturing**
Furthermore, the case studies show that with respect to improvement of the financial feasibility, benefit sharing, or voluntary contributions, is the most promising instrument. To answer the main research question: A funding gap can be closed with voluntary contributions.

However, in the current economic situation, it is questionable whether parties are willing to make a contribution on basis of land development. The expectations of revenues by land development were higher in the case studies than they are nowadays. Therefore it is less attractive to make large contributions based on land development plans. Another option is that the contribution is determined afterwards. This means less risk for the parties that make a contribution, in this case the municipalities, but more risk for the client.

Further research can be done for specific instruments in order to use them more effectively and efficiently. An important limitation of this thesis is the number of case studies and the choices of instruments. Other instruments, that are not investigated here, can also be effective. Furthermore, the choice of case studies is important for the conclusions above. With another case study the outcome can be totally different. Another question about value capturing is whether is likely to be used in the future, with respect to the current economic situation in relation to land development, or whether it is more valuable as a process instrument.
TABLE OF CONTENT

Preface ..................................................................................................................3
Summary ...............................................................................................................4

Section I: Introduction

1. Introduction ..................................................................................................14
   1.1 Background ...........................................................................................14
   1.2 Current situation funding .....................................................................15
   1.3 Problem description ............................................................................18
   1.4 Problem statement ..............................................................................18
   1.5 Research question ...............................................................................19
   1.6 Scope .....................................................................................................19
   1.7 Methodology .........................................................................................20
   1.8 Report structure ....................................................................................20

Section II: Theoretical framework

2. Value creation ..............................................................................................22
   2.1 Road infrastructure and value creation ...............................................22
   2.2 Definition of value ...............................................................................22
   2.3 Determination of value .......................................................................23
   2.4 Value creation ......................................................................................25
   2.5 Value - price - costs ............................................................................26
   2.6 Conclusion ............................................................................................27

3. Value capturing ............................................................................................28
   3.1 Definitions of value capturing ...............................................................28
   3.2 Forms of value capturing .......................................................................29
   3.3 Stakeholders ..........................................................................................30
   3.4 Possibilities and difficulties associated with value capturing ...............31
   3.5 Value capturing methods .....................................................................31
   3.6 Strategies for indirect value capture ....................................................33
   3.7 Instruments for indirect value capture ..................................................34
      3.7.1 Instruments for active land policy ..................................................34
      3.7.2 Instruments for a collaboration agreement ....................................36
      3.7.3 Instruments for contributions .......................................................36
Section III: Case studies

5. Case: N201+ ................................................................. 43
   5.1 Introduction ............................................................. 43
   5.2 Project N201+ .......................................................... 43
      5.2.1 Scope of project ................................................. 43
      5.2.2 History of the project ......................................... 44
   5.3 Stakeholder analysis .................................................. 45
      5.3.1 Stakeholders ..................................................... 45
      5.3.2 Value for stakeholders ....................................... 47
      5.3.3 Dependencies ................................................... 48
   5.4 Value capturing .......................................................... 49
   5.5 Contributions .......................................................... 50
      5.5.1 Business areas .................................................. 53
      5.5.2 Additional contributions ..................................... 56
   5.6 Effects ................................................................. 57
      5.6.1 Financial Feasibility ............................................ 57
      5.6.2 Risk ................................................................. 57
      5.6.3 Value ............................................................... 57
      5.6.4 Social acceptability .......................................... 57
      5.6.5 Legal embedding ................................................. 57
   5.7 Conditions ............................................................. 58
   5.8 Looking back .......................................................... 58
   5.9 Conclusion ............................................................. 59

6. Case: A2 Maastricht ....................................................... 60
   6.1 Introduction .......................................................... 60
   6.2 Project ................................................................. 60
      6.2.1 Scope project .................................................... 60
      6.2.2 History of the project ....................................... 62
   6.3 Stakeholder analysis ................................................. 63
8.2 Effect on financial feasibility ................................................................. 84
8.3 Other effects ................................................................................................. 85
  8.3.1 Risk ........................................................................................................... 85
  8.3.2 Value ......................................................................................................... 85
  8.3.3 Social acceptability ................................................................................ 85
  8.3.4 Legal embedding ...................................................................................... 86
8.4 Conditions ..................................................................................................... 86
8.5 Cross-case ...................................................................................................... 87
  8.5.1 Voluntary contributions ......................................................................... 87
  8.5.2 Tax increment financing .......................................................................... 87
  8.5.3 Internal value capturing .......................................................................... 87
8.6 Conclusion ...................................................................................................... 88

Section IV: Conclusions

9. Conclusion ...................................................................................................... 91
10. Discussion ...................................................................................................... 95

References .......................................................................................................... 96

List of figures ....................................................................................................... 102
List of tables ........................................................................................................ 103
Appendix A: Background .................................................................................. 104
Appendix B: Current funding mechanisms ....................................................... 107
Appendix C: N201 contributions 2002 versus 2004 ....................................... 110
SECTION I: INTRODUCTION
The N201 and the connections to the state roads are important bottlenecks. The traffic situation is pressing and in addition it harms the environment and safety in the municipalities Aalsmeer, Amstelveen, Haarlemmermeer and Uithoorn. The region is important for the national economy and therefore it is desirable for the region to be more accessible, livable and safer. (Stuurgroep N201+, 2004)

Since the ‘60s plans are being made for the N201 to solve the problems regarding the accessibility, safety and livability. A design was made for N201 that complies with functional requirements, like traffic flow and safety. Then, the minister of Transport and Waterways was asked for a contribution for the Masterplan N201+. (N201, 2013)(Stuurgroep N201+, 2002)

At the end of 2003 it became clear that the contribution will be 170 million euros instead of 315 million. On the one hand, the N201+ belongs to the select group of projects that can count on state support. On the other hand, a funding gap arises. Therefore adjustments were made to create a cheaper design. Also, more contributions are necessary to fill the funding gap. (N201, 2013)(Stuurgroep N201+, 2002)

So how can this funding gap be filled? Who wants to make contributions to the road? And why does one want to make a contribution? In this case, municipalities, private parties and the province made contributions to the project because they benefit from the road. This is a form of value capturing, and this will be the subject of this report.

Due to the financial crisis, governments are struggling to fund road infrastructure projects more often. It becomes more difficult for the government to fund these projects. Because of the increased mobility, it is desirable to continue the projects as planned before the budget cuts. However, a gap between the costs and budget arises. So a search has started for new possibilities of funding in the Netherlands. This problem will be explored in this chapter. (Agentschap NL, 2013)

The structure of this chapter is as follows. First the context of the research will be sketched in section 1.1. Then in 1.2 the current situation with respect to funding of road infrastructure will be explained. In 1.3 the problem will be described. In section 1.4 the research question and objectives come forward. In 1.5 the scope of the research will be mentioned. Finally the methodology used in the research project will be presented in section 1.6.

1.1 BACKGROUND

Before making a problem statement, the context will be given. First the economical context will be mentioned, then the political context and the tasks of Rijkswaterstaat are explained. The political context is input for the tasks of Rijkswaterstaat. Last the developments in mobility are presented, which are important for development of infrastructure. A broader background description is given in Appendix A.

Economical context

Since the financial crisis the economical situation has changed in the Netherlands. According to “Studiegroep Begrotingsruimte” (2012): “Since the financial crisis, the economic growth in the Netherlands has been low or negative. In 2009, when world trade fell back by 13%, the Dutch economy shrunk by 3.5%. (...) The Netherlands has lost six year of GDP-growth since the start of the crisis. The GDP-volume will not be back at the level of 2008 until 2014. This is also reflected in the condition of government finances: The deficit and debt are at a high level since 2009.” Besides the economic relevance for taking measures to realize a smaller deficit, the European Union has rules about the limit. So the government has to take measures to decrease the debt. (Kabinet Rutte I, 2011)

Political context

Due to the economic crisis, the government has to take measures to avoid facing a larger debt in the future. The budget cuts also hit the Ministry of Infrastructure and Environment and Rijkswaterstaat. Rijkswaterstaat has to save 1.64 billion euros up to 2020 in total, on both
maintenance and projects. Besides these cuts there are also budget cuts on the "Infrastructuurfonds", decided upon in an additional agreement. The Minister has to take decisions about the content of the cuts. Minister Schultz van Haegen wrote in 2013 that the expected bottlenecks in the network of state roads cannot be solved before 2030. It means that projects will be postponed. (Binnenlands Bestuur, 2012)(Rijkswaterstaat, 2012a)(Ministerie van Infrastructuur en Milieu, 2013)

MIRT
Political decisions have an influence on the ministries, like the ministry of Infrastructure and Environment. Even though this ministry is responsible for infrastructure, Rijkswaterstaat is the executive organization for the Netherlands. But how do the political decisions affect Rijkswaterstaat? (Rijkswaterstaat, 2012a)(Rijkswaterstaat, 2012b)

Rijkswaterstaat aims to establish safe and smooth traffic on roads. In order to fulfil these goals new infrastructure will be developed. The Ministry of Infrastructure and Environment decides which projects will be performed. Each year, on "Prinsjesdag", a multiannual program for infrastructure, public space and transport is presented. In Dutch this program is called "Meerjarenprogramma Infrastructuur, Ruimte and Transport" or "MIRT". In this program an overview of projects and programs, on which the government, along with provinces and municipalities, is working, is presented. This program is written by, among others, the Ministry of Infrastructure and Environment. This program, "MIRT", is input for Rijkswaterstaat. The cuts, described in the previous section, have an influence on this budget and program because projects will be postponed. (Rijksoverheid, 2012) (Rijkswaterstaat, 2012a)(Rijkswaterstaat, 2012b)

Developments in mobility
Why is it problematic that projects are postponed? Even though budget cuts hit Rijkswaterstaat and the ministry of Infrastructure and Environment, they still have to deal with increasing mobility. In the coalition agreement of 29 October 2012 it is stated that the infrastructure and mobility are critical for the economy. Rijkswaterstaat is responsible for the state roads in the Netherlands. The definition of mobility refers to the movement of people or goods, which can be made operational by looking at the number of kilometers that all persons jointly travel every year. (Rijkswaterstaat, 2012b)(Kabinet Rutte II, 2012)

Constructing new roads and additional lanes is done to increase mobility. In the Netherlands in 2013 there were 38 highways with a total length of 2500 kilometers. But because of the increasing traffic volume, investments are still necessary. To avoid congestions and delays, which lead to lost traveling time, new roads must be constructed or additional lanes must be added to existing roads. (Rijkswaterstaat, 2012c)(Kennisinstituut voor Mobiliteitsbeleid, 2012)(Victoria Transport Policy Institute, 2011)(Kennisinstituut voor Mobiliteitsbeleid, 2013)(Rijkswaterstaat, 2012b)

It can be seen that the economic crisis has had an influence on the government finances. To avoid facing a larger debt in the future, budget cuts are implemented by the government. These cuts also affect the budget of Rijkswaterstaat and the "Infrastructuurfonds". With a lower budget, the increasing demand of mobility has to be accommodated by Rijkswaterstaat because mobility is crucial for the economy. This means that investments have to be made with a smaller budget. In the following section the problem will be described further. (Kabinet Rutte I, 2011)(Ministerie van Infrastructuur en Milieu, 2013)(Kabinet Rutte II, 2012)

1.2 CURRENT SITUATION FUNDING
To understand the problem related to the limited budget for performing infrastructure projects, it is necessary to get insight into the funding mechanisms. In this section the current situation with respect to funding of road infrastructure will be presented.
**Funding versus financing**

So, what is funding? Commission Ruding (2008) believes it is necessary to distinguish between funding and financing. Financing identifies the origin of financial resources that are necessary to pay for the investment. In case of public financing one or more governmental organizations provide resources. In case of private financing private parties, like banks, pension funds and other institutional investors, provide financial resources. These resources can be provided through debt or equity. (Commissie Ruding, 2008)

The essence of funding is who finally bears the costs of the investment. With public funding the public sector bears the costs: the government, local governments or together. In case of private funding the private sector bears the costs. For example, a private company can create a toll road to recover their investment. Another form of private funding can be done through value capturing. These forms are also presented in Appendix B. (Comissie Ruding, 2008)

**Cost recovery**

The essence of funding is related to cost recovery. Cost recovery is the capacity of a project or program to recover all costs. Or, in other words, cost recovery is recovering the total costs of a project or program. Without recovering all costs, the project cannot continue or even start. (IRC, 2004) (Brealey, 2008)

If cost recovery is required, the total costs should be equal to the total revenues. The revenues of a road project in the Netherlands are normally low, because no toll is charged. Revenues also include here the budget for the project. The budget of Rijkswaterstaat are therefore part of the total amount of revenues. To compare the costs with the revenues, the present value of both should be determined. To comply with the condition of cost recovery, the following condition should be met:

\[
PV(\text{costs}) = PV(\text{revenues})
\]

Another method to determine the cost recovery is by measuring the benefits/cost ratio. By benefits the revenues from a project are meant, including subsidy (or in other words budget of Rijkswaterstaat) or for example toll. The ratio between the revenues and the costs is measured with:

\[
\frac{B}{C} = \frac{PV(\text{benefits})}{PV(\text{costs})} \geq 1.0
\]

This can be calculated by calculating the present values of the revenues and costs first. In infrastructure the revenues/costs ratio should be at least one, like in every other project. When this ratio is one, all costs are covered but no extra revenues are generated. (Brealey et al, 2008)

Funding is about recovering all costs of a project or program. To recover all costs the present value of revenues and the present value of costs should be equal. This means that both the revenues and the costs should be determined. (IRC, 2004)

The costs can be subdivided into different cost items. The total costs are the construction costs and the maintenance costs. It depends on the scope of the project what is included in the construction costs. For example, with the construction of a tunnel, also costs of tunnel installations (with regard to safety) are included. The exploitation costs are related to the timeframe. All costs should be discounted to the present value to determine the total costs at the beginning of the project. (Brealey et al, 2008)

The client makes an estimation of the total costs, before a tender. Based on this estimate funding should be sought. Funding should be sought before tender, because when there is still a funding gap after tender it may lead to cancellation of the project. However, after tender the price paid by the client can differ from the estimate in a positive or negative manner. (Hombergen)

In this thesis focus is on the process before tender, even though the estimate of costs can differ from the price after tender. Without prospect of sufficient funding, a project cannot go into the tender process. So the client is responsible for finding sufficient funding for the project, regardless if it is financed by the private or public sector.
**Funding**
In order to perform a project, the price has to be paid. To pay this price, sufficient funding is necessary. There are different mechanisms to deal with funding. First a distinction will be made between private funding and public funding, without making a distinction within financing.

**Rijkswaterstaat versus third parties**
From the perspective of Rijkswaterstaat or the ministry of Infrastructure and Environment there are two extremes in funding. In the first case road infrastructure is funded completely, for one hundred percent, from available budget in “MIRT”. In the “MIRT” budget is assigned to different projects, so each project has a certain budget. This budget comes from the infrastructure fund or in Dutch the so-called “Infrastructuurfonds”. In this extreme it means that the budget is sufficient to pay the price after tender, or whenever the budget is not sufficient extra budget has to be found to pay the price. (Rijksoverheid, 2009)

The other extreme is one hundred percent funding by third parties. This means that there is no budget required from Rijkswaterstaat to fund a road. This can be done by funding the road with toll revenues. In this case the government can still be the owner of the road.

Between the extremes there is a combination of budget from Rijkswaterstaat and funding by thirds to fund a road. Variations are possible as to what extent third parties are funding a road. In this situation the different parties have to work together to generate sufficient funding for the project.

There are different options for Rijkswaterstaat to fund a project, in terms of timing of payments (Appendix B). In this thesis the timing of the payments is not taken into account, so in this thesis the different options for financial arrangements will not be considered as options. The focus is on funding of the project to recover the total costs.

**Funding gap**
With current budget cuts, decided upon by the government, the budget available for road infrastructure is limited. With a lower total budget less projects can be performed. This is not desirable, because that way the demand cannot be met. The other option is that the projects are assigned a smaller budget each, which can cause a funding gap. This means that the total costs for Rijkswaterstaat are higher than the budget.

The definition of costs here is the estimate of the price paid by Rijkswaterstaat for the realization of a project. The definition of budget is the budget assigned for a project in the so-called “MIRT” or “Meerjarenprogramma Infrastructuur, Ruimte en Transport”.

Whenever the budget is not sufficient to pay the price, a funding gap exists. A funding gap exists whenever the following condition is met:

\[ \text{Costs} - \text{budget} > 0 \]

To perform a project anyway, sufficient funding has to be sought to fill the funding gap. In this case the present value of the costs is not equal to the present value of the revenues, or in other words the condition of cost recovery is not met. In the next section funding mechanisms are mentioned. (Agentschap NL, 2013)
The current situation with regard to funding of road infrastructure is explained above. In the current situation the central government pays the price for road infrastructure, mostly without contributions of other parties. With the current budget cuts this becomes a problem. The problem will be described further in the next section. (Commissie Ruding, 2008)

1.3 PROBLEM DESCRIPTION

As mentioned above, there are also budget cuts for Rijkswaterstaat and the "Infrastructuurfonds". According to Groot et al (2012) the cuts have an impact on the quality and capacity of infrastructure. An important social effect of cuts is that the capacity and quality of the roads is affected, because planned investments are not made. Cuts on investments cause that no extensions or replacements of infrastructure are performed. Therefore the capacity is now lower than was planned without these cuts. The postponement or cancellation of road extensions lead to reduced accessibility and additional traffic nuisance. This has a negative impact on the economy. (Groot et al., 2012)

The problem is as follows. Due to the increased mobility, there is a higher demand to increase the capacity of the roads. With the current budget cuts it is harder to increase the capacity of the roads than before. To realize the capacity that was planned without cuts, projects have to be performed with a smaller budget. This creates a gap between costs and budget, which has to be filled. Alternative funding is necessary to fill the gap. (Agentschap NL, 2013)

A choice has to be made by the Ministry of Infrastructure and Environment between performing less projects, or performing an equal amount of projects but with a smaller budget per project. By performing less projects the economy is affected negatively, which is not desirable. By performing projects with a lower budget per project, infrastructure projects will have a gap between the costs and the budget. The costs are the total project costs, including construction and exploitation, for tender. The budget is the budget assigned for the project to Rijkswaterstaat. In order to realize infrastructure, the gap between costs and budget has to be covered. Before the economic crisis it was more obvious that the government bears all costs. But the budget of the government becomes scarce. (Agentschap NL, 2013)

According to Agentschap NL (2012): "Due to the financial crisis and the elimination of subsidies, a search for new possibilities in funding in the Netherlands has started". Because of cuts public funding becomes more difficult, even for infrastructure projects of public interest. With the increased interest in alternative funding, it is important to take another look at the funding structures of infrastructure projects. (Rijkswaterstaat, 2012a)

There are examples of alternative funding through value capturing in the Netherlands, but this is not done for every project. Huisman (2006) has the following definition of value capturing. Value capturing can contribute to the realization of a balance between costs and benefits in urban development. Value capturing aims to get beneficiaries make a contribution to the measures from which they profit. This means that future benefits from a project are captured to cover the current costs. An example given by Huisman is a tunnel in the Netherlands, the so-called "Westerscheldetunnel". The user, who values the tunnel, makes a contribution in the form of toll. So the user funds the measure which he benefits from. Another example is Sijtwende, in which profits of urban development are funding the tunnel. (Huisman, 2006)

1.4 PROBLEM STATEMENT

The problem can be summarized as follows. Because of the increased mobility, there is a higher demand to increase the capacity of the roads. With the current budget cuts it becomes harder to increase the capacity of the roads than before. To realize the capacity that was planned without cuts, projects have to be performed with a smaller budget. This creates a gap between costs and budget, which has to be filled. Alternative funding is necessary to fill the gap. (Agentschap NL, 2013)
1.5 RESEARCH QUESTION

From the problem statement a research question can be derived. Besides the main research question, multiple sub questions are presented. The main research question is the following:

How can value capturing contribute to an improved financial feasibility of investments in state road projects?

The sub questions are:

1. What strategies for value capturing can be used in road infrastructure?
2. Which instruments related to the strategies are promising?
3. What is the effect of these instruments on the financial feasibility?
4. What are other effects of these instruments?
5. Under what conditions can these instruments be used?

1.6 SCOPE

In this section the definitions will be explained and the scope of this thesis will be specified.

Definitions and delineation

Terms used in the research questions are defined in this section. These definitions are also used in the rest of this thesis.

1. Financial feasibility: In this thesis, feasibility means the financial feasibility of a project. This means that a project is financial feasible when the revenues cover the costs. Revenues include budget of the government.

2. Improved financial feasibility: This means that the gap between the available budget for funding of a project and the costs becomes smaller. Or in other words, the funding gap becomes smaller.

3. Value capturing: Value capturing is a set of instruments. It targets creation of value for different parties, caused by a measure of public action. The increase in value can be captured with these instruments, to cover costs. So this term contains two terms, namely (1) value; (2) capturing. Value has to be created for different stakeholders, in order to capture it. (Offermans & Velde, 2004)(Huisman, 2006)

4. State roads: The focus of this thesis is on road infrastructure, and specifically state roads. These state roads already have an expected positive social value, derived from the social cost benefit analysis. These projects are already mentioned in "MIRT", but cannot be performed yet due to a funding gap.

Scope

The focus of this thesis is on value capturing instruments that can be used for road infrastructure. More specifically the focus is on state roads. These state roads have an expected positive social value, derived from a social costs-benefits analysis.

The projects discussed in this thesis initially have insufficient funding. A funding gap can also be covered by reducing the costs. This thesis is not focused on this part, but primarily on finding alternative funding sources. Within these sources both public and private parties are considered, or in other words all parties are considered besides the central government.

Funding mechanisms will be sought from the theory of value capturing. So roads with private owners are not within the scope of the project. Options will be sought in which the government remains the owner of the road.

General business models for Rijkswaterstaat are out of scope. In this thesis funding mechanisms for one project will be sought. A business model to fund all projects will not be considered, nor will options in which revenues of one project fund another project.
1.7 Methodology

Research methods are necessary to answer the sub questions, and eventually the research question. The research methods and data will be elaborated upon per sub question.

The first sub question is: How does value capturing work? For this sub question desk research, or literature study, will be done. The second sub question is: What strategies can be used in road infrastructure? This question will be answered by literature study. The third sub question is: Which instruments related to the strategies are promising? This question will be answered by literature study and case studies.

The fourth, fifth and sixth sub questions are about the effect of the instruments and the conditions. These questions can be investigated with literature study and case studies. Within the literature study cases should be studied in, for example, the N201 case. This example is given because this project is special due to the value capturing aspect. Last, in the synthesis the instruments are validated on a case. The requirements for the data are on qualitative basis.

The limitation of using cases can be that not all data will be available, but general information will give insight in new possibilities. A limitation of case studies is that the data is case specific and it is possible that the financial structure used there is not applicable to another project.

The data will be presented in matrices, in which characteristics of the instruments become clear.

1.8 Report structure

The report is divided into four sections: (I) Introduction; (II) Theoretical framework; (III) Case studies; (IV) Conclusions.

I Introduction

In the first section, above, the problem and context are explained.

II Theoretical framework

In the second section “Theoretical framework” the following sub questions are partially answered. This is done by literature research.

1. How does value capturing work?
2. What strategies for value capturing can be used in road infrastructure?
3. Which instruments related to the strategies are promising?

III Case studies

In the third section case studies are done to verify the answers to the questions, given in the theoretical framework. Furthermore the other sub questions are answered as well.

4. What is the effect of these instruments on the feasibility?
5. What are other effects of these instruments?
6. Under what conditions can these instruments be used?

IV Conclusions

In this part the cases and the theoretical framework merge. The cases and the theoretical framework are evaluated and the conclusions will be given.

This will be the main structure of the report. In the following section the theoretical framework begins.
SECTION II: THEORETICAL FRAMEWORK
2. VALUE CREATION

Before searching for possibilities to improve the financial feasibility of infrastructure projects, theory about value will be given. Infrastructure projects create added value, which finally can be used to capture the value (and eventually be used as a funding source). What value is, and how this value can be determined, will be explored in this chapter. In 2.1 the general perspective of the value of road infrastructure will be described. In 2.2 value is defined, and in 2.3 the determination of value is explained. In 2.4 value engineering is presented. In 2.5 the link between value and price is described. Last in 2.6 a conclusion will be drawn.

2.1 ROAD INFRASTRUCTURE AND VALUE CREATION

In 2012 the Dutch government acknowledged the importance of infrastructure. In the coalition agreement of 29 October 2012 is written: “Infrastructure and mobility are crucial for our economy.” But what makes infrastructure valuable? As mentioned above, infrastructures serve broader societal values, like general economic development and sustainability. The efficiency of the economy is heavily influenced by the effectiveness, quality and universality of these infrastructures. (Scientific Council for Government Policy, 2008)

According to Discussion paper 213 from World Bank: “Infrastructure contributes to economic growth (acting through both supply and demand), based on (1) reduced costs of production; (2) structural impacts on demand and supply: It allows diversification, key to the economy’s ability to adjust the structure of demand and production, the effects can be seen through increases in the productivity of other factors of production (capital and labor). (...) Infrastructure contributes to raising the quality of life, through (1) creating amenities in the physical environment; (2) providing outputs which are valued in their own right, such as transportation; (3) the financing of infrastructure has important implications for macro-economic stability.” (Kessides, 1993)

Besides general social values, more specific public values are related to infrastructure. Investment is a precondition for the realization of certain public values that are linked to specific infrastructure, including accessibility. A public value can be defined as a common interest in which a role of the government is desirable. According to Lijesen et al. (2007): “There are different categories of public values that are related to the use of a road, considered from the role of the government as a road authority”. The following categories are mentioned: availability; capacity; accessibility and speed; reliability; affordability; quality and comfort; safety; robustness and flexibility; and aesthetic perception. (Lijesen, 2007)

So, infrastructure serves broader societal values, especially economic development, and public values like accessibility. Therefore it is important for society to invest in infrastructure projects. To investigate value from infrastructure more extensively, the term value will be defined in the next section.

2.2 DEFINITION OF VALUE

In value capturing, value plays an important role. Therefore value has to be defined first. Different definitions are given below, so that a definition used in this thesis can be given.

The first definition is from Sam Houston State University (2013): “Value is created anytime an action is taken for which the benefits exceed the costs. The concept of value creation says nothing about the profit. The benefits are measured to the consumer; the costs to the firm- you cannot determine profit just from that. The selling price determines the amount of value that is “captured” by the firm – that contributes to the firm’s profit (producer surplus). The other value is not lost. It is retained by the consumer. It is the difference between what the consumer would have been willing to pay and the price (consumer surplus).” So they link value to willingness to pay. Furthermore they say that value creation and value capturing do not have to be related. One can create value without capturing any of it. But you cannot capture value without creating it. (Sam Houston State University, 2013)
Also Ontario (2010) links the term value to willingness to pay. According to Ontario (2010) value is “a personal perspective of your willingness to pay for the performance delivered by a product, process or project”.

Third, according to Ramdien (2012) value can be defined as: “The ratio between the degree of completion of a need with respect to the resources used. When there is no need, then something is useless and therefore it has no value. For example, when one does not need fire, a lighter has no value. The need is described as the function and the degree of completion of the function (the performance). The performance indicates to what extent the need is fulfilled. In short, this is called the functionality. Resources are usually expressed in money, but can also contain units of time and energy.” The value is usually described by the following equation according to Ramdien (2012):

\[
\text{Value} = \frac{- \text{Needs}}{\text{Resources}} = \frac{\text{Functionality} + \text{performance}}{(\text{Life cycle}) \text{ costs}}
\]

However, this definition is hard to use due to the units in the equation. In comparison with the previous definitions, it can be true that adding more functions (with lower costs than benefits) increases the value. This aspect of the definition can be helpful in further research.

Last, in the report of LPBL (2010) social costs and benefits are calculated to determine the value of a project. All benefits and costs for society are translated into monetary units. The social cost benefit analysis has its theoretical basis in the economical (welfare) theory. The basic idea is that the preferences of (all) individuals in the society must be leading and that these preferences should be expressed in monetary units. The monetary unit is based on the willingness to pay, also for benefits or costs that normally are not expressed in monetary units. (LPBL, 2010)

For this report value is defined as the difference between the (social) benefits and the costs, in monetary units based on the willingness to pay. To be more specific, only the economical value (which can be translated into monetary units) is subject of this research and not for example the emotional value. This is also used in research of LPBL (2010).

![Figure 7: Economical value (LPBL, 2010)](image)

For example, road infrastructure projects can also benefit surrounding areas because of the increase in accessibility. This can either be seen as less congestion time (which can be translated in economic, monetary terms) when viewed from the user role. But the land value of homes can also increase, because the higher accessibility makes the area more attractive. This increase in land value is already measured in monetary units. (LPBL, 2010)

### 2.3 Determination of Value

In the previous section value is explained in general, but how can value be measured? The determination of value is important for the decision making process of a project. Value can be measured with a cost benefit analysis. A cost benefit analysis indicates the efficiency of an investment for the entire society. (LPBL, 2010)(Agentschap NL, 2012)

**Cost benefit analysis**

A social cost benefit analysis can measure the value of a project. This value is calculated by both financial effects and non-financial effects. The measurement of financial effects, or the financial
profitability, is done in a business case. A cost benefit analysis analyzes more than a business case, which can be seen in the figure below. (LPBL, 2010)

![Cost benefit analysis versus business case](figure8.png)

**Direct versus indirect effects**

For the determination of value different effects are used. In general there are the following effects (Verhaeghe, 2011): direct, indirect and external effects. Examples of these effects with respect to road infrastructure will be given for plan study Schiphol – Amsterdam – Almere. An example of a direct effect in this case is travel time saving. An example of an indirect effect is the effect of a road on the housing. A road can have an effect on the prices of houses in the surrounding area. Another indirect effect is on the location of businesses. The productivity can increase, because of a road, and therefore the competitive position becomes better. (Rienstra, 2006)

In the figure below the different effects are presented as part of the total social value. The figure only presents the different effects, and is not representative for the actual amounts or percentages in value. For this thesis the direct and indirect effects are most important, and are therefore presented in this figure. Part of the total value is based on the direct effects, and part is based on the indirect effects. The direct benefits are mainly experienced by the users and the indirect benefits by developers and owners of land.

![Social value - Direct and indirect effects](figure9.png)

The fact that a road affects not only the user, but also other parties is also described in research of LPBL (2010). According to them the total economic value of land development is based on (1) value for individuals (user value) and (2) value for others (non-users). This can divided into different kinds of values. The value for individuals can be split into (1.1) value for now, (1.2) value for the future and (1.3) indirect value for others. The value for others can be split into (2.1) indirect value for others, (2.2) value for current generation and (2.3) value for the future generation. An example of indirect value would be increased real estate values in the surrounding area. (LPBL, 2010)
Public good or semi-public good

Even though the government is involved in infrastructure project, it does not mean that infrastructure is purely a public good. The definition of a public good is that it is non-exclusive and non-rival. As described above, value can be assigned to groups (developers or owners) or even individuals (in the form of users), who benefit from a project. Adam Smith (1776) has described that involvement of the government is required in some functions, such as provision of public works as may be necessary to facilitate economic activity. Involvement of the government is required in this case because public works are of such a nature that the profit could never repay the expense. Therefore it is not a good provided by the market. Smith stresses the need for efficiency. But how can infrastructure be efficient? He means that services should be paid for by those who benefit from them, because this means of payment would help ensure that services were provided only where there was a demand for them. (Smith, 1776)(Batt, 2002)

In the World Bank discussion paper 213 it is also discussed that infrastructure is more likely to be economically efficient when it is subject to user charges. These are necessary to elicit effective demand. It should be based on economic prices reflecting both costs of supply and demand considerations (willingness to pay), as well as externalities to the extent possible. Whenever prices for infrastructure are paid by users, through toll, the infrastructure is not a public good but a quasi-public good, so infrastructure is not purely a public good. (Kessides, 1993)

2.4  Value creation

The definition of value is expressed in a formula. When value engineering one tries to increase the value. It uses a combination of techniques to identify alternative ways to achieve objectives. The use of function analysis differentiates value engineering from other problem solving approaches, according to Ontario (2010). Based on the formula mentioned above, strategies can be derived to increase the value. The value can increase through (Ramdien, 2012):

1. Adding functions
2. Increasing performance
3. Decreasing costs

The focus of this thesis will not be on point three. Point one “Adding functions” and two “Increasing performance” can be used in relation to value capturing. By adding functions the value can increase. To determine which alternative creates more value, a cost benefit analysis can be done. Besides the value, adding functions also has an effect on the scope and the costs of a project.

Scope of a project

Value engineering can be used as an instrument for land development. By adding functions to the project, the scope of the project will change. Adding functions can lead to an increase in value. In addition the costs can also change.

Integrated versus single projects

A distinction can be made between integrated and single projects. In a single project road infrastructure is constructed separately from possible land development. In an integrated project road infrastructure and land development are constructed in an integrated plan. This means that the scope of the project is extended, functions are added and the value increases.

Prorail is using value engineering for their projects. An example is given by Dukker from Prorail (2009): “A good example is the improvement of safety of a crossing, named Soestdijkseweg, in Bilthoven. ‘This crossing is among the most sensitive crossings with respect to accidents’, tells Hendriksen. ‘The intersection is, besides a crossing also the gateway to the platform. Converting the crossing to an overpass crossing has priority for Prorail. The municipality wants more. Why not immediately improve the traffic flow, when the centre is already planned to be re-arranged? The next step towards an integrated plan for land development will be made soon. But there is a big problem. Bilthoven is constructed around the station. The crossing is literally the center of
Value engineering can be seen as a tool to increase the value in a project. However, this tool is not complete. Just adding functions does not necessarily increase the value of a project. The extra function must have more (social) benefits than costs, to increase the value. So whenever one tries to create extra value, it is important that the costs do not exceed the benefits.

2.5 Value - price - costs

In a previous section the value of infrastructure was explained. Infrastructure serves crucial economical and societal values. These values can be measured in a social cost-benefit analysis. In this analysis all costs and benefits are measured, also indirect costs and benefits. Whenever there are larger societal benefits than costs the added value is measured. This added value is important in the decision whether to perform a project or not.

In the figure below the difference between value, price and costs is presented. The value of the project is not just the selling price, but it the sum of the emotional value, functional value and the technical value. The emotional value is harder to measure in monetary units, but this can be done with a cost-benefit analysis. When the owner is a private party, it is the value of the project for the owner. In the case of Rijkswaterstaat as the owner/client, the value is the societal value which can be measured with a societal cost-benefit analysis. (De Ridder, 2011)

When the value is higher than the price, there is a benefit for the owner. Between the price and the costs there is also a difference, because the contractor wants to make a profit as well. The positive difference between the price and the costs is the profit of the contractor. (De Ridder, 2011)

State road projects have to be tendered by Rijkswaterstaat. The price paid for the project is the cost for Rijkswaterstaat. This price is the price agreed upon in the tender. The price equals the costs plus the profit of the contractor. In this thesis the price is essential, because this is the cost for Rijkswaterstaat (the client). To pay the price funding has to be sought.

In the next sections, by costs the costs for the client are meant, or the price, because this thesis is written from the perspective of the client.
2.6 Conclusion

The value of infrastructure can be determined based on different effects, like direct and indirect effects. An example of a direct effect is travel time saving. An example of an indirect effect is the effect of a road on the housing. A road can have an effect on the prices of houses in the surrounding area. Another indirect effect is on the location of businesses. The productivity can increase, because of a road, and therefore the competitive position becomes better. These effects will also be used in the next chapter for value capturing. (Rienstra, 2006)

Value can be created by adding functions, whenever the costs do not exceed the benefits. By creating extra value and fulfilling the demands of other stakeholders, more value might be captured. So changing the scope of the project can help to capture the value. In the next chapter value capturing will be explained.
3. **VALUE CAPTURING**

Infrastructure projects create value for parties, like surrounding land owners or companies, through for example higher performance of surrounding businesses. Value capturing can be used as a source of funding. In this chapter a theoretical framework of value capturing will be presented. In 3.1 the definitions of value capturing will be given. In 3.2 the forms of value capturing are described, and in 3.3 the related stakeholders. In 3.4 the methods are given and next in 3.5 strategies of indirect value capture are described. In 3.6 the instruments of these strategies are presented and last in 3.7 a conclusion will be drawn.

### 3.1 DEFINITIONS OF VALUE CAPTURING

First it has to be clear what value capturing exactly means. Various definitions are used for value capturing. In this section the different definitions are presented, and also the definition used for this thesis is mentioned.

The first definition is made by Offermans and Van de Velde (2004). According to them value capturing has the following definition. Value capturing is a collective term for instruments that make it possible to capture the increase in value of land and property directly or indirectly. The increase in value is caused by public action. The captured value can be used for the activities that are causing the increase in value.

The second definition is from Agentschap NL (2012). According to them value capturing has the following definition. Value capturing is a method to influence the cash-flow of projects. By involving future revenues in the cash-flow, current shortages can be covered. Furthermore, value capturing as a set of methods and measures targets creation of value for different parties.

The third definition is from Huisman (2006). In his perception the definition of value capturing is the following. Value capturing can contribute to the realization of a balance between costs and benefits in urban development. Value capturing aims to get beneficiaries to make a contribution to the measures, from which they profit. This means that future benefits from a project are captured to cover the current costs. An example given by Huisman is a tunnel in the Netherlands, the so-called “Westerschelde tunnel”. The user, who values the tunnel, makes a contribution in the form of toll. So the user funds the measure which he benefits from.

The definitions of value capturing have some similarities. Value capturing is a set of instruments. It targets creation of value for different parties, caused by a measure of public action. The increase in value can be captured with these instruments, to cover costs. This definition of value capturing will be used in this thesis.

**Presentation value capturing**

In the diagram below the value capturing process is described. First, the situation is a project with insufficient funding, which leads to a funding gap. In this thesis this is the initial situation.

![Figure 11: Funding gap](image-url)
Then, value capturing is used. Other parties profit from the project as well. The revenues of other parties are created through the project. By capturing these revenues the total budget for the project increases and the costs can be covered.

Another option is the following: By changing the scope, and accept the demands of other parties, extra value can be created. These might be willing to make a contribution. This is beneficiary when the costs do not exceed the profit.

### 3.2 Forms of Value Capturing

Value is created for different parties through public investments. Users are benefiting from a new road. But there is also a group of non-users who are benefiting from the road, like retailers and owners of land and property. They benefit from an increased accessibility, but they do not contribute to the investment. The public investment causes positive externalities, in the form of, for example, an increase in value of a location. The increased value can be captured and this can be used for funding of the investment. But which groups benefit from a road? (Offermans & Velde, 2004)

There are different forms of value capturing. This can be seen in the triangular
The basis for investments by the government in public space are public funds. These funds are formed by revenues generated from taxes. So in this case all tax payers contribute to the investment. The first form of value capture is direct value capture. With this form direct users are contributing to the investment, with for example a user contribution. In the case of a road this could be in the form of a toll. The second form of value capture is indirect value capture. Indirect value capture is for direct beneficiaries. This could be a land owner, who benefits from an increase in land value, or a retailer who benefits from a higher accessibility. (Huisman, 2006)(Offermans & Velde, 2004)

3.3 STAKEHOLDERS

In the section above the different forms of value capturing are mentioned. These forms of value capturing have an influence on different groups of stakeholders. The groups of stakeholders will be distinguished in this section, so it is becomes clear which groups are involved in this process.

The first form is direct value capture. The group of stakeholders that is involved in direct value capture is the group of direct users. This applies to both passenger transport and freight transport. Both parties can benefit from a road, but when there is no pricing mechanism like toll the users do not pay directly for the road. (Huisman, 2006)

According to Huisman (2006) there are other groups involved in indirect value capturing. Indirect value capturing focuses on direct beneficiaries. A direct beneficiary cannot be priced for a new road like a direct user. A direct user can be charged by a user contribution, for example with a toll road. A direct beneficiary must be charged another way. Before determining how direct beneficiaries can be charged for a new road, it is necessary to determine the different kinds of stakeholders within the group of direct beneficiaries.

The following groups of stakeholders are identified in indirect value capturing:

**Private parties**
1. Owner land: This party owns land or land with property (houses or non-houses)
2. Owner-user
   a. Residents: This party owns and uses his property, in this case houses
   b. Entrepreneurs: This party owns and uses his property, in this case non-houses
3. Users
   a. Residents: This party does not own the land, but uses the property (houses)
   b. Entrepreneurs: This party does not own the land, but uses the property (non-houses)
4. Developers: This party owns the land (or does so in the future) and develops it

**Public institutions**
1. Municipalities
2. Provinces
3. State

These roles can be used in the identification of stakeholders, to investigate how they benefit from the project. In the table below the created value is expressed per role.
As can be seen, the owner’s land value can increase because of a project. Users of non-houses, specifically businesses, can experience an increase in performance of the core businesses because of the higher accessibility. Even though these parties benefit from a project, they do not contribute to it.

### 3.4 Possibilities and Difficulties Associated with Value Capturing

In this section some possibilities and difficulties with regard to using value capturing in general are described. An opportunity for using value capturing is that it might improve the financial feasibility of projects. Another opportunity is, that by creating extra value (and capturing extra value), the total (social) value of project can increase.

However, using value capturing can also create difficulties. First, an instrument can have a barrier with regard to the social acceptability. For example, toll as an instrument of value capturing mostly has this barrier. Second, the risk can be higher when estimated effects must be dealt with. For example, when an estimate is made about the increase in land value and this increment is used for funding, there is a risk that the estimate is not realistic. Also, when extra value is created in order to capture more value (by adjusting it to demands), the complexity of the project increases. Third, it is possible that an instrument requires adjustments in the legal system. This means that the legal embedding is more difficult.

These possibilities and difficulties are translated into criteria to screen the value capturing methods in the next section. Also, these criteria will be used to examine the different instruments in a later phase.

### 3.5 Value Capturing Methods

In this section the methods for value capturing are described. In paragraph 3.3 the different forms of value capturing are explained. Two methods can be derived from these forms:

1. Direct value capture
2. Indirect value capture

Direct value capture aims at the direct users, or in this case the users of a road infrastructure. This can be done through toll, parking fees or congestion charge. Indirect value capture aims at the direct beneficiaries. In the case of road infrastructure the direct beneficiaries are owners and developers in surrounding areas. Different instruments can be used for indirect value capture, for example voluntary benefit sharing by owners of businesses, tax increment financing or joint ventures. (Huisman, 2006)(Offermans & Velde, 2004)
Screening of methods

Before choosing strategies and instruments for value capturing, one of these methods has to be chosen. Based on certain criteria a choice can be made for a method, and the chosen method is subject of further research. The criteria are chosen based on the identified possibilities and difficulties from the previous section.

The criteria are the following:

1. *Improvement of financial feasibility:* This means that the gap between the available budget for funding of a project and the costs becomes smaller. Or in other words, the funding gap becomes smaller. This is also the subject of this thesis.
2. *Social acceptability:* The extent to which the society supports a method. Whenever a method is social unacceptable, it becomes harder for politicians to implement the method. The extent can be determined based on reactions to previous initiatives. According to the former Ministry of Housing, Spatial Planning and Environment (2001), in Dutch: Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, or VROM, there are three assessment criteria for cost recovery: (1) Benefit principle: A substantial benefit must be associated with a project, like the construction of a road. (2) Accountability: There must be a causal link between the benefits and the costs incurred for a project. Without a causal link, value cannot be captured. (3) Proportionality: If multiple locations or parties within the area benefit from a road, then the costs should be distributed proportionally. A location that benefits more from it than another, should contribute more to the costs. Another aspect can be ability to pay: A party must be able to pay the value from which it benefits. It cannot be captured when a party cannot pay it. Based on these aspects, and the reactions to previous initiatives, the social acceptability will be determined.
3. *Embedding in legal system:* This can be defined as the extent to which a method can be implemented in the Netherlands without adjustments to the legal system.
4. *Risk:* The risk associated with the impact on the cash-flow of a project, either because of higher costs or lack of availability of funds. Higher costs can also relate to the complexity of a project.
5. *Economical value:* The extent to which the value, determined in a social cost benefit analysis, differs from implementation of a method with the initial scope.

These criteria are important for the success of a method. The scores on these criteria should be considered to make a deliberate decision. The methods are screened based on these criteria, and a rough estimate will be made to score the methods. Each method will be scored on every criterion with +, - or +/- . Plus indicates a positive effect to the criterion, while minus indicates a negative effect. +/- indicates that the method has no effect on the criterion, or it can either be positive or negative (depending on the instrument) and is therefore scored ‘average’.

The scores on the criteria for direct value capture will be explained.

- Direct value capture has a positive effect on the financial feasibility, because payments by users create more incomes for a project.
- The social acceptability is scored negatively, because, even though there are initiatives for user fees, politicians are not implementing it because of the social acceptability. For example, a study was done on the subject of user fees (called "Rekeningrijden"), but the Rutte II coalition has announced that this instrument will not be implemented. So the acceptability of user fees remains a difficult topic. (NOS, 2012)
- The embedding in legal system is average, because there are examples, like the Westerscheldetunnel, that use toll. So in this example the instrument can be implemented without adjustments to the legal system. But with instruments like "Rekeningrijden", adjustments to the legal system are necessary. This is because of current laws. The law "Wet bereikbaarheid en mobiliteit" is applicable in the Netherlands. This law makes it possible to implement toll, but "Rekeningrijden" is not mentioned in this law. (Eerste Kamer der Staten-Generaal, 2013)
- The *risk* becomes higher, when using this method, because an estimate will be made the traffic volume on a road. Based on this estimate the business case will be made, and with the possibility of a large deviation from the estimate the risk becomes higher.
- The *economical value* remains the same as in the original scope, because no functions are added to the project.

The scores on the criteria for indirect value capture will be explained.

- Indirect value capture has a positive effect on the *financial feasibility* of a project, because it creates contributions to the project.
- The *social acceptability* is also positive, because it has less of an impact on society than direct value capture.
- The *embedding in legal system* is average. Within the current legal system some instruments can be used, without adjustments, but others are harder to implement.
- The *risk* becomes higher, because by adding functions the project becomes more complex and the costs can be higher. In addition, in case of voluntary contributions the government depends on funding by other parties which is a risk.
- The *economical value* can either be higher, when functions are added, but also can remain the same. Therefore it is scored average.

All scores are presented in the figure below:

<table>
<thead>
<tr>
<th></th>
<th>Improvement in financial feasibility</th>
<th>Social acceptability</th>
<th>Embedding in legal system</th>
<th>Risk</th>
<th>Economical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>+</td>
<td>-</td>
<td>+/-</td>
<td>+</td>
<td>+/-</td>
</tr>
<tr>
<td>Indirect</td>
<td>+</td>
<td>+</td>
<td>+/-</td>
<td>+</td>
<td>+/-</td>
</tr>
</tbody>
</table>

**Table 3: Scoring direct and indirect value capture**

In the table above the effects of the methods “direct value capture” and “indirect value capture” are presented. Based on the social acceptability, direct value capture will not be investigated. Besides the outcome of this table, direct value capture has already been investigated by many researchers (without implementation of the instruments in practice). Therefore indirect value capture will be investigated further in this thesis.

### 3.6 Strategies for indirect value capture

When the methods were compared indirect value capture was chosen. The next step is to present strategies for the government for indirect value capture. Within the method value capture strategies can be found, that can be used by the government. There are three strategies for indirect value capture. The strategies are the following: (Wolff, 2012)

1. **Active land policy**
2. **Collaboration agreement**
3. **Contributions**

These three strategies can be chosen to use indirect value capture in a project. The strategies will be elaborated upon below.

**Active land policy**

According to Huisman (2006) active land policy is the following: “Active land policy means that the government accounts for the entire land exploitation. The government behaves as a developer by acquiring land and doing site preparation. Costs for infrastructure are included in land exploitation, and buyers also pay for this through the land price. This is called internal value capturing.” When active land policy is used, governments can benefit from increases in land prices, caused by investments in infrastructure. The developers buy the land on a voluntary basis, so this can also be categorized above under “voluntary contribution”. (Offermans & Velde, 2004)
Collaboration agreement
In a joint venture or another collaboration agreement different parties, like developers, owners and users, can work together. They work together for land exploitation of an area, and it can be performed in combination with property development. (Huisman, 2006)

Contributions
Developers can contribute on a voluntary basis by making agreements with the central government, the provider of infrastructure. According to Offermans & Velde (2004): “This category of voluntary instruments can be seen as a form of a public private partnership. Developers make agreements on a voluntary basis with the investor/provider of transport infrastructure to create a favorable situation for both parties. An additional advantage is that future initiatives are probably easier to realize.”

Contributions that are not voluntary are another option. This can be done through taxes. By using the current tax system, it is not necessary to make an agreement between developers or owners and the government. Taxes can be used to oblige parties to make a contribution to the investment. (Offermans & Velde, 2004) (Huisman, 2006)

It must be noted that the strategies “collaboration” and “active land policy” can be used at the same time, whenever a public institution is involved in the collaboration, which for example actively purchases land. Without collaboration the client has to deal with a higher risk, because it cannot be transferred or shared. These strategies will be used for further investigation. In the figure below the general context of these strategies is sketched. It can be seen that the strategies have an effect on the financial feasibility and the project definition, for example the scope and the costs.

![Figure 15: Relation value capturing with project](image)

In the next section the instruments for each of these strategies will be presented.

### 3.7 INSTRUMENTS FOR INDIRECT VALUE CAPTURE

In the previous section three strategies for indirect value capture were explained. Each strategy has instruments that can be used to implement the strategy in a project. The instruments will be elaborated upon, and a rough screening will be done based on the criteria mentioned in section 3.5.

#### 3.7.1 INSTRUMENTS FOR ACTIVE LAND POLICY

To implement active land policy various instruments can be used. The first instrument is amicable purchases, which means that the government buys land from owners. The second instrument is expropriation, which is an instrument that assigns ownership of land to the
government (when the municipality is not the owner of the land already). The other instrument is internal value capturing. (Huisman, 2006)(Offermans & Velde, 2004)

1. **Amicable purchases**

With this instrument the government buys land from owners. When this instrument is used the government owns the land to implement active land policy. This is an acquisition instrument, which can only be used for value capturing in combination with another instrument (because using it by itself does not generate revenues). Therefore this instrument is not considered a specific subject in the investigation, because it is a tool that does not generate money by itself. (Offermans & Velde, 2004)(Huisman, 2006)

For example, the project A2 Maastricht is an integral project, which includes infrastructure and land development plans. The planned area contains houses, so before the project can start this land has to be in the hands of the project developer. In the project A2 Maastricht the municipality buys land from owners in order to use the area for the project. (Projectbureau A2 Maastricht, 2013)

2. **Expropriation**

When active land policy is used municipalities can expropriate land. In this case the municipality becomes owner of the land and can develop it for other purposes. This cannot be done when private parties are capable of developing the area themselves according to the land use plan of the municipality. This is also an instrument that can be used in combination with another instrument for value capturing. Therefore this instrument is not considered a specific subject in the investigation, because it is a tool that does not generate money by itself. (Huisman, 2006)(Offermans & Velde, 2004)

For example, in the project A2 Maastricht, as described in the section about the previous instrument, land had to be acquired for the project. At first, the municipality Maastricht tried to purchase the land from the land owners. Not all land could be obtained this way. Therefore the municipality eventually had to use expropriation to get the last land from their owners, in order to meet the requirements for the project. (Projectbureau A2 Maastricht, 2013)

3. **Internal value capturing**

Internal value capturing is another instrument. This instrument can be used whenever a project is performed as an integral project. By internally cross subsidizing a project it can performed more efficiently in financial terms. For example, the revenues of land development can be used to fund infrastructure. This can be done by assigning multiple sub-projects to one project developer. (Offermans & Velde, 2004)

For example, this instrument is used in Japan and Hong Kong a lot. Transport companies construct multi-functional buildings there, or even take care of the integral development of districts. They take care of transport infrastructure and public utilities. They use internal value capturing to cross-subsidize the entire project. (Offermans & Velde, 2004)

Another example is A2 Maastricht, even though the project is tendered and constructed by a private consortium, the different parts of the project form an integral project. This means that the revenues generated by land development can be used to partially cover the costs of the infrastructure. (A2 Maastricht, 2013)

Sijtwende is also an example in which internal value capturing is used. Sijtwende is an integral project which includes infrastructure, houses, offices and recreation areas. The plan contains a tunnel for the N14, a tunnel for public transport and 700 houses. The province Zuid-Holland, municipality Leidschendam-Voorburg and the ministry of Infrastructure work together with Sijtwende B.V. (a collaboration between Bohemen and Volker Wessels Stevin). This company is responsible for this integral project. The company got the project for a price of 81,7 million euros. This price equals the estimated costs minus the 11,3 million euros of estimated revenues of land development. So the revenues generated by land development are used to cover the costs of the tunnels. (Bohemen, 2013)(Offermans & Velde, 2004)
3.7.2 *Instruments for a Collaboration Agreement*

The strategy for collaborations can include different instruments. The first instrument is joint venture, which is a form of collaboration. The second instrument is internal value capturing, which can be used when there is a joint venture.

1. **Joint venture – collaboration**
   In a joint venture or another collaboration agreement different parties, like developers, owners and users, can work together. They work together for land exploitation of an area, and it can be performed in combination with property development. (Huisman, 2006)

2. **Internal value capturing**
   This instrument was already explained above. This instrument can be used whenever a project is performed as an integral project. By internally cross subsidizing a project it can performed more efficiently in financial terms. This can be done by assigning multiple sub-projects to one project developer, or to a joint venture. (Offermans & Velde, 2004)

   An example of internal value capturing in a project, in which organizations work together, is Spoorzone Delft. This project contains a tunnel for the trains with an underground station, parking facilities, a new city office, houses and offices and a park. One plan is made for the entire area. Because the municipality of Delft benefits from the tunnel for their land development plans, the municipality makes a contribution and hopes to earn this contribution back with the sale of new houses and offices that are planned to be developed. (Spoorzone Delft, 2013)

3.7.3 *Instruments for Contributions*

A distinction can be made within the strategy contributions. The first category is voluntary contributions and the second category is imposed contributions. The imposed contributions are instruments that can be used in the Netherlands, so these instruments have to fit into the Dutch legal system. But first the voluntary contributions will be mentioned.

**Voluntary contributions**

There are three forms of voluntary contributions, according to Offermans (2003). These forms are described below. The first form is benefit sharing. The second form is developer's contribution and the last form is development rights.

1. **Benefit sharing**
   The first category is benefit sharing. Agreements are made about the sharing of benefits that are caused by public investments. It can be agreed that the private party makes a contribution when a certain output level is achieved. Another option is that private parties contribute all profit, up to a certain amount. (Offermans & Velde, 2004)

   This is done in the project N201+. In this project municipalities and private parties, such as Schiphol Group and Bloemenveiling Aalsmeer, contribute to the project on a voluntary basis. They share their benefits, that are created by the project. (Stuurgroep N201+, 2004)

   Another example is N23 Westfrisiaweg. This project is the part of the N23 that runs through Noord-Holland. The costs of the project are estimated at 350 million euros in the region agreement (2007). The province of Noord-Holland contributes 100 million euros to the project. This stakeholder is also responsible for the project. Different municipalities make a total contribution of 68 million euros. These municipalities are Enkhuizen, Hoorn, Heerhugowaard, Alkmaar and several others. Furthermore, Hoogheemraadschap Hollands Noordkwartier and the state also make a contribution. The municipalities benefit from the project, also because of land development plans, and therefore they partially fund the project. (Projectbureau N23 Westfrisiaweg, 2007)
2. Developers contribution

The second category is developer's contribution. The idea of developers contribution is that developers are willing to contribute to the infrastructure, because they benefit from the project. This is mostly a single contribution. This instrument is quite similar to the previous instrument, benefit sharing, but is only designated for developers. Because of the similarity, only the first instrument will be investigated further. (Offermans & Velde, 2004)

An example of developer's contribution is given by Offermans (2003). This instrument is used in England for the extension of a metro line in the Docklands area. In the Docklands area offices were created and connected to a light railway line. However, the expectation was that this line was not sufficient for the future. Therefore the metro line has to be extended. However, the government did not want to fund the project entirely (it costs 1.6 billion pounds). Developers made a contribution of 400 million pounds, because the success of the development of the area depends on this line.

As can be seen in this example, in England developer's contributions are used as a source of funding. According to Demetrio Muñoz Gielen (2010) this instrument is used regularly in England and Valencia. In England developers make contributions to infrastructure projects in terms of money, while in Valencia developers make a contribution by making land available.

3. Development rights

The third category is development rights. This instrument is related to the instrument above. Development rights above, under or next to the infrastructure can be leased or sold. By leasing a prolonged flow of funds is generated, and there is still control over future use of the land. Examples are underground train stations with urban development above. (Offermans & Velde, 2004)

Local governments can use land use plans and exploitation permits as an instrument for negotiations with developers. The municipality can give an exploitation permit to the developer in exchange for a contribution to infrastructure. The Dutch law “Grondexploitatiewet” supports this idea. (Huisman, 2006) (Offermans & Velde, 2004)

This instrument is not considered in the investigation, because it is a tool that does not create money by itself. The rights can be used in negotiation, but the developer's contributions mentioned above capture the value. The developer's contribution is not considered in the investigation, because benefit sharing is an overarching instrument in which developers can also share their benefit.

Imposed contributions

Three forms of imposed contributions are described below. The instruments are aimed at implementation in the Netherlands, and therefore are based on the Dutch tax system. The first form is tax increment financing. The second form is development levy and the last form is development impact fee.

1. Tax increment financing

This is an instrument for collecting the increased revenues from property tax. According to Nichols (2012) tax increment financing is: “A special district created during a development period, where the tax base is frozen at the pre-development level (based on the assumption redevelopment would not occur in the area without public investment or intervention). Property taxes continue to be paid, but taxes derived from the increases in assessed values (the tax increment) resulting from new development either go into a special fund.”

Lari et al. (2009) have the following definition of tax increment financing: “Tax increment financing uses taxes levied on the increment in property value within a development to finance development-related costs. Tax increment financing is most commonly used by local governments to promote housing, economic development, and redevelopment in established neighborhoods. Tax increment financing has been used, however, in some instances to finance transportation projects.” So this instrument can be used to collect tax increment.
This instrument is linked to property tax. Tax increment financing can be applied to increments in property tax in the Netherlands. In Dutch there is a property tax called “Onroerendezaakbelasting”. This is not a specific instrument for value capturing, because this tax is always charged. The tax is charged as a percentage of a value called “WOZ-waarde”. The valuation will be done annually based on market value. This value is an indicator for the value of property in an area. When an investment in infrastructure is made, the expectation is, that because of the increased accessibility, the value rises. This should be apparent in the “WOZ-waarde”. The rise in revenues from the property tax can be used for funding of infrastructure. (Rijksoverheid, 2013d)(Vereniging Eigen Huis, 2013)

This is done a lot in the United States. In the US tax increment financing is used to fund a range of infrastructure and development projects. In 2008 the 49 states had special TIF enabling legislation. How it is used differs from state to state. So this instrument is used at state-level. (PWC, 2008)

2. Development levy
Municipalities can recover costs with the so-called “baatbelasting”. With this instrument a municipality can recover costs from property owners, under the condition that the property owners benefit from facilities provided by the municipality (or in collaboration with the municipality). In practice this instrument can hardly be used, due to the limited applicability and because of requirements with respect to accountability. Therefore this instrument will not be investigated further. (Huisman, 2006)(Offermans & Velde, 2004)

3. Development impact fees
According to Lari et al. (2009) there is another instrument for value capturing for transportation funding. This instrument is development impact fees. In the report of Lari et al. it is stated: “Development impact fees are one-time charges collected by local governments from developers for the purpose of financing new infrastructure and services associated with new development. (...) Impact fees are not a primary source of revenue for transportation in most jurisdictions, but can help finance the share of transportation budgets attributable to new development.” In this study an example of this instrument in Minnesota is given. This instrument looks similar to development levy, but it differs in the number of contributions. Because this instrument is hard to implement in the current legal system, this instrument will not be investigated further.

3.7.4 Overview of instruments
The instruments of indirect value capture are mentioned above. Some instruments have to deal with public law, while others have to deal with private law. In this section an overview of the instruments is given.

Some instruments mentioned above, are not presented in this table because a selection was made. The instruments are roughly selected based on desired outcomes of the financial feasibility and of the criteria: risk, legal embedding, economical value and social acceptability. First a selection is made based on instruments that can generate revenues, or in other words can have a positive effect on the financial feasibility. For example purchasing land is only useful in terms of value capturing when it is used in conjunction with another instrument, like internal value capturing. Therefore the last instrument is the main focus of research, and not the purchasing of land itself. So based on the criteria “improvement financial feasibility” the instruments “purchases”, “expropriation”, “joint venture” and “development rights” are not subject of further research. Because of the legal implications of the instruments “development levy” and “development impact fees”, these instruments are not selected. Last, the instrument “developer’s contribution” is similar to “benefit sharing” and therefore only the last instrument is used.
It was decided to present, and investigate, only the more promising instruments here.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Instrument</th>
<th>Stakeholder</th>
<th>Public law</th>
<th>Private law</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Active land policy</strong></td>
<td>1. Internal value capturing</td>
<td>Developers, municipalities</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Collaboration</strong></td>
<td>2. Internal value capturing</td>
<td>Developers</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>Contributions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>c. Voluntary</strong></td>
<td>3. Benefit sharing</td>
<td>Owner-users, users, developers,</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td></td>
<td>public institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>d. Imposed</strong></td>
<td>4. Tax increment financing</td>
<td>Owners/owner-users</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 4: Promising instruments

In the figure below a presentation is given of the instruments related to the created value.

![Created value versus instruments](image)

**3.8 Conclusion**

In this chapter two methods for value capturing were presented, namely direct and indirect value capture. After a screening indirect value capture was chosen as subject for further research. The screening is done based on the criteria: financial feasibility, value, legal embedding, risk and social acceptability. There are three strategies for indirect value capture, namely (1) active land policy, (2) collaboration agreements and (3) contributions (either voluntary or imposed). All strategies have instruments for value capturing.
The most promising instruments will be investigated in the case studies, namely (1) internal value capturing; (2) benefit sharing and (3) tax increment financing. The strategies active land policy and collaboration agreements both use the instrument “internal value capturing”. From the strategy contributions both the voluntary and the imposed instruments are investigated. These instruments are the subject of the case studies. The effects of these instruments on the criteria (financial feasibility, value, legal embedding, risk and social acceptability) will be investigated further.
4. METHODOLOGY FOR CASE STUDIES

In this chapter a checklist for the case studies will be made. These are the subjects that have to be investigated in the cases. These subjects will be presented in the form of criteria and questions. First a checklist will be made for the criteria.

4.1 CHECKLIST

The checklist is mainly derived from the research questions. The main research question is about improvement of financial feasibility of state roads. Therefore the largest part of the research is the effect of a strategy on the financial feasibility of a project.

- To what extent does the funding gap decrease?
- What is the revenue capacity?

In addition, criteria were already mentioned in the screening of value capturing methods in the previous chapter. These criteria will be investigated further for each strategy, and instrument, in the case studies.

The effect of a strategy on:
- Risk
  - To what extent will the funding risk be influenced?
  - To what extent will the project risk be influenced?
- Economical value
  - To what extent does the economical value increase?

In addition, the embedding of a strategy in political and legal context will be investigated:
- Social acceptability
  - Are there barriers with respect to the acceptability in the cases?
- Embedding in legal system
  - Are there legal barriers?

Besides these effects the conditions under which the instruments and strategies work will be investigated as well, so:
- What are the conditions for successful implementation of the strategies?

In the theoretical framework the strategies and instruments are explained. In the case studies the effects on the criteria mentioned above will be determined.

4.2 CASES

For this thesis three cases were chosen, so that the cases can be explored in more detail. Every case represents at least one of three instruments, so every instrument is investigated in at least one case. Therefore the minimum must be three cases. The choice was made not to perform additional case studies, allowing to investigate the cases in more detail instead of only superficially. The following cases were chosen:

- A2 Maastricht – Uses "Internal value capturing" and "Voluntary contributions"
- N201 – Uses "Voluntary contributions"
- Speculative case (based on A2 Maastricht) – "Tax increment financing"
SECTION III: CASE STUDIES
5. CASE: N201+

In this chapter a case study will be done for the project N201+. In this case the strategy of contributions, on a voluntary basis, is used. Various municipalities, like Haarlemmermeer and Amstelveen, contributed to the project. Besides contributions based on land development plans, additional contributions are made. Grants, also contributions based on land development projects are made. Private parties, like Schiphol Group and Bloemenveiling Aalsmeer, also contributed to the project. (Stuurgroep N201+, 2004)

In this chapter, how these contributions are determined, to what extent the contributions have an effect on the financial feasibility of the project, and how is dealt with the risks, will be investigated. The effect on the value of the project will also be determined, the social acceptability and the legal embedding will be described. Finally conditions for the use of the instrument "voluntary contributions" will be given.

5.1 Introduction

According to the realization agreement of N201+ (2004) the N201 and the connections to the state roads are important bottlenecks. The traffic situation is pressing and it harms the environment and safety in the municipalities of Aalsmeer, Amstelveen and Uithoorn. In the municipality Haarlemmermeer the accessibility is primarily a problem. The region is important for the national economy and therefore the region should be more accessible, more livable and safer.

Since the ‘60s plans are being made for the N201 to solve the problems regarding the accessibility, safety and livability. A design was made for the N201 that complies with functional requirements like traffic flow and safety. Financial security forms an important part of the plans. In 2002 a regional agreement was made by the province of Noord-Holland and the municipalities of Aalsmeer, De Ronde Venen, Haarlemmermeer and Uithoorn. The Minister of Transport and Waterways is asked for a contribution for the Masterplan N201+. At the end of 2003 it became clear that the contribution will be 170 million euros instead of 315 million. On the one hand, the N201+ belongs to the select group of projects that can count on state support. On the other hand, a funding gap arises. Therefore adjustments are made to create a cheaper design. The final design also counts on regional public and private contributions. (N201, 2013)(Stuurgroep N201+, 2002)

5.2 Project N201+

In this section the scope of the project will be described. The project consists of different subprojects that are integrated in one project. Furthermore, the history of the project will be described, in particular the milestones of the plan study phase.

5.2.1 Scope of Project

The province of Noord-Holland realizes the rearrangement of the N201 in the area between the A4, A9 and Amstelhoek. This is necessary to improve the accessibility, livability and the safety of the environment. In addition, an improvement is of economic interest to the region. Also, improvements will be made for bicycles. (Stuurgroep N201+, 2004)

The starting point of the Masterplan N201+ is to lead the traffic around urban areas to the main roads. Thereby the congestion in the centres of Aalsmeer and Uithoorn reduces drastically. The new connections of the A4 and A9 provide a more adequate handling of the traffic from the region to the main roads. For example, traffic from the “Bloemenveiling Aalsmeer” in the direction of Vinkenveen will be directed to the Fokkerweg and the connection to the A9, instead of the route in De Ronde Venen. (Stuurgroep N201+, 2004)(N201, 2013)

The Masterplan N201+ consists of different parts:
- Broadening Kruisweg to 2x3 lanes
- Rearrangement Aalsmeer-Uithoorn
- Broadening Fokkerweg to 2x2 lanes
- Rearrangement Schiphol-Rijk
- Two new connections at A4 with connecting roads
- Oostelijke Link
- Better connection Fokkerweg at A9
- Rearrangement Amstelhoek

These parts will be realized integrally in one project. The entire project will be realized in a stream of continuous construction. For the funding of this project, business areas nearby form an important aspect. These business areas are not within the scope of the project, but will be described in another section.

Figure 17: Overview project (N201, 2013)

5.2.2 History of the Project

In October 2006 the first work on the new N201 was started. But years of negotiations have preceded. In the ’60s, when the N201 was called the S21, municipalities and provinces started negotiating about improvement of the road. Various options were studied, rejected, reconsidered and adjusted. The plan study took a lot of time, due to the changing (political) preferences of the stakeholders. Finally, in 1990 17 variants were made. Some of these variants are made in more detail, including the funding in detail. In 1996 the Masterplan Corridor N201 appears. In 2001 a management agreement was signed by Haarlemmermeer, Amstelveen, Aalsmeer, Uithoorn, De Ronde Venen and the province of Noord-Holland. In 2002 a regional agreement is signed between the different parties, namely Haarlemmermeer, Aalsmeer, Uithoorn, De Ronde Venen and the province. (Provincie Noord-Holland, 2013) (Stuurgroep N201+, 2002)

Based on the regional agreement the Minister of Transport and Water is asked for a financial contribution to the project N201. At the end of 2003 it becomes clear that the contribution will not be 315 million euros, but 170 million euros. Therefore the plans are critically examined and adjusted. In 2004 the design process is finished and the stakeholders sign a realization agreement, namely Haarlemmermeer, Aalsmeer, Uithoorn, De Ronde Venen and the province. (Provincie Noord-Holland, 2013) (Stuurgroep N201+, 2004)
5.3 STAKEHOLDER ANALYSIS

In this section the various stakeholders are described. Besides the province of Noord-Holland, the client, other parties are involved in the process, like municipalities, Schiphol Group and Bloemenveiling Aalsmeer. These parties are involved because of their resources, like money and land use plans. First the stakeholders are described, and then the created value and dependencies are explained.

5.3.1 STAKEHOLDERS

In the project multiple stakeholders are involved. But which parties are involved in this project? First of all, the client of the N201 is the province of Noord-Holland. The N201 is a provincial road, and therefore the province of Noord-Holland is responsible for the development. According to Winters (2013) from the province of Noord-Holland the following parties had to be approached: the province of Utrecht and all municipalities on the route of the N201. In 1998 Aalsmeer and Uithoorn more and more felt a sense of urgency with respect to the N201. With the province, they played an important role in the project according to Van Twist et al. (2003). (Stuurgroep N201+, 2002)

Besides these parties, it was decided to approach only the major economic players in the vicinity of the N201, that benefit from the road, namely Schiphol Group and Bloemenveiling Aalsmeer. The state, Rijkswaterstaat, and Stadsregio Amsterdam were approached for subsidies. (Stuurgroep N201+, 2002)

In the table below stakeholders of the N201 are presented. One might find other parties that benefit from the project as well, that are not mentioned here. These parties did not participate in the plan study phase of the N201, or did not contribute to the project. Therefore these parties are not mentioned.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provinces</strong></td>
<td>Province of Noord-Holland (client)</td>
</tr>
<tr>
<td></td>
<td>Province of Utrecht</td>
</tr>
<tr>
<td>State</td>
<td>Rijkswaterstaat</td>
</tr>
<tr>
<td>Municipalities</td>
<td>Aalsmeer</td>
</tr>
<tr>
<td></td>
<td>De Ronde Venen</td>
</tr>
<tr>
<td></td>
<td>Amstelveen</td>
</tr>
<tr>
<td></td>
<td>Haarlemmermeer</td>
</tr>
<tr>
<td></td>
<td>Uithoorn</td>
</tr>
<tr>
<td>Other parties</td>
<td>Stadsregio Amsterdam</td>
</tr>
<tr>
<td></td>
<td>Schiphol Group</td>
</tr>
<tr>
<td></td>
<td>Bloemenveiling Aalsmeer</td>
</tr>
</tbody>
</table>

Table 5: Role stakeholders

Figure 18: Timing project based on (Provincie Noord-Holland, 2013)(Stuurgroep N201+, 2002)(Stuurgroep N201+, 2004)
The plus sign in the project name is a symbol for the collaboration between the different parties. The project distinguishes itself through this collaboration. (Stuurgroep N201+, 2002)

Competency model
The project is organized according to the so-called competency model, which is stated in the regional agreement by the Stuurgroep N201+ (2002). This means that each party is doing what it does best. The province of Noord-Holland is responsible for preparation, contracting, construction and management/maintenance of the road. The municipalities are responsible for development, contracting, construction and management of the areas. The municipalities contribute guaranteed area contributions to the province. By private parties the contributors are meant. In this case only the contributors are focused on. This group benefits from the project. Therefore they want to contribute to the realization of the project. (Stuurgroep N201+, 2002)

Figure 19: Competency model (Stuurgroep N201+, 2002)

Role
In the value capturing process, the stakeholders can be distinguished by their role. These roles are also described in the theoretical framework. In the table below a role is assigned to each stakeholder. The provinces and the state are public institutions, just like the municipalities. The municipalities of Aalsmeer, Amstelveen, Haarlemmermeer and Uithoorn have an additional role, namely the role of land owner. They own land intended for development, and therefore benefit from the project. The private parties, Schiphol Group and Bloemenveiling Aalsmeer, are owner-users. They own the land which they use for their businesses.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province Noord-Holland (client)</td>
<td>Province – Public institution</td>
</tr>
<tr>
<td>Province Utrecht</td>
<td>Province – Public institution</td>
</tr>
<tr>
<td>Rijkswaterstaat</td>
<td>State – Public institution</td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>Municipality &amp; Owner land</td>
</tr>
<tr>
<td>De Ronde Venen</td>
<td>Municipality</td>
</tr>
<tr>
<td>Amstelveen</td>
<td>Municipality &amp; Owner land</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Municipality &amp; Owner land</td>
</tr>
<tr>
<td>Uithoorn</td>
<td>Municipality &amp; Owner land</td>
</tr>
<tr>
<td>Stadsregio Amsterdam</td>
<td>Public institution</td>
</tr>
<tr>
<td>Schiphol Group</td>
<td>Owner-user</td>
</tr>
<tr>
<td>Bloemenveiling Aalsmeer</td>
<td>Owner-user</td>
</tr>
</tbody>
</table>

Table 6: Role stakeholders
5.3.2 VALUE FOR STAKEHOLDERS

Based on the roles of the stakeholders, value creation for each stakeholder (caused by project N201) can be described. Before the process of value capturing, it must be known which stakeholder benefits from the project (and how they benefit from it). In the table below the created value for each stakeholder is explained.

The municipalities of Aalsmeer, Amstelveen, Haarlemmermeer and Uithoorn benefit from the project. This can be seen in the price of the land. Because of the project, the accessibility of the business areas increases, and therefore the areas will be more attractive for businesses. Therefore the land value rises. The private parties, Schiphol Group and Bloemenveiling Aalsmeer, benefit mostly from the project because of the nature of their core business. With a higher accessibility the performance of their core business can rise. Also, the location of their business becomes more attractive.

Furthermore, the provinces, the state and Stadsregio Amsterdam benefit from the project in general, because of the expected rise in economic activity in the region. The municipality Ronde Venen does not benefit from the project. The N201 will be rearranged in such a way, that the route is through this municipality.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Value created</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province Noord-Holland (client)</td>
<td>It is beneficial for the economic activity in the region</td>
</tr>
<tr>
<td>Province Utrecht</td>
<td>Higher accessibility in the region</td>
</tr>
<tr>
<td>Rijkswaterstaat</td>
<td>Land value rises because of higher accessibility and beneficial to the economic activity.</td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>Land value rises because of higher accessibility and beneficial to the economic activity.</td>
</tr>
<tr>
<td>De Ronde Venen</td>
<td>Land value rises because of higher accessibility and beneficial to the economic activity.</td>
</tr>
<tr>
<td>Amstelveen</td>
<td>Land value rises because of higher accessibility and beneficial to the economic activity.</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Land value rises because of higher accessibility and beneficial to the economic activity.</td>
</tr>
<tr>
<td>Uithoorn</td>
<td>Higher accessibility region &quot;Noordelijke Randstad&quot; is beneficial to the economic activity in the region</td>
</tr>
<tr>
<td>Stadsregio Amsterdam</td>
<td>Location of business becomes more attractive because of higher accessibility. The value of their location rises and higher performance of core-business</td>
</tr>
<tr>
<td>Schiphol Group</td>
<td>Location of business becomes more attractive because of higher accessibility. The value of their location rises and higher performance of core-business</td>
</tr>
<tr>
<td>Bloemenveiling Aalsmeer</td>
<td>Location of business becomes more attractive because of higher accessibility. The value of their location rises and higher performance of core-business</td>
</tr>
</tbody>
</table>

Table 7: Created value stakeholders N201
5.3.3 Dependencies

The stakeholders depend on each other’s resources. Two main resources can be mentioned in this process. The first resource is money, which made the province dependent on other stakeholders. The second resource is integration of the regional plan in land use plans. At the time the municipalities had to translate the regional plan in land use plans themselves.

Money

Due to the funding gap with regard to the project N201, the province was dependent on other parties for funding of the project.

Land use plans

Until the first of July 2008 the old law “Wet op de Ruimtelijke Ordening” was applicable. Based on this law land use plans could be made. This law was limited, because the integration of these plans for planning and legal purposes must be done by each municipality. So a plan for a certain region could not be made by one decision. Since the first of July 2008, a new law is in force. The province can make a provincial land use plan, whenever there are provincial interests involved. (Provincie Noord-Holland, 2012)

For the project N201 the adjustment to the law was too late. The plans were made before July 2008, and therefore the old law had to be applied to them. This means that once a regional plan was made by the province, and every party agreed, the plan had to be translated into different municipal land use plans. Therefore the province was dependent on the municipalities for the translation of the regional plan into municipal plans. (Provincie Noord-Holland, 2012)

In the table below the stakeholders are mentioned with their resources.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province Noord-Holland (client)</td>
<td>Plans and contribution</td>
</tr>
<tr>
<td>Province Utrecht</td>
<td>Plans and contribution</td>
</tr>
<tr>
<td>Rijkswaterstaat</td>
<td>Subsidy</td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>Plans and contribution</td>
</tr>
<tr>
<td>De Ronde Venen</td>
<td>Plans</td>
</tr>
<tr>
<td>Amstelveen</td>
<td>Plans and contribution</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Plans and contribution</td>
</tr>
<tr>
<td>Uithoorn</td>
<td>Plans and contribution</td>
</tr>
<tr>
<td>Stadsregio Amsterdam</td>
<td>Contribution</td>
</tr>
<tr>
<td>Schiphol Group</td>
<td>Contribution</td>
</tr>
<tr>
<td>Bloemenveiling Aalsmeer</td>
<td>Contribution</td>
</tr>
</tbody>
</table>

Table 8: Resources stakeholders N201

Demands

Dependencies of resources lead to a power position of stakeholders in the project. This is translated into demands for the project by each stakeholder. According to Winters (2013) the municipalities were involved in the entire planning phase of the project. Thereby the municipalities could negotiate about the route of the N201, and the possible solutions.

The part of the route of the N201 that interfered with the municipalities of Aalsmeer and Uithoorn did not change much during the process, because it fulfilled all demands. According to Van Twist et al. (2003) the municipality of Aalsmeer had more demands than Uithoorn, because the road would run through their municipal area.

Haarlemmermeer negotiated more about the route. The first discussion point was the parallel structure for connection with the A4. This was an important requirement for the municipality of Haarlemmermeer for their collaboration. At first this connection with the A4 was not possible, but after some time because of state policy this became possible. Because this was
an important requirement of Haarlemmermeer, this moment was a breakthrough for the project according to Van Ophem (2013). Also, the road will run through possible business areas in Haarlemmermeer. Less area can be developed, because of the route of the road. This costs money and therefore this municipality has influenced the plans. However, according to Van Twist et al. (2003) the province links the collaboration of Haarlemmermeer to the possibility of the development of business areas. So in exchange for money and plans, the municipalities could negotiate about the solutions for the project and got the opportunity for development of business areas. (Winters, 2013)

The municipality of Amstelveen had a special position in this project. This municipality had to deal with the possible downsides of the new road. They feared that more people would use the new road, and that could lead to congestions in Amstelveen. Therefore they were more reserved. In addition, according to Van Twist et al. (2003), the rearrangement occupies area in Amstelveen without providing direct benefits for Amstelveen. Due to changes in the municipal council, the perception of the municipality changed. In the realization agreement a contribution of Amstelveen was mentioned. But this contribution was not promised yet. Finally a new councilor promised a contribution. (Winters, 2013)

The private parties did not influence the project at all. At the start of the project, the private parties were still involved in the project group. In a later phase, these parties were less involved and did not influence the project anymore. (Winters, 2013)

According to Van Twist et al. (2003) it was possible for the province to force municipalities to collaborate with their land use plans, but this was not an appealing option. They preferred collaboration without forcing other parties.

5.4 VALUE CAPTURING

A search for alternative funding has begun from the start, because the province would not fund it entirely, due to the size of the project (with respect to the costs). In the project N201 value is captured, through the strategy of "contributions". (Kuil, 2013)

In particular, voluntary contributions are used in this project. The instruments can be investigated on two levels, from the perception of the client (province) and the perception of the municipalities. The agreement between the province and different municipalities was based on benefit sharing. The benefit of the road on business areas was translated into a contribution. However, the municipalities had to sell the land to developers. Whenever the costs were not represented in the initial land price, an agreement was made about a developer's contribution (in exchange for development rights). If not all land is property of municipalities, it becomes more difficult to capture the value.

According to Winters (2013), the option of an integral design was considered as well. In the past a plan was made for an integral design, in which the business areas are within the scope of the project. Finally the choice fell on the separate design, because it was decided to use the competency model. With this competency model every party does what they can do best. This means that the province is experienced in the realization of provincial roads and the municipalities are experienced in the development of areas. These parties also take the risk for their expertise, and therefore was chosen for voluntary contributions instead an integral design. An integral design was not chosen because of the different timing of the road and business areas and the complex risk distribution between parties. (Van Twist et al., 2003)(Kuil, 2003)

Another option that was mentioned was toll. However, this was not an option because toll is not allowed for provincial roads. Also, when toll is collected traffic will cut through the municipalities to avoid paying, which is not desirable. (Van Twist et al, 2003)(Kuil, 2003)
5.5 Contributions

Before discussing the contributions, the costs will be presented. Then an overview will be given of the contributions, which consist of subsidies, contributions related to business areas and additional contributions. The contributions related to the business areas will be explained in more detail. How the additional contributions are determined will also be explained.

Costs

The total costs in the realization agreement (2004) are approximately 636.4 million euros, including turnover tax. In the table below the costs are distinguished per component of the project. The net present values are determined for the cost estimates.

<table>
<thead>
<tr>
<th>Project component</th>
<th>Costs (NPV) (in millions euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kruisweg 2x3 lanes</td>
<td>14,2</td>
</tr>
<tr>
<td>Rearrangement Aalsmeer-Uithoorn</td>
<td>232,2</td>
</tr>
<tr>
<td>Fokkerweg 2x2 lanes</td>
<td>7,2</td>
</tr>
<tr>
<td>Rearrangement Schiphol-Rijk</td>
<td>47,7</td>
</tr>
<tr>
<td>Connections A4 &amp; Oostelijke Link</td>
<td>162,2</td>
</tr>
<tr>
<td>Connection Fokkerweg-A9</td>
<td>40,3</td>
</tr>
<tr>
<td>Rearrangement Amstelhoek</td>
<td>27,6</td>
</tr>
<tr>
<td>Costs Noordelijke Link</td>
<td>1,4</td>
</tr>
<tr>
<td>Acoustic measures</td>
<td>16,3</td>
</tr>
<tr>
<td>Mitigation measures</td>
<td>6,5</td>
</tr>
<tr>
<td>Supervision implementation</td>
<td>13,1</td>
</tr>
<tr>
<td>Overhead</td>
<td>43,9</td>
</tr>
<tr>
<td>Risk fund</td>
<td>23,9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>636,4</strong></td>
</tr>
</tbody>
</table>

Table 9: Costs N201 (Stuurgroep N201+, 2004)

For the total project a risk fund of 23,9 million euros is created, so therefore the costs are higher than the actual costs. This risk fund is intended for the financial consequences of:

- The extension of the preliminary design to the final design
- Measures to reduce the temporary overload of the roads
- The loss of the contribution of Amstelveen, if the business park is not developed

Funding is necessary to cover the total costs. In the next section the funding framework will be presented. (Stuurgroep N201+, 2004)

Funding

The costs of the project have to be covered, and therefore funding is necessary. For the project N201 different sources of funding can be found. In the section below the funding sources are presented based on the findings in 2004. As already mentioned, in the regional agreement of 2002 the costs were higher than in 2004. In 2002 a plan was presented that cost 717 million euros. In this plan the MIT subsidy was estimated at 315 million euros. However, the state contribution was only 173,2 million euros. Therefore the plan was simplified, and the contributions were increased. This process can be seen in the figure below, and is also explained in appendix A. (Stuurgroep N201+, 2002)(Stuurgroep N201+, 2004)
Based on the contributions determined in 2004 the figure below was made. The state is responsible for 31% of the funding, so 69% of the project is funded by other parties than the state. The province of Noord-Holland pays 25% of the project. The region also contributes 25% of the project. This amount is generated by different regional subsidies, like the fund called BONRoute or through Regionaal Orgaan Amsterdam. The municipal contributions are divided into two parts, the additional contributions and the contributions related to the business areas. The last contribution is made by private parties, namely Schiphol Group and Bloemenveiling Aalsmeer. (Stuurgroep N201+, 2004)

Province Utrecht

Even though the province of Utrecht is not mentioned in the table below, they contribute to the project as well. In the initial plans of the N201+, it was stated that a high bridge would be created over the Amstel. Various parties, including the province of Utrecht, wanted an aqueduct instead of a bridge. The aqueduct costs 15 million euros more than a bridge. Therefore these parties had to contribute to the aqueduct themselves as well. The province of Noord-Holland made an extra contribution of 8 million euros. The remaining costs were covered by the province Utrecht and the municipalities Amstelveen, Uithoorn and De Ronde Venen. So in
exchange for an adjustment to the plan, the benefiting parties had to contribute. (Provincie Noord-Holland, 2008)

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Character contribution</th>
<th>Interest %</th>
<th>Index</th>
<th>Price level</th>
<th>Index till</th>
<th>Basis contribution</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contributions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regionaal Orgaan Amsterdam</td>
<td>Real</td>
<td></td>
<td>IBOI</td>
<td>2005</td>
<td>Full</td>
<td>112,5</td>
<td>110,2</td>
</tr>
<tr>
<td>MIT (N201+)</td>
<td>Real</td>
<td></td>
<td>IBOI</td>
<td>2001</td>
<td>2006</td>
<td>140</td>
<td>142,9</td>
</tr>
<tr>
<td>MIT (inzet Mediapark)</td>
<td>Real</td>
<td></td>
<td>IBOI</td>
<td>2001</td>
<td>2006</td>
<td>30,0</td>
<td>30,3</td>
</tr>
<tr>
<td>BONRoute</td>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27,2</td>
<td>25,8</td>
</tr>
<tr>
<td>Province NH</td>
<td>Real</td>
<td></td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>72,6</td>
<td>83,2</td>
</tr>
<tr>
<td>PPP-facility</td>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0,9</td>
<td>0,9</td>
</tr>
<tr>
<td><strong>Areas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amstelveen</td>
<td>NPV 6,5</td>
<td>2001</td>
<td>14,4</td>
<td>18,1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aalsmeer/Uithoorn</td>
<td>NPV 6,5</td>
<td>2001</td>
<td>9,9</td>
<td>12,7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Real 4%</td>
<td>2001</td>
<td>27,2</td>
<td>31,8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BONRoute</td>
<td>Nominal</td>
<td></td>
<td>4,5</td>
<td>4,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>4,5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aalsmeer/ROA/PNH (Middenweg)</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>4,5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uithoorn</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>4,1</td>
<td>4,6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Real 4%</td>
<td>2001</td>
<td>9,5</td>
<td>11,1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNH</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>22,6</td>
<td>25,4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNH (additional)</td>
<td>Real Project 2005 Full</td>
<td></td>
<td>15,5</td>
<td>15,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Private parties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloemenveiling Aalsmeer</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>4,0</td>
<td>4,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schiphol Group</td>
<td>Nominal</td>
<td></td>
<td>15,0</td>
<td>15,0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructuurfonds</td>
<td>Nominal</td>
<td></td>
<td>2,5</td>
<td>2,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAT Compensation</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>71,0</td>
<td>74,4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNH rice costs</td>
<td>Real Project 2001 Full</td>
<td></td>
<td>11,9</td>
<td>13,1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>636,4</td>
</tr>
</tbody>
</table>

*IBOI is the average price rise of gross investments of the public sector. The IBOI is used to index the price for future contracts and agreement. (CPB, 2011)
5.5.1 Business areas

For the funding of the project multiple business areas are included. These business areas have to be developed by the municipalities, and therefore are not within the scope of the project N201+ with regard to the realization plan. The revenues generated by the development of these areas will be used for the construction of the road. The business areas are (Stuurgroep N201+, 2004):

- A4-zone (Haarlemmermeer)
- Beukenhorst Oost-Oost (Haarlemmermeer)
- Schiphol Logistics Park (Haarlemmermeer)
- Green Park Aalsmeer (Aalsmeer/Uithoorn)
- Business area Amstelveen

Figure 22: Business areas N201 (Stuurgroep N201+, 2004)

The municipalities are responsible for the development of these areas. A part of the revenues will be used to fund the N201+.

Business areas Haarlemmermeer

In this section the business areas of Haarlemmermeer will be explored. These areas are the A4-zone, Beukenhorst Oost-Oost and Schiphol Logistics Park.

A4-zone West

This business area is south of Schiphol Airport. This area is part of the Amsterdam Connecting Trade, just like Schiphol Logistics Park. The planning of this area depends on the realization of the so-called Zuidknoop in 2008. From this point onward the area can be developed. The A4-zone West consists of 142 hectares. (Amsterdam Connecting Trade, 2013)

Contribution N201

The municipality of Haarlemmermeer determined one contribution for all business areas, namely 31.6 million euros. Whenever the profit of the developed business areas is higher than the estimated profit, the difference goes to the municipality of Haarlemmermeer. The payment of this contribution is done in phases. Fifty percent of the contribution is paid with the realization of the Zuidknoop and the other fifty percent is paid with the realization of the Noordknoop. (Gemeente Haarlemmermeer, 2004)
Risk
If the revenues from the business areas are disappointing, the municipality takes the loss. This means that the municipality pays 31.6 million euros to the project N201, regardless of the results of the business area. So the municipality bears this risk. (Stuurgroep N201+, 2002)

Beukenhorst Oost-Oost
Another business area developed by the municipality of Haarlemmermeer is Beukenhorst Oost-Oost. In the Masterplan Beukenhorst Oost-Oost (2003) it is stated that the plan encompasses approximately 445,000 m² of business area. The municipality of Haarlemmermeer sells 288,000 m², the remaining part will be sold by ING. ING Real Estate is a partner of Haarlemmermeer in the Masterplan Beukenhorst Oost-Oost. The estimated revenues, including risk reservation, amount to 117 million euros. The estimated costs are 89 million euros, so the profit is 28 million euros. An assumption is made for the sales rate, namely 10,000 m² per year and this makes the total term from 2007 till 2051. (Gemeente Haarlemmermeer, 2003)(Gemeente Haarlemmermeer, 2007)

Contribution N201
The municipality of Haarlemmermeer determined one contribution for all business areas, namely 31.6 million euros. Whenever the profit of the developed business areas is higher than the estimated profit, the difference goes to the municipality of Haarlemmermeer. (Stuurgroep N201+, 2002)(Winters, 2013)

The contribution of this specific business area to the N201 is one million euros. In a proposal by the council of the municipality of Haarlemmermeer (2007/8224) it is stated: “In favor of the proposed new connection A4/N201 the earlier decision of 14 December 2004 can be adapted, so that the financial contribution in decision point three can be limited to one million euros. The contribution only concerns a lump sum for the adjustment of the soil body of Zuidtangent, as will be included in the land development for Beukenhorst-Oost-Oost.”

Furthermore, it is stated that the council has decided that a lump sum of one million euros will be paid to the province. For the time being this is paid with the post "Reserve Grondzaken", but in the future the price will be paid with the revenues from land development of Beukenhorst Oost-Oost. However, even though it is clear what the total contribution of Haarlemmermeer is, it is not clear how this contribution is determined. (Gemeente Haarlemmermeer, 2007)

Risk
If the revenues of the business areas are disappointing, the municipality takes the loss. This means that the municipality pays 31.6 million euros to the project N201, regardless of the results of the business area. So the municipality bears the risk. (Stuurgroep N201+, 2002)

Schiphol Logistics Park
The travelling time towards Schiphol Centrum and Schiphol Zuidoost will be approximately five minutes. With a lane for trucks in the future, the park will be connected directly to the airport. The park is already accessible through the N201, but with the improvements to the N201 the accessibility of the park will improve. It has quick access to the A4 and the A9. (Gemeente Haarlemmermeer, 2013)

Schiphol Logistics Park is divided into two parts, a western part and an eastern part. The western part consists of 23 hectares and the eastern part consists of 31 hectares. The Schiphol Logistics Park is directly east from the A4, at the exit Hoofddorp. For the development and realization of Schiphol Logistics park a separate organization is created: “Gemeenschappelijke Exploitatie Maatschappij Schiphol Logistics Park”. The shareholders of this organization are Schiphol Real Estate (SRE), KLM and SADC. (Gemeente Haarlemmermeer, 2013)
The municipality of Haarlemmermeer determined one contribution for all business areas, namely 31.6 million euros. Whenever the profit of the developed business areas is higher than the estimated profit, the difference goes to the municipality of Haarlemmermeer. The contribution to the N201 is not determined based on expected profit of the business areas. (Stuurgroep N201+, 2002)

In an agreement between the municipality of Haarlemmermeer and SLP BV the following is mentioned: “In order for the municipality to overcome the negative financial consequences, related to the construction of infrastructure necessary now and in the future for the development of business areas, SLP BV is obliged to contribute to a fund, from which the construction costs are covered partially or in whole.” In a proposal by the council in 2005 the contribution of the business area Schiphol Logistics Park to the N201 is mentioned. SLP BV will pay an amount of 25 euros, without sales tax, per m² of allocated land for the Oost- and Westlob. Because of the uncertainty with regard to the future development of Westlob, SLP BV pays 16 euros per m² for Oostlob for the time being. When development of Westlob continues this amount will be supplemented with 9 euros per m². (Gemeente Haarlemmermeer, 2005)

This agreement does not influence the agreement between the municipality and the province about the amount of the contribution.

Risk
If the revenues of the business areas are disappointing, the municipality takes the loss. This means that the municipality pays 31.6 million euros to the project N201, regardless of the results of the business area. So the municipality bears this risk. (Stuurgroep N201+, 2002)

Business area Aalsmeer

Green Park Aalsmeer
In 2003 a company was created for the development of business area Green Park Aalsmeer. The municipalities of Aalsmeer and Uithoorn created Green Park Aalsmeer Gebiedsontwikkeling B.V. in 2004. Both municipalities own fifty percent of the shares in this company. (Gemeente Aalsmeer, 2011)

Contribution
The contribution of 12.7 million euros is paid by the company directly to the province of Noord-Holland, even before the area is developed. (Gemeente Aalsmeer, 2011)

Risk
Whenever the revenues generated by the development of this area are disappointing, the municipalities have to bear the loss. The contribution to the N201 is guaranteed, independent of the revenues of the business area. (Stuurgroep N201+, 2002)

Business area Amstelveen

Business area “De Loeten” Amstelveen
In the so-called Amstelveense Toekomstvisie 2020+ (2001) the area near the rearranged N201 is designated for business activity. This business area is called De Loeten. In the original plans the business area was intended for auction related businesses. However, due to the current economical situation the business area is now intended for general businesses. (Gemeente Amstelveen, 2013)

This business area De Loeten will be developed in the southernmost part of Amstelveen. It will be bordered by the Legmeerderkijk in the west, the rearranged N201 in the south and the Noorddammerweg in the east. North is the border between the Legmeerderkijk 262 and Noorddammerweg 101. (Gemeente Amstelveen, 2013)
**Contribution N201**
The contribution of Amstelveen, based on this business area, to the N201 is 18.1 million euros. According to Structuurvisie Amstelveen Zuid (2010), one hundred percent of the estimated revenues of business area De Loeten are designated for the N201. This means that the estimated profit, based on a land exploitation model, for this project was approximately 18.1 million euros. This price is already paid by the municipality of Amstelveen before the business area is developed. Whenever the profit is above 18.1 million euros, the profit goes to the municipality. (Stuurgroep N201+, 2002)

**Risk**
Estimates are made for the profit of business area De Loeten. There is a risk that the actual profit is lower than the estimate, which can lead to a loss. This risk is covered by the municipality of Amstelveen, according to Regioakkoord (2002). So whenever the profit is lower, 18.1 million euros still has to be paid for the N201. The loss is therefore taken by the municipality of Amstelveen. (Stuurgroep N201+, 2002)

**Determination of contributions**
According to Winter (2013) the municipalities of Aalsmeer, Uithoorn and Amstelveen determined the contributions, with respect to the business areas, based on an investigation on the exploitation of the areas. The estimated profit goes entirely to the project N201. Whenever the profit is higher, an allocation is determined. The municipality of Haarlemmermeer determined the contribution in another way. They did not give insight in the determination of the contribution, but provided an amount they wanted to contribute. (Van Ophem, 2013)

There is no direct relation between the created value and the contribution of the municipalities. In case of Haarlemmermeer this relation cannot be found. The municipalities of Aalsmeer, Uithoorn and Amstelveen made an estimate of the profit, but did not make an estimate of the extra profit created by the project. Therefore this relation is not found. (Winters, 2013)

**5.5.2 Additional contributions**
Besides the contributions with regard to the business areas, municipalities also contributed additional. The municipalities of Aalsmeer, Uithoorn and Haarlemmermeer made a contribution to the project besides the contribution with respect to the business areas. Also, private parties like Schiphol Group and Bloemenveiling Aalsmeer made a contribution. But how are these contributions determined?

**Determination of contribution**
According to Winters (2013) the additional contributions are determined based on capacity and financial position of each municipality. Van Ophem (2013) added that before starting the negotiations about the amount of the contribution, the project agency hired accountants to determine the financial capacity of every municipality. This was input for the negotiations about the amount of contribution.

Also, for the private parties a contribution is determined beforehand by the project group, without negotiations with these parties. This contribution is determined based on what they thought was reasonable. After the realization agreement was signed, the province still had to convince the private parties to make this contribution. So there is no relation between the created value and the contribution. (Winters, 2013)
5.6 Effects
In this project value capturing is used to generate extra funding. The strategy of voluntary contributions was chosen. To determine whether this strategy is effective, the effects on financial feasibility, value, social acceptability and legal embedding are determined.

5.6.1 Financial Feasibility
Value capturing has a positive influence on the financial feasibility of the project. Based on a regional plan, subsidy from the state is applied for. It became clear that the contribution of the state was not sufficient for the funding of the project. Therefore the plans were reconsidered, and retrenchments were made. In addition, extra funding was sought. After the retrenchments 31% of the costs are covered by the state, and 25% of the costs are covered by the province of Noord-Holland. This means that 44% of the costs are covered by other parties. (Stuurgroep N201+, 2002) (Stuurgroep N201+, 2004)

Based on this percentage, it can be seen that value capturing contributes to the financial feasibility of the project. Without the contributions of other parties, the costs would not be covered.

5.6.2 Risk
Risk can be divided into two types. First there is a risk associated with the complexity of a project. When more functions are added to a project, the project has more interfaces and therefore becomes more complex. The probability of a mistake becomes higher, and then the costs will be higher than estimated. The other type is the funding risk.

The project risk is the responsibility of the province of Noord-Holland. If the costs are higher than the estimated costs, the province has to fund the difference. A risk fund is created for these cases, so the risk is partially covered. (Stuurgroep N201+, 2002) (Winters, 2013)

The funding risk associated with this project is the following. If the business areas do not generate enough revenues, it becomes difficult for the municipality to make the promised contribution to the N201. An agreement is made that the municipalities bear the risk of the development of the business areas. So the contributions are made independently of the development of the areas.

5.6.3 Value
As described in section 1.3, stakeholders have demands for the project. The municipalities negotiated about the route during the process, and about the different solutions. Functions such as connections to main roads are added to the project, so in this way the project created more value. Another example of value creation is the change in plans by replacing the bridge over the Amstel with an aqueduct. The social value of the project changes whenever the scope of the project changes. However, the value is not determined after each change. (Winters, 2013)

5.6.4 Social Acceptability
Because of the nature of the instrument, voluntary contributions, the social acceptability is high. The stakeholders that contributed to the project made the contribution on a voluntary basis.

5.6.5 Legal Embedding
Agreements are signed about the voluntary contributions. Between the province and the municipalities agreements are made about the scope of the project and the contributions. The parties that signed this agreement are obliged to contribute to the project. The private parties did not sign this agreement, and therefore it became harder to get a contribution from them. The province had to convince them to make a contribution.

For regional plans laws are applicable. At the time of the planning phase the old law “Wet op de Ruimtelijke Ordening” was applicable. It was more difficult to make a regional plan, because every municipality had to translate this plan into their own land use plans, before the
regional plan could start. With the change of the “Wet op de Ruimtelijke Ordening” it becomes easier to make regional plans. (Provincie Noord-Holland, 2012)

5.7 CONDITIONS
According to Winters (2013) the project N201 was not an exception with regard to value capturing. He thinks it is possible for every project to use voluntary contributions. However, there are some need-to-have’s and nice-to-have’s.

Every road passes some municipalities, or in case of a state road municipalities and one or multiple provinces. If this is the case it is possible to involve these stakeholders in the process, if they benefit from the project. If there are other parties that also benefit from the project, one must convince them that extra value is created by the road for them.

The ministry of Housing, Spatial Planning and Environment (2001) has three assessment criteria for cost recovery, namely benefit principle, accountability and proportionality. These criteria must be met for value capturing. The first two criteria, benefit principle and accountability, were important in the case N201. If these criteria are not met it is hard to convince parties to contribute to the project. However, this does not apply to the third criterion, namely proportionality. The contributions made in the project N201 were not proportional. Another nice-to-have is an independent project agency. This makes it easier to negotiate with different parties about contributions and about their demands, because of the independent role of the agency. Also, the information is more objective and transparent. (Van Ophem, 2013)

An important need-to-have is a window of opportunity. According to Van Twist et al. (2003): “Smart game, so approaching people at the right moment or leaving the initiative to others, are choices that determine the realization chances of a plan.” So having the right people, at the right place, at the right moment is important for succeeding.

Need-to-have:
- The road must pass municipalities and provinces that benefit from the road
- It must be clear that the extra value is created by the road
- One must involve these parties from the beginning of the process
- The scope must not be fixed, because these parties have their demands for the project in exchange for the contribution
- Window of opportunity: The “right” people at the right place at the right time.

Nice-to-have:
- The social acceptability could be higher if the contribution is proportional. However, in the project N201 this was not the case and it was still accepted.
- It makes it easier to collect a contribution from private parties, if these parties are also involved in the entire process.
- An independent project agency makes it easier to negotiate with all parties, because of their independency, and information becomes more transparent and objective.

5.8 LOOKING BACK
When the agreements were signed about the contributions for the project N201+ the economical situation differed from the situation today. Contributions were determined based on estimates of revenues of land development. However, these estimates did not become reality.

According to Van Ophem (2013) these contributions based on land development are not possible anymore today. Because the revenues of the business areas are disappointing, municipalities are less satisfied with their contributions than before. For example, Aalsmeer and Uithoorn formed a company called Greenpark Aalsmeer Gebiedsontwikkeling B.V. This company already made a contribution to the N201. A consequence of the financial crisis are the disappointing revenues of the business areas. Therefore the current credit of 80 million euros is not sufficient. Additional credit is necessary, as a guarantee for Bank van Nederlandse Gemeenten. This was not expected by the municipalities when they signed the agreement, and
this risk was not considered in the determination of the contribution with respect to land development. (Gemeente Aalsmeer, 2011)

By including a kind of risk factor for these situations, the contributions would likely be lower. Another option is that the contribution is determined afterwards. This means less risk for the parties that make a contribution, in this case the municipalities, but more risk for the client.

5.9 CONCLUSION

In the case N201+ the strategy “contributions” is used. This is done on a voluntary basis, with benefit sharing. The voluntary contributions (benefit sharing) are investigated on the criteria financial feasibility, risk, value, social acceptability and legal embedding. In the table below a summary is made of these effects in scores.

For this instrument conditions are presented. The most important need-to-have’s are: (1) road must pass municipalities, that benefit from the project, (2) the parties must be involved from the beginning of the process for negotiations, (3) scope must be flexible, (4) the window of opportunity. The most important nice-to-have's are: (1)It makes it easier to collect contributions from private parties when they are involved from the beginning, and (2) an independent project agency.

<table>
<thead>
<tr>
<th>Improvement in financial feasibility</th>
<th>Social acceptability</th>
<th>Embedding in legal system</th>
<th>Risk</th>
<th>Economical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary contributions – benefit sharing</td>
<td>18% of 636,4 million euros paid by municipalities and private parties, this is approximately 114 million euros</td>
<td>+, on voluntary basis</td>
<td>Higher, adding functions leads to more complexity</td>
<td>Higher, extra functions are added (like an aqueduct)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 11: Effects voluntary contributions N201
6. CASE: A2 Maastricht

In this chapter a case study will be done for the project A2 Maastricht. In this case multiple strategies are used, namely “collaboration” is used with the instrument internal value capturing. The municipalities of Maastricht and Meerssen, the province of Limburg and Rijkswaterstaat form a steering group for the integral project. Also the strategy “active land policy” is used, by the municipality of Maastricht in purchasing land as an input for the project. Third, the strategy “contributions” is used, because the voluntary contributions are done by the municipalities, the province and the European Commission. The focus will be on internal value capturing on the one side, and contributions on the other side. Both instruments will be mentioned in the following section. (A2 Maastricht, 2013)

In this chapter it will be investigated how these contributions are determined, to what extent the contributions have an effect on the financial feasibility of the project and how the risks are dealt with. The effect on the value of the project will also be determined, the social acceptability and the legal embedding will be described. Finally conditions for the use of internal value capturing and voluntary contributions will be given.

6.1 INTRODUCTION

A2 Maastricht is a unique pilot project. The project offers opportunities to improve the quality for the users of highway A2, cross-linking the A2 with the A79, business area Beatrixhaven and Noordbrug in Maastricht. It became a pilot project, because it met the following conditions: (1) an integral solution with problem-solving capacity for the traffic situation in Maastricht; (2) optimal market involvement; (3) local support. Because it met these conditions, the project became a public-private partnership pilot project. (Aveco-deBondt, 2002)

Multiple problems arose around the A2 because of the deteriorating traffic flow of the A2. The congestion on the A2 increases, which creates a lower accessibility for Maastricht. Therefore the livability near the A2 decreases. Without adjustments, the air pollution, noise nuisance and the lack of safety will increase in the future. This prevents full urban development. (Aveco-deBondt, 2002)

Early in the year 2000 the province of Limburg and the municipalities of Maastricht and Meerssen collaborated to find a sustainable solution to these problems. After a selection procedure, engineering firm Aveco-deBondt bv joined these parties. The assignment consists of composing a integral and sustainable package of measures for the infrastructure and area development. (Aveco-deBondt, 2002)

6.2 PROJECT

In this section the scope of the project and the history are explained. The project is an integral project and therefore it consists of different parts, like land development and the tunnel. These parts are described in the first section. The planning process is highlighted in the next section.

6.2.1 SCOPE PROJECT

A plan was made for the project A2 Maastricht. This plan will improve the accessibility of Maastricht, the traffic flow on the A2 and intersections Geusselt and Europlein, and creates new opportunities for the development of neighboring areas. A piled tunnel will be realized, causing 80% of the current traffic to head underground and above ground a more residential environment is created. Attention is also given to green and recreational areas and new homes. (A2 Maastricht, 2013)(Rijkswaterstaat, 2013)
The project consists of different parts, and all these parts are integrally designed in one project. The parts are:

- Full cross-linking A2 and A79
- New connecting road between the A2 and business area Beatrixhaven
- More green areas and recreation in Landgoederenzone
- Improvement Viaductweg
- Tunnel between intersections Geusselt and Europaplein
- Parklaan above tunnel
- New city entrances at Geusselt and Europaplein
- New centre Maastricht-Oost

These parts will be described in more detail below. (A2 Maastricht, 2013)

1. **Full cross-linking A2 and A79:**
   Intersection Kruisdonk will be arranged in such a way that all traffic movements are possible. One can drive from the A2 to the A79 and the other way around. Local traffic towards Rothem and Amby will be made possible, just like access to Beatrixhaven. An optimal solution is made, in which the A2 is the main route. Intersection Kruisdonk gets a “green appearance”, so that it fits in the rural setting. (A2 Maastricht, 2013)

2. **New connecting road between A2 and business area Beatrixhaven**
   One can drive from the A2 or the A79 directly towards business area Beatrixhaven with a new road. (A2 Maastricht, 2013)

3. **More green areas and recreation in Landgoederenzone**
   North from Maastricht is Landgoederenzone. This area is of ecological, cultural-historical and environmental value. This zone will be connected to the city through the “Groene Loper”: a recreational area with 2000 trees. (A2 Maastricht, 2013)

4. **Improvement Viaductweg**
   The current capacity of the crossing between the Viaductweg en Meerssenerweg is limited. This will be improved with the realization of a so-called “vrije rechtsafer”. (A2 Maastricht, 2013)
5. **Tunnel between intersections Geusselt and Europaplein**
A tunnel of 2.3 kilometers will be built between Geusselt and Europaplein. The traffic above ground is estimated to decrease by 80%. The tunnel consists of four separate tunnel tubes, each with two lanes. The bottom two are designated for passing traffic, while the upper two tubes are designated for regional and local traffic. (A2 Maastricht, 2013)

6. **Parklaan above the tunnel**
Above the tunnel a road will be built for slow and local traffic, the so-called Parklaan. This road gets a "green and recreational" character and connects the different districts in Maastricht. Near the Parklaan new houses will be constructed. The Gemeenteflat near the Koningsplein will remain and be renovated. (A2 Maastricht, 2013)

7. **New city entrances at Geusselt and Europaplein**
Near intersections Geusselt and Europaplein, the city entrances, high way and city meet. A wooded environment will be created and office villas will be constructed. (A2 Maastricht, 2013)

8. **New centre for the east of Maastricht**
Maastricht-Oost will be renewed and developed by creating approximately 1100 new homes and 30,000 square meters of commercial property. (A2 Maastricht, 2013)

### 6.2.2 History of the Project

In the sixties of the last century the N2 was constructed as a motorway with 2x2 lanes and crossings at the same level. Consequence is that all traffic must go through Maastricht, which leads to noise and odor nuisance in Maastricht-Oost. It also causes large congestions on this route and unsafe situations. Therefore in the eighties a study was done for Rijkswaterstaat for the adjustment of the city boulevard. At first it was an option to construct a new road east of Maastricht. However, this option does not solve the problem with respect to the lack of integration of different areas in Maastricht. The conclusion of this study was the current route must be adjusted by constructing a new road under ground level. However, resources were not made available at that time. (A2 Maastricht, 2013) (Prompers, 2013)

In the nineties the province of Limburg made plans for cross linking A2/A79. Due to the lack of a link between the A2 and A79, the municipality of Meerssen has to deal with a lot of traffic. In 1995 a so-called "Tracé/MER studie" was done, however, money was still not available. In 2000 options for alternative funding were sought by the municipality of Maastricht and the province, especially the option for toll. This measure did not get enough support. (A2 Maastricht, 2013)

In 2000 the report "Maastricht raakt de weg kwijt" was made as a plan for the region Maastricht and Meerssen. This report was made by the municipalities of Maastricht, Meerssen, the province of Limburg and Rijkswaterstaat. This report was the basis for further negotiations. In 2000 these parties have become aware of the importance of an integral plan. Instead of 'normal' sector policies, in which every party has his own responsibility, an integral approach became important. (Prompers, 2013)

In 2003 a management agreement was made between the state, the province of Limburg and the municipalities of Meerssen and Maastricht. This management agreement also encompasses financial agreements. Then, in 2004, Rijkswaterstaat announced the intention to construct the A2-passage. In 2005 the discussion paper "Ruimte rond A2" was written by the municipality of Maastricht. In this paper insight is given into the constraints and principles of the municipality. (A2 Maastricht, 2003) (Gemeente Maastricht, 2006)

In 2006 an additional management agreement was signed. Three main points were: (1) resolve open ends (plan costs, indexing and mutual settlements); (2) a (financial) risk management on basis of new insights; (3) adjustment of the tunnel from 2x3 to 2x4 lanes. Later in 2006 the European tender started. Finally in 2009 the tender was won by Avenue2. (A2 Maastricht, 2006) (A2 Maastricht, 2013)
6.3 STAKEHOLDER ANALYSIS

In this section the stakeholders involved in the project A2 Maastricht will be described.

6.3.1 STAKEHOLDERS

In the project multiple stakeholders were involved. The project office A2 consists of four (public) parties, namely Rijkswaterstaat, the Province of Limburg and the municipalities of Maastricht and Meerssen. For the highway A2 Rijkswaterstaat is responsible, but for example for the development of areas near Maastricht the municipality is responsible. The municipality of Maastricht has taken the initiative for the project, to create more pressure. (Prompers, 2013)

Because of regional importance the province is also involved. In addition, the European Union is also involved in this project by giving subsidy for the project. According to Prompers (2013) other parties were not asked for a contribution, because it is a public task. Before the current project plans, the businesses from business area Beatrixhaven proposed to make a contribution to realize a temporary solution for the traffic problems. However, a temporary solution was not desirable so a permanent solution was made. (A2 Maastricht, 2013)

In the table below the stakeholders involved are mentioned.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Province</th>
<th>Limburg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province Limburg</td>
<td>Rijkswaterstaat</td>
<td></td>
</tr>
<tr>
<td>Rijkswaterstaat</td>
<td>Maastricht</td>
<td></td>
</tr>
<tr>
<td>Municipality Maastricht</td>
<td>Meerssen</td>
<td></td>
</tr>
<tr>
<td>European Union</td>
<td>European Commission</td>
<td></td>
</tr>
</tbody>
</table>

Table 12: Stakeholders A2 Maastricht

Role

In the process of value capturing the stakeholders can be distinguished by their role. In the table below the stakeholders are each given a role. The province and state are public institutions; also the municipalities are public institutions. The municipality of Maastricht has an extra role, because they own land or can purchase land in their municipality for the project. Therefore they get the role of owner of land.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province Limburg</td>
<td>Province – Public institution</td>
</tr>
<tr>
<td>Rijkswaterstaat</td>
<td>State – Public institution</td>
</tr>
<tr>
<td>Municipality Maastricht</td>
<td>Municipality &amp; (future) owner land/developer</td>
</tr>
<tr>
<td>Municipality Meerssen</td>
<td>Municipality</td>
</tr>
<tr>
<td>European Union</td>
<td>Public institution</td>
</tr>
</tbody>
</table>

Table 13: Role stakeholders A2 Maastricht
6.3.2 VALUE FOR STAKEHOLDERS

Based on these roles, value creation can be described for each stakeholder. Rijkswaterstaat and province benefit from the project by a possible increase in economic activity. The municipalities benefit from the project by a possible increase in land value, because of the higher accessibility the land becomes more attractive. The European Union benefits from the project because a higher accessibility is beneficiary for the transnational markets. The created value is also described in the table below.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Value created</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>Higher accessibility and safety is beneficial to the economic activity and livability in the region</td>
</tr>
<tr>
<td>Province Limburg</td>
<td>Higher accessibility is beneficial to economic activity</td>
</tr>
<tr>
<td>Maastricht</td>
<td><em>Land value rises</em> because of higher accessibility and beneficial to economic activity</td>
</tr>
<tr>
<td>Meerssen</td>
<td><em>Land value rises</em> because of higher accessibility and beneficial to economic activity</td>
</tr>
<tr>
<td>European Union</td>
<td>Higher accessibility is beneficial to transnational markets</td>
</tr>
</tbody>
</table>

Table 14: Value created A2 Maastricht

6.3.3 DEPENDENCIES

The dependencies can be divided into two aspects, namely plans and money. As can be seen in the table below, the resources can be divided into these categories and therefore are explained separately.

**Plans**

An important dependency is with respect to plans. All parties depend on Rijkswaterstaat for the decision about the “Tracé”. Without a positive decision about the project, the project cannot continue. Even though one integral plan is made, the municipalities still have to adjust their land use plans and the province must approve them.

**Money**

The stakeholders depend on each other because of contributions. They need each other’s contribution for the realization of the project. The budget of Rijkswaterstaat is insufficient for the entire project. The province and municipalities also make contributions. The European Commission gives a subsidy to the project, which is beneficial to the project. (A2 Maastricht, 2013)

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>“Tracé” decision + budget</td>
</tr>
<tr>
<td>Province Limburg</td>
<td>Approval of land use plans + contribution</td>
</tr>
<tr>
<td>Maastricht</td>
<td>Land use plans + contribution</td>
</tr>
<tr>
<td>Meerssen</td>
<td>Land use plans + contribution</td>
</tr>
<tr>
<td>European Union</td>
<td>Subsidy</td>
</tr>
</tbody>
</table>

Table 15: Resources A2 Maastricht
Demands
Due to the dependencies on resources the stakeholders have power over the project. This is translated into the demands for each party.

As can be seen in the history of the project, the four public parties Rijkswaterstaat, the province of Limburg and the municipalities of Maastricht and Meerssen were involved and represented in a steering committee. In this way they can influence the project. According to Prompers (2013) first a collective mindset for an integral project was established. From that point onward, demands from all parties could be negotiated. Meerssen wanted a better cross-linking between A2 and A79 to avoid traffic in their municipality. For example for the municipality Maastricht the capacity of the tunnel was important, because they do not want to make adjustments to the tunnel to increase the capacity in the near future. From these demands a basis scope was created with 14 additional wishes. On that basis the project was tendered through a competitive dialogue. (A2 Maastricht, 2003)

6.4 VALUE CAPTURING
In this project multiple strategies of value capturing can be recognized. First, the strategy "collaboration" is used with the instrument internal value capturing. The collaboration can be seen in the project office A2, which represents the state, province and both municipalities. From the perspective of the project office internal value capturing is used because of the integral project. An integral project was chosen, because of an expected added value (and not because of funding reasons). (Prompers, 2013)

Also the strategy "active land policy" is used, specifically by the municipality Maastricht. This municipality purchases land for the project, which is input for the project and is used in internal value capturing.

In addition, the strategy "contributions" is used, namely voluntary contributions by the municipalities, province, and European Commission to Rijkswaterstaat (client). This is done based on benefit sharing.

The focus will be on internal value capturing on the one side, and contributions on the other side. Both instruments will be mentioned in the following section. (Avecoc-deBondt, 2002)

Other options of value capturing are considered as well, for example toll. The option of toll was considered, but not implemented because of the possibility of "Rekeningrijden". In addition, if toll was implemented another travel option must be available for citizens. So therefore another road would have to be constructed as well to create this option. So therefore this option was not implemented. (Prompers, 2013)

6.5 INTERNAL VALUE CAPTURING
With internal value capturing revenues of one part of the project can be used as funding for another part of the project. This can be done with integral projects. A2 Maastricht is also an integral project, because the project consists of both infrastructure and land area development.

Costs
In the first management agreement of 2003 the costs were estimated at 360 million euros. However, in the additional management agreement of 2006 the estimated costs were higher, because of changes in the plan. A project budget of 631,3 million euros is presented. (A2 Maastricht, 2003)(A2 Maastricht, 2006)

The total costs increased in the additional agreement because the infrastructure costs increased by creating extra lanes in the tunnel. The estimated costs and revenues from the land development were not adjusted since the report "Maastricht raakt de weg kwijt". Therefore the results in the report "Maastricht raakt de weg kwijt" are used for this investigation. (Avecoc-deBondt, 2002)

The costs can be divided into two parts, namely infrastructure measures and area development measures. In the report the infrastructure measures cost 342,9 million euros, while the area
development costs 41.1 million euros. The area development costs consist of costs for acquisition and demolition. (Aveco-deBondt, 2002)

**Estimated revenues**

The revenues in the integral project are generated by area development. In the report “Maastricht raakt de weg kwijt” the revenues are categorized in two categories, namely “area development” and “redevelopment”. The estimated revenues for “area development” are 11.1 million euros, and the estimated revenues for “redevelopment” are 13.9 million euros. The total revenues are therefore 25 million euros. (Aveco-deBondt, 2002)

**Internal value capturing**

In theory revenues of area development can be used for funding of infrastructure with internal value capturing. However, in this case the area development costs are higher than the estimated revenues. This means that the revenues are necessary for the recovery of the costs of area development, and even additional funding is necessary for the area development. Therefore the internal value capturing alone does not contribute to a higher financial feasibility.

Nevertheless, by adjusting the scope of the project and creating an integral project parties may voluntarily contribute more than before. This is described in the following section.

### 6.6 Contributions

As explained before, different strategies and instruments for value capturing are used. In this section the contributions of the public institutions will be described. The client of the project is Rijkswaterstaat. They tendered the project and therefore have to take care of the funding part of the project. However, other parties, like the province of Limburg and the municipalities of Maastricht and Meerssen also contribute to the project, so Rijkswaterstaat does not fund one hundred percent of it. These contributions will be explored.

**Costs**

In the first management agreement of 2003 the costs were estimated at 360 million euros. However, in the additional management agreement of 2006 the costs estimate was higher, because of changes in the plan. A project budget of 631.3 million euros is presented. Therefore the contributions of all parties had to rise as well, as can be seen in the figure below. (A2 Maastricht, 2003) (A2 Maastricht, 2006)

![Figure 25: Value capturing - increase in costs and contributions](image)

**Funding**

Based on the project budget, 631.3 million euros, the contributions are established. Rijkswaterstaat makes the largest contribution, namely 499 million euros, which is 78% of the total budget. The municipality of Maastricht makes a contribution of 72.7 million euros, which is 12%. In the additional agreement a contribution of 87.7 million euros by Maastricht was presented, but if the European Commission subsidizes, the contribution of Maastricht will decrease. The European Commission gave a subsidy of 15 million euros, which is 2% of the budget. The province of Limburg made a contribution of 43.6 million euros, which is 7%. The
municipality of Meerssen made a contribution of one million euros. These contributions are presented in the figure and table below. (A2 Maastricht, 2006)

![Figure 26: Funding sources (A2 Maastricht, 2006)](image)

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Contribution</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>499</td>
<td>79</td>
</tr>
<tr>
<td>Province Limburg</td>
<td>43,6</td>
<td>6,9</td>
</tr>
<tr>
<td>Maastricht</td>
<td>72,7</td>
<td>12</td>
</tr>
<tr>
<td>Meerssen</td>
<td>1</td>
<td>0,16</td>
</tr>
<tr>
<td>European Union</td>
<td>15</td>
<td>2,4</td>
</tr>
</tbody>
</table>

Table 16: Contributions (A2 Maastricht, 2006)

**European subsidy**
The first 15 million euros of this subsidy is part of the contribution of the municipality of Maastricht. If the subsidy is higher than 15 million euros, the part above 15 million euros will be divided between the state and the region (50-50%) up to a maximum of 25 million for the region. Within the region a division is made as follows, 50% for Maastricht and 50% for the province. (A2 Maastricht, 2013)

**Risk European subsidy**
In the additional management agreement it is stated that parties will do the utmost to achieve the highest possible subsidy from the European TEN-funds. Whenever the subsidy is not obtained, the municipality of Maastricht bears the risk. In the additional management agreement it is mentioned that the municipality of Maastricht is responsible for 87,7 million euros, which includes the European subsidy. A subsidy for 15 million is obtained, therefore a division is made in the table above. (A2 Maastricht, 2006)

**Contribution Maastricht**
According to article 9 of the additional management agreement (2006) acquisition of land for the project is done by the municipality of Maastricht. At the time of the agreement the municipality already purchased land for the project, to avoid uncertainty for owners and users. The municipality tries to purchase the land. Later on the municipality purchases the land more actively, and also uses expropriation. In March 2013 the last land was purchased by the municipality through expropiation, after a decision by the Supreme Court. (A2 Maastricht, 2006)(Projectbureau A2 Maastricht, 2013)

The costs, the purchase payments, are part of the contribution of the municipality of Maastricht. If the project does not continue, the costs and the risks are for the municipality of Maastricht. So the land is part of the contribution of the municipality. Therefore the revenues
generated by the development of the land are also part of the project, which is part of internal value capturing. (A2 Maastricht, 2006)

Risk of increased costs
A risk with respect to tendering is that the costs may be higher than estimated. This depends on the offers of the consortia. This risk is shared by all parties, namely 78% of the extra costs are for Rijkswaterstaat and 22% for the region. The 22% of the region is divided over the province, Maastricht and Meerssen in the same percentages as the initial contributions are made.

Determination of contribution
In the report "Maastricht raakt de weg kwijt" (2002) an idea of an allocation of funding is given based on the interests of each party. For parts of the project the interests of the stakeholders are mentioned. Further in the report an allocation is made as follows. The state is responsible for the cross linking A2/A79 and the A2 Traverse. The region is responsible for the connecting road with Beatrixhaven and the land development. (Avec-deBondt, 2002)

This report is the input for negotiations for the management agreements. According to Prompers (2013) an initial offer was made by the region for a contribution to the state. After new costs estimations, the contributions increased. Then, the tunnel capacity was enlarged and the contribution of the different parties increased again. Even though it was not the responsibility of Maastricht, they also made a larger contribution and therefore did not only contribute to parts of the project but to the entire project.

This is also confirmed by the second management agreement, in which the contribution of the region and the state increased, because of the change in scope with respect to the number of lanes in the tunnel. Even though it was suggested in the report that the tunnel is the responsibility of the state, the other parties contributed to the extra lanes as well. Only the municipality of Meerssen does not increase the contribution, so the extra costs of the extra lanes are not distributed to ratios. (A2 Maastricht, 2003)(A2 Maastricht, 2006)

In the second management agreement an allocation is made for a project budget of 631.3 million euros. It is also stated that whenever the project budget must increase, as a result of the tender, the extra costs are divided as follows. The state is responsible for 78% of the extra costs and 22% is for the region. The allocation within the region is not determined, but will be a result of negotiations. (A2 Maastricht, 2006)

There can be concluded that for the negotiations of the allocation of the costs, the report "Maastricht raakt de weg kwijt" (2002) is the input. In this report the costs are allocated based on responsibility and interests. However, in a later stage, the costs are divided on based on negotiations between the parties. So the contributions are not proportional to the value created, but were based on what is reasonable.

6.7 Effects
In this section the effects of value capturing on the financial feasibility, risk, value, social acceptability and legal embedding are described.

6.7.1 Financial feasibility
For value capturing different instruments are used, like purchasing, expropriation, internal value capturing and benefit sharing (voluntary contributions). Purchasing and expropriation do not generate budget or revenues, but are used for internal value capturing. Internal value capturing and voluntary contributions can improve the financial feasibility of a project. To what extent does the financial feasibility improve by these instruments?

Internal value capturing does not improve the financial feasibility in this case, because the extra costs for area development are higher than the estimated revenues generated by this area development. Therefore extra budget is necessary to fund the area development part. Nevertheless, the area development creates extra value for parties, which are captured by contributions.
By creating extra functions and fulfilling demands of other stakeholders in the project, instead of just constructing the road, the project creates more value for other parties. These parties may be willing to pay more when their demands are met. When these parties pay more than the extra costs, the value capturing is a success. In the project A2 Maastricht 21%, or 132 million euros, of the total budget is funded by other parties than the state. So if the costs of the extra functions are lower than 132 million euros, the parties also contribute to the infrastructure measures of the state. (A2 Maastricht, 2003)(A2 Maastricht, 2006)

Based on the first management agreement and the report "Maastricht raakt de weg kwijt", it can be determined whether these parties pay more than the extra costs. In the table below the costs and revenues, generated from the report and first management agreement, are presented. Based on the responsibilities, the costs can be allocated to the state or region. (A2 Maastricht, 2003)(Aveco-deBondt, 2002)

<table>
<thead>
<tr>
<th>Costs and revenues first agreement</th>
<th>Responsibility of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs (in million euro)</td>
<td></td>
</tr>
<tr>
<td>Cross linking A2/A79</td>
<td>16 State</td>
</tr>
<tr>
<td>Road Beatrixhaven</td>
<td>33 Region</td>
</tr>
<tr>
<td>Viaductweg</td>
<td>17 Region</td>
</tr>
<tr>
<td>Traverse</td>
<td>275 State</td>
</tr>
<tr>
<td>Acquisition and demolition</td>
<td>41 Region</td>
</tr>
<tr>
<td>Preparation</td>
<td>1,3 Region + State</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>383,3</strong></td>
</tr>
<tr>
<td>Revenues</td>
<td></td>
</tr>
<tr>
<td>Redevelopment</td>
<td>13,8 Region</td>
</tr>
<tr>
<td>Area development</td>
<td>11 Region</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24,8</strong></td>
</tr>
<tr>
<td><strong>Project budget</strong></td>
<td></td>
</tr>
<tr>
<td>Costs – revenues</td>
<td><strong>358,5</strong></td>
</tr>
</tbody>
</table>

Table 17: Costs and revenues first agreement (Aveco-deBondt, 2002)

In the following table the costs and revenues of the region are presented. As can be seen, the total funding necessary to recover the costs of the region is 67 million euros. The contribution to the project in the first agreement of the region is 68 million euros, which means that 1 million euros can be used by the state for their responsibilities. (A2 Maastricht, 2003)
However, the scope of the project changed in time. In the additional agreement more lanes are added to the tunnel, which causes the costs to increase. The total costs are 631.3 million euros instead of 383.3 (in the table above). The extra costs are 248 million euros for the creation of extra lanes in the tunnel. Even though these costs are the responsibility of the state, the contributions of the region increase as well. The region contributes 132.3 million euros in total, according to the second agreement, which is 64.3 million extra. As can be seen in the table below, 65 million euros is designated for infrastructure measures by the state. (A2 Maastricht, 2006) (Volkskrant, 2006)

<table>
<thead>
<tr>
<th>Costs and revenues region</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs region</td>
<td></td>
</tr>
<tr>
<td>Road Beatrixhaven</td>
<td>33</td>
</tr>
<tr>
<td>Viaductweg</td>
<td>17</td>
</tr>
<tr>
<td>Acquisition and demolition</td>
<td>41</td>
</tr>
<tr>
<td>Preparation</td>
<td>0.866667</td>
</tr>
<tr>
<td><strong>Total costs region</strong></td>
<td>91.86667</td>
</tr>
<tr>
<td>Revenues region</td>
<td></td>
</tr>
<tr>
<td>Redevelopment</td>
<td>13.8</td>
</tr>
<tr>
<td>Area development</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>24.8</td>
</tr>
<tr>
<td><strong>Total funding</strong></td>
<td>67.06667</td>
</tr>
<tr>
<td>Budget first agreement</td>
<td></td>
</tr>
<tr>
<td>region</td>
<td>68</td>
</tr>
<tr>
<td><strong>Extra</strong></td>
<td>0.933333</td>
</tr>
</tbody>
</table>

Table 18: Regional contributions (A2 Maastricht, 2003)

The total costs for the state were 539 million euros. The contribution of the region is 65 million euros towards these costs, so the contribution is 12%. This means that the financial feasibility has improved.

6.7.2 Risk

By adding functions, like area development, instead of just the construction of infrastructure the risk increases. Not only does the project become more complex, but also extra risk is associated with the exploitation of land. If the revenues from the land development are lower than estimated, more funding is necessary.

How did Rijkswaterstaat deal with this risk? Rijkswaterstaat tendered the project based on a design and construct contract. This means that the risk of the complexity is transferred to the consortium. The consortium also bears the risk for exploitation of the land. The state pays the offer of the consortium. Even though the financial risk is for the private party, the social risk is for Maastricht because whenever the private party cannot develop the land or sell it, the integration of the different areas will not take place. Therefore Maastricht reprioritized and gave
the highest priority to the A2-zone. However, the consortium still has to develop the land within ten years but it is an advantage that the interpretation of housing is flexible. (A2 Maastricht, 2013)(Prompers, 2013)

A risk with respect to tendering is that the costs may be higher than estimated. This depends on the offers of the consortia. This risk is shared by all parties, namely 78% of the extra costs are for Rijkswaterstaat and 22% for the region. (Prompers, 2013)

6.7.3 VALUE
By adding functions and creating an integral project, more value is created if one compares it to just the road. Functions are added for a more green and recreational character, which can improve the livability of the environment and the attractiveness. New area development can also lead to a higher land value price, because it becomes more attractive. Also, the new connecting road with Beatrixhaven can cause a better performance of businesses because of less congestion.

6.7.4 SOCIAL ACCEPTABILITY
The contributions of the municipalities and the province are on a voluntary basis. Therefore the acceptability of a contribution might be higher than when the contribution is obliged. By negotiations about the project scope and financial contributions, the parties can influence the project with their demands in exchange for a contribution.

6.7.5 LEGAL EMBEDDING
The contributions can be made without interfering with the law. By signing the management agreements, a contract is made for the financial agreements. However, by creating an integral project, the state depends on the municipalities for adjustments in land-use plans. An integral project needs both a so-called ”Tracé besluit” and adjustments in land-use plans. The “Tracé besluit” has to be done by the state, while the land-use plans must be done by the municipalities and approved by the province.

6.8 CONDITIONS
Specifically for internal value capturing, there must be an integral project. Internal value capturing is only effective for the financial feasibility whenever the revenues for land development are higher than the extra costs.

In general, it is necessary for value capturing that the stakeholder, from which one tries to capture the value, benefits from the project and that it is clear that the benefit is created by the project. Also the scope of the project can change, because in exchange for a contribution the stakeholders want to implement their demands. So the scope must be flexible during the planning process.

It is nice to have all parties involved during the planning process, which is a success factor for value capturing. In this way the stakeholders can negotiate about the project before contributing.

Need-to-have:
- To improve the financial feasibility by using internal value capturing, the revenues of land development must be higher than costs
- An integral project can use internal value capturing
- Room for negotiations with respect to the scope of the project, with respect for demands of other parties
- To capture value from a stakeholder, the stakeholder must benefit from the project
- To capture value from a stakeholder, it must be clear that the extra value for the stakeholder is generated by the project
Nice-to-have:
- During the whole planning phase all parties should be involved, so they can influence the project with their demands in exchange for contributions
- For the acceptability it is nice to have proportionality in the contributions
- Shared risks, so that parties stay dependent on each other

6.9 LOOKING BACK

In the current economic situation it becomes harder to develop and sell land. The estimated revenues from land development for this project were higher than they are in reality nowadays. However, according to Prompers (2013) the project still should be kept the same if it started tendering today. The price would probably be higher with the same scope, or the scope becomes smaller for the same price, but because of the importance of the integral plan they would not change the plan.

6.10 CONCLUSION

In this chapter the project A2 Maastricht was investigated. In this project different strategies are used. Namely, “collaboration” is used with the instrument internal value capturing. The municipalities of Maastricht and Meerssen, the province of Limburg and Rijkswaterstaat form a steering group for the integral project. Also the strategy “active land policy” is used, by the municipality of Maastricht in purchasing land as an input for the project. Third, the strategy “contributions” is used, because the voluntary contributions are done by the municipalities, the province and the European Commission. (A2 Maastricht, 2003)(A2 Maastricht, 2006)

First internal value capturing is scored in this project. By only looking at internal value capturing, without looking at the contributions, the following scores are presented:

<table>
<thead>
<tr>
<th>Improvement in financial feasibility</th>
<th>Social acceptability</th>
<th>Embedding in legal system</th>
<th>Risk</th>
<th>Economical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal value capturing</td>
<td>-16,1 million by adding area development (costs of development are higher than revenues)</td>
<td>+, decided within project group</td>
<td>Higher, adding functions leads to more complexity (like redevelopment). Also revenues of land development are uncertain but covered with DBFM contract</td>
<td>Higher, extra functions are added (like redevelopment)</td>
</tr>
</tbody>
</table>

Table 20: Effects internal value capturing

The financial feasibility does not improve by using internal value capturing alone. Internal value capturing can be used under the conditions: (1) To improve the financial feasibility by using internal value capturing, the revenues of land development must be higher than costs; (2) an integral project can use internal value capturing. Even though internal value capturing does not improve the financial feasibility, an integral project with added functions creates opportunities for voluntary contributions.

Second the voluntary contributions (benefit sharing) are scored. The voluntary contributions cover 21% of the total costs of the project. This instrument can be used when there is a flexible project scope during the planning phase and it is clear that the stakeholders benefit from the project before making a contribution. (A2 Maastricht, 2003)(A2 Maastricht, 2006)
<table>
<thead>
<tr>
<th>Improvemen&lt;sup&gt;t&lt;/sup&gt; in financial feasibilit&lt;sup&gt;y&lt;/sup&gt;</th>
<th>Social acceptabilit&lt;sup&gt;y&lt;/sup&gt;</th>
<th>Embeddin&lt;sup&gt;g&lt;/sup&gt; in legal system</th>
<th>Risk</th>
<th>Economical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary contributio&lt;sup&gt;n&lt;/sup&gt;</td>
<td>21% of 631,3 million by other parties, which is 132 million euro</td>
<td>+, on voluntary basis</td>
<td>Higher, adding contract&lt;sup&gt;s&lt;/sup&gt; are made to more complexity (like redevelopment). Risk of area development covered with DBFM.</td>
<td>Higher, extra functions are added (like redevelopment)</td>
</tr>
</tbody>
</table>

Table 21: Effects voluntary contributions
7. TAX INCREMENT FINANCING CASE – MAASTRICHT

In this chapter a speculative case study will be done for the instrument “tax increment financing” or TIF, which is an instrument of obliged contributions for the strategy “contributions”. It is a speculative case, because TIF is not used in the Netherlands as an instrument of value capturing.

7.1 INTRODUCTION

In the previous chapter a case study was done about the project A2 Maastricht. In this project value was captured by using the instruments “internal value capturing” and “voluntary contributions”. By using internal value capturing the revenues of land development can be captured. In this way the value created by the infrastructure for “new land” can be captured. With voluntary contributions the municipalities of Maastricht and Meerssen and the province of Limburg paid a part of the project, because they benefit from it in economical terms.

However, there are still parties that benefit from the project, but do not make a contribution to the project. In the following section possible extra stakeholders will be described. Next, theory about the instrument “tax increment financing” will be given. Because this instrument is not used in the Netherlands, this is a speculative case. In this case study possible effects with regard to the implementation of tax increment financing in the project A2 Maastricht will be described.

7.2 TAX INCREMENT FINANCING

This instrument is linked to property tax. Tax increment financing can be applied to increments in property tax in the Netherlands. In Dutch there is a property tax called “Onroerend zaakbelasting”. This is not a specific instrument for value capturing, because this tax is always charged. The tax is charged based on a value called “WOZ-waarde”. The valuation will be done annually based on a market value. This value is an indicator for the value of property in an area. When an investment in infrastructure is made, it is expected that, because of the increased accessibility, the value rises. This should be apparent in the “WOZ-waarde”. The rise in revenues from the property tax can be used for funding of infrastructure. Also by creating extra tax capacity with land development, the total OZB revenues will increase. These also can be used for funding of infrastructure. (Rijksoverheid, 2013c)

Figure 3: TIF: Tax revenue base and increment

Municipal taxes

Municipalities levy property taxes, in Dutch called “Onroerendzaakbelasting” or shortened “OZB”. The tax capacity is determined by the total “WOZ” value of real estate in that municipality. “WOZ” is a Dutch abbreviation of “Wet waardering onroerende zaken”, roughly translated to
property value determination law. It takes care of the valuation of property in the Netherlands for taxation. (Rijksoverheid, 2013d)

Municipalities get about ten percent of their revenues from taxes, mainly from property taxes. Property tax is a tax that is paid by property owners. The height of the tax is determined by each municipality. As described above, the “WOZ” value is used for determination of the taxes. This value is determined based on a valuation. In this valuation the market value of a property is mentioned. (Rijksoverheid, 2013d)

Since 2008 the WOZ value is determined every year. So the value can change every year. Since 2009 the amount of the OZB is calculated as a percentage of the WOZ value. The percentage is determined every year by the municipal council. A maximum rise in percentage, called “macronorm”, is determined each year. (Vereniging Eigen Huis, 2013)

Within this tax a distinction is made between houses and non-houses. Within these categories a distinction can be made between owners and users. For non-houses, for example business units, both owners and users pay OZB. Users are for example renters of business units. For houses only owners pay OZB. In 2006 the OZB for users of houses was abolished. An owner means an owner of property or land. (Rijksoverheid, 2013c)

7.3 PROJECT
The project A2 Maastricht was already introduced in the previous chapter. Therefore an extensive description about the project will not be given. In this section the most important parts for “tax increment financing” will be highlighted.

Land development
The project also includes land development plans. These land development plans are in three areas, called Traverse North, Traverse Centre and Traverse South. In Traverse North 11.000 square meters will be developed. In Traverse Centre 22.000 square meters will be developed and in Traverse South 28.000 meters will be developed, according to the plans. In these plans both business units as houses are mentioned. For example, near intersections Geusselt and Europaplein, the city entrances, office villas will be constructed. Also the ground above the tunnel will be developed, an area called Parklaan. Here new houses will be constructed. (AvecodeBondt, 2002)

Redevelopment
Besides development of new land, also existing buildings will be redeveloped. For example, Maastricht Oost will be renewed en developed. Before constructing new buildings, the existing houses have to be demolished. (AvecodeBondt, 2002)

Existing buildings
Owners of existing homes also benefit from the project, because with a higher accessibility and a more green character the city becomes more attractive. For example, the business area Beatrixhaven benefits from the project because of the new connecting road with the A2. Besides the increase in performance, the value of the land can increase as well. Also, with the redevelopment of parts of Maastricht Oost, it becomes more attractive to live there. This means that the land values of this area can also increase. (AvecodeBondt, 2002)

These parts of the project are mentioned, because there is potential in these parts for capturing value with tax increment financing. In the next section the stakeholders that could be involved will be mentioned.
7.4 Stakeholder analysis

In the previous chapter the stakeholders are described that were involved in the project in reality. In this section possible stakeholders are described. With tax increment financing value will be captured from owners and users of land. It is an instrument for collecting the revenues generated by the rise in revenues from property tax. The property tax increases, because the value of land increases. What stakeholders can be involved for tax increment financing?

7.4.1 Stakeholders

In this section the stakeholders involved are mentioned. These stakeholders are involved, because they benefit from the project indirectly. Rijkswaterstaat remains an important player, because they are responsible for the project. Because of the route of the highway, in Maastricht, the municipality is an important player. There are also areas of redevelopment and land development in the project in Maastricht. Other players are land owners of houses or non-houses (businesses), users of non-houses and future land owners (for the new areas). They all can benefit from the project. In the next section how they benefit from it will be explained.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>State – Public institution</td>
</tr>
<tr>
<td>Municipality Maastricht</td>
<td>Municipality &amp; (future) owner land/developer</td>
</tr>
<tr>
<td>Land owner houses</td>
<td>Owner land or owner-user</td>
</tr>
<tr>
<td>Land owner non-houses</td>
<td>Owner land</td>
</tr>
<tr>
<td>Users non-houses</td>
<td>Users</td>
</tr>
<tr>
<td>Future land owner houses</td>
<td>Owner land or owner-user</td>
</tr>
<tr>
<td>Future land owner non-houses</td>
<td>Owner land</td>
</tr>
<tr>
<td>Future users</td>
<td>Users</td>
</tr>
</tbody>
</table>

Table 22: Stakeholders

Role

In this section the roles of the stakeholders are similar to their names above, because they are already grouped by their role. The private parties can be owners of land, an owner and user or just a user.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>State – Public institution</td>
</tr>
<tr>
<td>Municipality Maastricht</td>
<td>Municipality &amp; (future) owner land/developer</td>
</tr>
<tr>
<td>Land owner houses</td>
<td>Owner land or owner-user</td>
</tr>
<tr>
<td>Land owner non-houses</td>
<td>Owner land</td>
</tr>
<tr>
<td>Users non-houses</td>
<td>Users</td>
</tr>
<tr>
<td>Future land owner houses</td>
<td>Owner land or owner-user</td>
</tr>
<tr>
<td>Future land owner non-houses</td>
<td>Owner land</td>
</tr>
<tr>
<td>Future users</td>
<td>Users</td>
</tr>
</tbody>
</table>

Table 23: Roles stakeholders

7.4.2 Value for Stakeholders

On basis of these roles, value creation can be described for each stakeholder. Rijkswaterstaat and province benefit from the project by a possible increase in economic activity. The municipality benefits from the project in two ways. First, they benefit from the extra value of the new developed land or redeveloped land, because these areas create extra tax capacity for the municipality. Second, they benefit from the rise in land value in the existing area. The value of land rises, because of the higher accessibility and livability. This also creates more tax revenues for the municipality.
The owner land and owner-user benefit from the project because the value of their land rises, because their land becomes more attractive for others. Users of business units benefit from a higher accessibility and livability, which can increase the performance of their businesses.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Value created</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>Higher accessibility and safety is beneficial to the economic activity and livability in the region</td>
</tr>
<tr>
<td>Municipality Maastricht</td>
<td>Land value rises because of higher accessibility so extra tax revenues, and extra tax capacity is created with land development</td>
</tr>
<tr>
<td>Land owner houses</td>
<td>Land value rises</td>
</tr>
<tr>
<td>Land owner non-houses</td>
<td>Land value rises</td>
</tr>
<tr>
<td>Users non-houses</td>
<td>Higher accessibility can improve the performance of businesses</td>
</tr>
<tr>
<td>Future land owner houses</td>
<td>Land value rises</td>
</tr>
<tr>
<td>Future land owner non-houses</td>
<td>Land value rises</td>
</tr>
<tr>
<td>Future users</td>
<td>Higher accessibility can improve the performance of businesses</td>
</tr>
</tbody>
</table>

Table 24: Created value stakeholders

7.4.3 Dependencies

Different dependencies can be described between the stakeholders mentioned above. First all stakeholders depend on the state because of the "Tracé besluit" and the budget available. The state depends on the municipality for their land use plans. But they also depend on the municipality because they collect the tax, called "OZB", for the land value. So the municipality has to collaborate voluntarily by making the contribution based on property taxes.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rijkswaterstaat</td>
<td>&quot;Tracé&quot; decision + budget</td>
</tr>
<tr>
<td>Maastricht</td>
<td>Land use plans + contribution from extra revenues tax</td>
</tr>
<tr>
<td>Private parties</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 25: Dependencies stakeholders

7.5 Implementation tax increment financing I

In this section the implementation of the instrument will be described. The expected revenues will be described, or how one can determine these. First of all, to give insight in the numbers of the project, the costs are presented. Then the estimated revenues are mentioned.

Costs

In the first management agreement of 2003 the costs were estimated at 360 million euros. However, in the additional management agreement of 2006 the estimated costs were higher, because of changes in the plan. A project budget of 631,3 million euros is presented. (A2 Maastricht, 2003)(A2 Maastricht, 2006)

Estimated revenues

The estimated revenues are based on the report "Maastricht raakt de weg kwijt" (2002). In this report the revenues for land development and redevelopment are mentioned.
Land development

Land development is done in three areas, Traverse North, Centre and South. In the table below the revenues of land development are mentioned. The revenues are generated by selling the properties; therefore this is used as "WOZ" value in the following sections. So the WOZ value of the new area is 11,1 million euros. (Aveco-deBondt, 2002)

<table>
<thead>
<tr>
<th>Project part</th>
<th>Square meters</th>
<th>Revenues in millions of euros</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traverse North</td>
<td>11.000</td>
<td>2,5</td>
</tr>
<tr>
<td>Traverse Centre</td>
<td>22.000</td>
<td>3,3</td>
</tr>
<tr>
<td>Traverse South</td>
<td>28.000</td>
<td>5,2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>11,1</strong></td>
</tr>
</tbody>
</table>

Table 26: Estimated revenues land development (Aveco-deBondt, 2002)

Based on this WOZ value the tax revenues can be determined. For the calculation of these revenues the percentages for the OZB tariffs in 2012 are used. In Maastricht the following percentage is used: 0,1130%. This means that in one year 11,1 million euros* 0,001130 = 12.543 euros. (WOZ-waarde, 2013)

According to PWC (2008) tax increment financing is normally used in the United States over a period of approximately twenty years. So when the agreement is made that tax increment is used, that is corrected for inflation, the total amount after twenty years can be estimated at approximately 250.000 euros. So per year the municipality gets 12.543 euros of extra tax revenues.

However, the total revenues of the municipality do not rise by 12.543 euros, because of the influence to the contribution by the municipal fund. The municipal fund is a fund filled with state budget. Municipalities receive money from this fund every year for a part of their expenses. Municipalities can determine themselves how they use this money. They can use it for example for roads and schools. (Rijksoverheid, 2013e)

How much every municipality receives from the municipal fund depends on characteristics and the tax capacity of the municipality. There are over 60 criteria. Each measure has an amount per unit or a fraction. So a municipality receives money for each inhabitant etcetera. An important measure is the tax capacity of a municipality. When a municipality collects more money by OZB, the contribution from the municipal fund decreases. (Rijksoverheid, 2013e)

For 2012 it was determined that the weight for the OZB value house owners is: -0,001005. This means that over 11,1 million euros of extra value, the municipality gets -0,001005*11,1 million = -11.155,5 euros less from the municipal fund. Over twenty years this is

Figure 28: Relation municipal fund and OZB
approximately 223,000 euros less (under the assumption that the fraction remains the same). (Rijksoverheid, 2013e)

The total profit per year is therefore 1387 euros for the municipality. Over twenty years the profit is 27,750 euros, or net present value of 19,603 with IBOI of four percent. Based on this calculation it can be said that, with the costs of the project A2 Maastricht, the profit can be neglected. (CPB, 2011)

Redevelopment

The revenue of the redevelopment is estimated at 13,9 million euros, based on 348 houses. However, the costs of acquisition of these 348 houses are estimated at 39,5 million euros. So this does not generate extra tax capacity for the municipality. Therefore this part is not considered. (Aveco-deBondt, 2002)

Existing land

Even though it is hard to predict the rise in value of land due to the project, a calculation will be made with an example to determine whether the profit is relevant or can be neglected as a contribution for state road projects.

The rise in value is assumed to be 10%. This rise is probably not realistic, but is used to demonstrate the use of tax increment financing. The numbers for 2012 are used for this demonstration for the tax capacity of Maastricht.

In the table below all the numbers can be found. With a rise of ten percent of all WOZ values in Maastricht, the extra value created is 1.635.525 euros. However, the decrease in contribution by the municipal fund is 1.499.694 euros. This means that the profit per year is 135.830 euros for the municipality, which they can use for the funding of the project. In twenty years this adds up to 2,7 million euros, or net present value of 1,9 million (IBOI 4%), which is 0,4% of the total costs of the project. (Rijksoverheid, 2013e)(CPB, 2011)

<table>
<thead>
<tr>
<th>Current value</th>
<th>Extra value 10%</th>
<th>Extra OZB (0,1130%)</th>
<th>Fraction</th>
<th>Change contribution</th>
<th>Total profit = Extra OZB - decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>OZB value house owners</td>
<td>8.692.821.600</td>
<td>869.282.160</td>
<td>982.288.8</td>
<td>-0,001005</td>
<td>-873.628,6</td>
</tr>
<tr>
<td>OZB value non-house users</td>
<td>2.863.011.200</td>
<td>286.301.120</td>
<td>323.520,3</td>
<td>-0,001083</td>
<td>-310.064,1</td>
</tr>
<tr>
<td>OZB value non-house owners</td>
<td>2.917.836.250</td>
<td>291.783.625</td>
<td>329.715,5</td>
<td>-0,001343</td>
<td>-316.001,7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1.635.525</strong></td>
<td></td>
<td></td>
<td><strong>-1.499.694</strong></td>
<td><strong>135,830</strong></td>
</tr>
</tbody>
</table>

Table 27: Profit from tax increment, based on (Rijksoverheid, 2013e)

Based on the unrealistic rise of ten percent, and the costs of the total project, the contribution made can be neglected in the current system. This also can be seen in the figure below.
The method used in the previous section does not lead to a major improvement of the financial feasibility. This is because the subsidy from the municipal fund depends on the capacity of the total WOZ value of the municipality. Another option for a municipality is increasing the percentage of OZB for the entire municipality. The subsidy from the municipal fund does not depend on the height of the percentage of the OZB, but only on the tax capacity based on WOZ values. (Rijksoverheid, 2013e)

This means that the municipality of Maastricht can increase the percentage of 0.1130% to create more incomes. According to Vereniging Eigen Huis (2013) every municipality determines this percentage per year. The maximum rise of OZB income per year, called the "macronorm", is 2.76%. So in this section the assumption is that the total WOZ value is constant and the percentage is multiplied with 1.0276 to stay exact within the macronorm. Instead of 0.1130% it becomes 0.1161%. This increase in percentage is presented in the table below. With an increase in the percentage of OZB, the municipality receives approximately 448.680 euros extra, which can be used for infrastructure funding.

When the WOZ value in the municipality Maastricht remains the same, and Maastricht only use this increase once and uses this new percentage constantly, the tax increment is approximately 8.9 million euros over twenty years (or a net present value of 6.3 million euros, using IBO1 4%). (CPB, 2011)

<table>
<thead>
<tr>
<th>OZB value</th>
<th>Current value</th>
<th>Extra OZB (0.1161%)</th>
<th>Normal OZB (0.1130%)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>house owners</td>
<td>8.692.821.600</td>
<td>10.092.365,88</td>
<td>9822888,408</td>
<td>269.477,5</td>
</tr>
<tr>
<td>non-house users</td>
<td>2.863.011.200</td>
<td>3.323.956,003</td>
<td>3235202,656</td>
<td>88.753,35</td>
</tr>
<tr>
<td>non-house owners</td>
<td>2.917.836.250</td>
<td>3.387.607,886</td>
<td>3297154,963</td>
<td>90.452,92</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>448.683,7</strong></td>
</tr>
</tbody>
</table>

Table 28: Tax increment by increasing percentage, based on (Rijksoverheid, 2013e)
When linking this increase in income over twenty years with the project A2 Maastricht one can conclude that the extra incomes can be neglected. Also, a discussion point of this method is the proportionality. Not everyone in Maastricht with a house, benefits from the project in the same way. Furthermore, it is not based on the increase in land value. When a citizen benefits from the project through land value rise, they pay more OZB because their WOZ value rises. But now, the OZB percentage also rises so this is not related to the land value rise. So there is no direct correlation between the created value and the contribution.

7.7 EFFECTS
In this section the effects of value capturing on the financial feasibility, risk, value, social acceptability and legal embedding are described.

7.7.1 FINANCIAL FEASIBILITY
As described above, the contribution based on tax increment financing in the current Dutch system can be neglected because of the relation with the municipal fund. A new area or a rise in value of existing land can create a large amount of extra OZB taxes collected by the municipality. But the municipality gets less money from the municipal fund because of the increasing tax capacity. The profit that remains after the calculations can be neglected in comparison with the costs of a project like A2 Maastricht. Therefore, it can be said that the instrument does not improve the financial feasibility in the current Dutch system.

Another method, increasing of the percentage of OZB by the municipality, can improve the financial feasibility more. The subsidy from the municipal fund does not depend on this percentage, and therefore the extra income goes to the municipality. However, this percentage applies to the entire municipality and can only rise with the so-called “macronorm”. Linked to a large project like A2 Maastricht, the extra income can still be neglected.

7.7.2 RISK
If one chooses to use the instrument tax increment financing, one has to consider a risk. Namely, it is hard to predict the rise in value of land in the upcoming twenty years. If an estimate is made, it is possible that the land does not rise in value or even that the value decreases (in the current economic situation). So there is risk involved in the estimation of the total contribution that can be made based on tax increment.

7.7.3 VALUE
The total value does not change by using tax increment financing. If tax increment financing is used for the existing houses, the scope of the project does not have to change and therefore the value does not change. Whenever a new area is developed and included in the project, the value can rise, but this is not a condition for using the instrument.

7.7.4 SOCIAL ACCEPTABILITY
OZB is already collected by the municipalities, therefore the private parties probably accept that the tax increment is used for funding infrastructure projects. However, the municipalities also have to agree that they have to use to profit as a contribution. In the current system this has to be done on a voluntary basis by the municipality, therefore it is likely that they accept it.

7.7.5 LEGAL EMBEDDING
In the current legal system tax increment financing can be used by “earmarking” the tax increment. Nevertheless, tax increment financing can be used more effectively in other countries because of the difference in systems.

The instrument can be used more effectively, when the contribution of the municipal fund does not change because of the increase in tax capacity. However, this asks for a change in this system.
Another option is the following. The state fills the municipal fund, so when a municipality gets a higher tax capacity (due to the project), the state has to pay less to the municipality with the fund. The state can "earmark" the difference and use it for the project. This also asks for a change in the system.

7.8 CONDITIONS
This instrument can only be used by municipalities. This means that the state depends on municipalities for collaboration. A rule or law that includes that the state can force the municipalities to use tax increment financing to support their project would make it easier for the state to collect these contributions. Otherwise, it is still some form of "voluntary contributions". Other need-to-have's and nice-to-have's are mentioned below.

Need-to-have:
- Voluntary contribution by the municipality, if one wants to use the remaining profit. So an agreement has to be made between state and municipality
- Earmarking of tax increment
- Over a long period of time to be more effective
- High rise in land values
- To use TIF more effectively, the system has to be adjusted (like mentioned in previous section)

Nice-to-have:
- A rule that includes that the state can force the municipalities to use tax increment financing to support a state project

7.9 CONCLUSION
In this speculative case, based on A2 Maastricht, the strategy "contributions" with instrument "tax increment financing" was investigated. The instrument was investigated in this chapter on the financial feasibility, risk, value, social acceptability and legal embedding and the results are the following:

<table>
<thead>
<tr>
<th>Tax increment financing</th>
<th>Improvement in financial feasibility</th>
<th>Social acceptability</th>
<th>Embedding in legal system</th>
<th>Risk</th>
<th>Economical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>&lt;1%, because of influence municipal fund profit of OZB is low</td>
<td>+, tax already collected</td>
<td>-, in current system it is not effective</td>
<td>Same, or higher</td>
<td>Same, or higher</td>
</tr>
<tr>
<td>II</td>
<td>&lt;1%, because of the restriction of the increase in percentage</td>
<td>+</td>
<td>Same, or higher</td>
<td>Same, or higher</td>
<td>Same, or higher</td>
</tr>
</tbody>
</table>

Table 29: Effects tax increment financing

From this case can be concluded that tax increment financing cannot be used effectively. This is because of the relation between the revenues of OZB and the subsidy from the municipal fund. If the revenues of OZB rise, the subsidy from the municipal fund decreases. Therefore the municipality does not benefit from the project through the total incomes. However, the government itself does profit from the project indirectly because they pay less to this municipality from the municipal fund. But it can be hard to capture that money and use it for the project.
In order to use this instrument, the tax increment has to be earmarked by a municipality. However, it remains a discussion point whether the tax increment is caused by the infrastructure or by other things. It is hard to determine the tax increment caused by a specific project.

Because the municipalities collect OZB, the state depends on them. In order to claim the tax increment by the state, a rule or law must be made that includes that the state can force the municipalities to use tax increment financing to support their project. This would make it easier for the state to collect these contributions. Otherwise, it is still some form of “voluntary contributions”.

8. ANALYSIS

In this chapter the case studies are compared. First the case studies are summarized briefly on the strategies and instruments used. Then the effect on the financial feasibility per case is compared. Furthermore the effect on risk, social acceptability, legal embedding and value are compared. The conditions for the instruments are given, and general conditions are presented. Finally, a cross-case analysis is done. Speculatively it was considered whether an instrument can also be applied to the other case to look if an instrument can be used in general for state road projects.

8.1 COMPARISON PROJECTS

In the case N201 the strategy “contributions” is used. Voluntary contributions are made by municipalities and some private parties, based on the instrument benefit sharing.

With the A2 Maastricht different strategies are used. Namely, “collaboration” is used with the instrument internal value capturing. The municipalities of Maastricht, Meerssen, the province of Limburg and Rijkswaterstaat form a steering group for the integral project. Also the strategy “active land policy” is used, by the municipality of Maastricht in purchasing land as an input for the project. Third, the strategy “contributions” is used, because the voluntary contributions are made by the municipalities, the province and the European Commission. The focus was on internal value capturing on the one side, and contributions (benefit sharing) on the other side.

In the speculative case, based on data of A2 Maastricht, the obliged contributions were used with the instrument tax increment financing.

The strategies “collaboration” and “active land policy” can be used at the same time. If a public institution collaborates in a project, that actively purchases land, the strategies are both used. Both strategies have the instrument “internal value capturing”. Therefore, these strategies are researched in one case. The difference between the strategies is the following. Without collaboration the client gets a higher risk, because this cannot be transferred or shared.

8.2 EFFECT ON FINANCIAL FEASIBILITY

The effect of the instruments on the financial feasibility is presented in the table below. The case N201 has the highest percentage of improvement of financial feasibility. This can be explained because this is a provincial road that crosses more municipalities, and with a higher capacity for business areas. Also this is the only case in which private parties made a contribution to the project, but these were only “large economic players”.

The A2 Maastricht did not improve the financial feasibility by internal value capturing, but by also using voluntary contributions by the municipalities of Maastricht and Meerssen and the province of Limburg. In this case no private parties were involved. The speculative case with tax increment financing will not improve the financial feasibility.

<table>
<thead>
<tr>
<th></th>
<th>Improvement financial feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>N201: Voluntary contributions – benefit sharing</td>
<td>18% by other parties of 636,4 million euros, which is 114 million euros</td>
</tr>
<tr>
<td>A2: Only internal value capturing</td>
<td>-16,1 million euros</td>
</tr>
<tr>
<td>A2: Voluntary contributions – benefit sharing</td>
<td>21% by other parties of 631,3 million euros, which is 132 million euros</td>
</tr>
<tr>
<td>A2: Obligated contributions - Tax increment financing</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 30: Effect instruments on financial feasibility
8.3 OTHER EFFECTS
The research question is about the financial feasibility of a project when using value capturing instruments. However, it is also necessary to know other effects when considering these instruments.

8.3.1 RISK
In the cases A2 Maastricht and N201 the risk became higher. In these cases voluntary contributions were asked. These parties have demands in exchange for this contribution. Therefore the scope of the project changed during the process, and the projects became more complex by adding functions. With tax increment financing it is not necessary to adjust the scope of the project, but can be done to increase the value, for example by adding business areas (which lead to a higher capacity).

<table>
<thead>
<tr>
<th></th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>N201: Voluntary contributions – benefit sharing</td>
<td>Higher (+)</td>
</tr>
<tr>
<td>A2: Only internal value capturing</td>
<td>Higher (++)</td>
</tr>
<tr>
<td>A2: Voluntary contributions – benefit sharing</td>
<td>Higher (++)</td>
</tr>
<tr>
<td>A2: Obliged contributions - Tax increment financing</td>
<td>Same or higher</td>
</tr>
</tbody>
</table>

Table 31: Effect on risk

8.3.2 VALUE
As explained above, the scope changed during the process with A2 Maastricht and N201+. Functions were added to create extra value for other stakeholders, in exchange for money. Therefore the total value also became higher during the process.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N201: Voluntary contributions – benefit sharing</td>
<td>Higher</td>
</tr>
<tr>
<td>A2: Only internal value capturing</td>
<td>Higher</td>
</tr>
<tr>
<td>A2: Voluntary contributions – benefit sharing</td>
<td>Higher</td>
</tr>
<tr>
<td>A2: Obliged contributions - Tax increment financing</td>
<td>Same or higher</td>
</tr>
</tbody>
</table>

Table 32: Effect on value

8.3.3 SOCIAL ACCEPTABILITY
All instruments scored positive on social acceptability. The contributions are made on a voluntary basis, and these stakeholders could also negotiate about the project. Therefore it is likely that they accept the contribution. Tax increment financing uses a tax that already is collected, and therefore does not change the system for owners.
### Acceptability

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>N201: Voluntary contributions – benefit sharing</td>
<td>+</td>
</tr>
<tr>
<td>A2: Only internal value capturing</td>
<td>+</td>
</tr>
<tr>
<td>A2: Voluntary contributions – benefit sharing</td>
<td>+</td>
</tr>
<tr>
<td>A2: Obligated contributions - Tax increment financing</td>
<td>+/-</td>
</tr>
</tbody>
</table>

Table 33: Effect on social acceptability

8.3.4 **LEGAL EMBEDDING**

The voluntary contributions can be used in the current legal system. By using contracts, the contributions are guaranteed during the process. Internal value capturing can also be done in the legal system. Tax increment financing cannot be used effectively in the current system, because of the relation between the tax capacity and the payment from the municipal fund.

### Legal Embedding

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>N201: Voluntary contributions – benefit sharing</td>
<td>+</td>
</tr>
<tr>
<td>A2: Only internal value capturing</td>
<td>+</td>
</tr>
<tr>
<td>A2: Voluntary contributions – benefit sharing</td>
<td>+</td>
</tr>
<tr>
<td>A2: Obligated contributions - Tax increment financing</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 34: Effect on legal system

8.4 **CONDITIONS**

In every case study conditions are mentioned. In this section the general conditions are categorized into one category and the other conditions are categorized by instrument.

**General**

**Need-to-have:**
- To capture value from a stakeholder, the stakeholder must benefit from the project
- To capture value from a stakeholder, it must be clear that the extra value for the stakeholder is generated by the project
- Scope must be flexible, because of demands of other parties
- Window of opportunity

**Nice-to-have:**
- The social acceptability could be higher if the contribution is proportional. However, in the project N201 this was not the case and it was still accepted.

**Voluntary contributions**

**Need-to-have:**
- The road must pass municipalities and provinces, that benefit from the road
- One must involve these parties from the beginning of the process
- The scope must not be fixed, because these parties have their demands for the project in exchange for the contribution
Nice-to-have:
- It makes it easier to collect a contribution from private parties, when these parties are also involved in the entire process.
- Independent project agency makes it easier to negotiate.

Internal value capturing
Need-to-have:
- To improve the financial feasibility by using internal value capturing, the revenues of land development must be higher than costs
- An integral project can use internal value capturing

Tax increment financing
Need-to-have:
- Voluntary contribution by the municipality, if one wants to use the remaining profit. So an agreement has to be made between state and municipality
- Earmarking of tax increment
- Over a long period of time to be more effective
- High rise in land values
- To use TIF more effectively, the system has to be adjusted

Nice-to-have:
- A rule that includes that the state can force the municipalities to use tax increment financing to support a state project

8.5 CROSS-CASE
In this section a cross-case analysis is done. Speculatively it was considered whether an instrument of another case could be used, or, when the same instruments are used, what lessons can be learned.

8.5.1 VOLUNTARY CONTRIBUTIONS
This instrument is used in both cases N201+ and A2 Maastricht. According to Winters (2013) the project N201 was not an exception with regard to value capturing. He thinks it is possible for every project to use voluntary contributions. It can be possible, whenever value is created for other parties (like municipalities and even private parties).

A lesson can be learned from N201+, which is, that also private parties can be asked for a contribution. For example in A2 Maastricht the business area Beatrixhaven benefits from the project because a new connecting road is made to link the area with the A2.

8.5.2 TAX INCREMENT FINANCING
Even though tax increment can be earmarked in current system, because of the relation of the tax capacity to the payment of the municipal fund the instrument does not work effectively. Especially with large projects, such as state roads, the profit can be neglected.

8.5.3 INTERNAL VALUE CAPTURING
In the project A2 Maastricht an integral project is performed, in which the revenues of the land development can support the infrastructure. This did not work out because the costs of acquisition and demolishment were higher than the revenues.

However, in the project N201+ business areas are also involved. Already, one hundred percent of the estimated profit of the business areas in Amstelveen, Aalsmeer and Uithoorn are funding the project. But not one hundred percent of the estimated profit of the business areas in Haarlemmermeer was contributed. By creating an integral project, all profit could be used for infrastructure. So with the estimations done then, the financial feasibility would improve even more.
An integral project was considered for the N201+, but because of the competency model it was decided that every party does what it does best, and bears the risk for it. By creating an integral project, the risk is much greater because the project becomes more complex and the revenues can be overestimated. So one has to consider the risk as well.

8.6 CONCLUSION

Voluntary contributions, by benefit sharing, can be used in every project whenever other parties benefit from the project. By involving these stakeholders, and keeping the scope flexible for their demands, it is more likely that these parties make a contribution.

Internal value capturing can be used whenever land development plans are included in the project. By involving land development plans, and creating an integral project, revenues of land development can be used to fund the infrastructure. However this has a negative impact on the risk, because of the risk of overestimation of the revenues and the increase in complexity of the project.

Tax increment financing does not work effectively in the current Dutch system. Especially in large projects, such as state roads, the profit can be neglected. Therefore a change in the Dutch system is necessary to make the instrument more effective.

To translate this report to a guide for choice of instruments, different considerations have to be made. First, the choice of an instrument depends on what kind of value creation and for whom. This is presented in the figure below.

![Figure 30: Value capturing instruments in relation to created value](image.png)

Second, one has to consider whether an instrument is effective. As mentioned above, tax increment financing is not effective in the current Dutch system. The other instruments can be effective, but they depend on different conditions. So third, the conditions per instrument and in general have to be taken into account. These are presented below.
Figure 31: Conditions value capturing

General conditions value capturing:
- The stakeholder must benefit from the project
- It must be clear that the extra value for the stakeholder is generated by the project
- Scope must be flexible,
- Window of opportunity

What instrument of value capturing?

Conditions tax increment financing:
- Collaboration with municipalities
- Earmarking of tax increment
- Over a long period of time
- High rise of land values
- System municipal fund has to be adjusted

Conditions internal value capturing:
- The revenues of land development must be higher than costs
- An integral project

Conditions benefit sharing:
- The road must pass municipalities and provinces, that benefit from the road
- One must involve these parties from the beginning of the process
- The scope must be flexible
SECTION IV: CONCLUSIONS
9. CONCLUSION

The problem can be summarized as follows. Because of the increased mobility, there is a higher demand to increase the capacity of the roads. With the current budget cuts it becomes harder to increase the capacity of the roads than before. To realize the capacity that was planned before the cuts, projects have to be performed with a smaller budget. This creates a gap between costs and budget, which has to be filled. Alternative funding is necessary to fill the gap. (Agentschap NL, 2013)

An opportunity associated with investments in infrastructure projects is that, besides the value for the user, value is created for other parties. An indirect effect is value creation through land value rise, higher economic activity and higher performance of businesses. Value capturing is a set of instruments. It targets creation of value for different parties, caused by a measure of public action. The increase in value can be captured with these instruments, to cover costs. In the diagram below the value capturing process is described. First, the situation is a project with insufficient funding, which leads to a funding gap. In this thesis this is the initial situation. (Huisman, 2006)(Offermans & Velde, 2004)

Then, value capturing is used. Other parties profit from the project as well. The revenues of other parties are created through the project. By capturing these revenues the total budget for the project increases and the costs can be covered.

Another option is the following: By changing the scope, and accept the demands of other parties, extra value can be created. These might be willing to make a contribution. This is beneficiary when the costs do not exceed the profit.
The research question is: How can value capturing contribute to an improved financial feasibility of investments in state road projects? To answer the main research question, the sub-questions have to be answered. The first sub-question is: What strategies for value capturing can be used in road infrastructure? The focus of this thesis is on indirect value capturing. Indirect value capture is for direct beneficiaries. This can be a land owner, who benefits from an increase in land value, or a retailer who benefits from a higher accessibility. Within this form, three strategies are found: (1) active land policy; (2) collaboration; (3) contributions. Active land policy means that the government is responsible for land exploitation and acts like a developer. Within contributions a distinction can be made between voluntary contributions and obliged ones. (Offermans & Velde, 2004)

The second sub-question is: Which instruments related to the strategies are promising? On based on the main goal, to improve the financial feasibility, and the criteria risk, legal embedding, social acceptability and value, the most promising instruments are scored. These are presented in the figure below. In the case studies the instruments internal value capturing (strategies: active land policy and collaboration, benefit sharing and tax increment financing are investigated (both strategy contributions).

The third sub-question is: What is the effect of these instruments on the financial feasibility? Based on the case studies N201 (voluntary contributions), A2 Maastricht (internal value capturing and voluntary contributions) and the fictive case based on A2 Maastricht (tax increment financing), it can be concluded that voluntary contributions have a positive effect on the financial feasibility. The effect of internal value capturing at A2 Maastricht was negative. The effect of tax increment financing can be neglected.

<table>
<thead>
<tr>
<th>Instrument Description</th>
<th>Improvement financial feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>N201: Voluntary contributions – benefit sharing</td>
<td>18% by other parties of 636,4 million euros, which is 114 million euros</td>
</tr>
<tr>
<td>A2: Only internal value capturing</td>
<td>-16,1 million euro</td>
</tr>
<tr>
<td>A2: Voluntary contributions – benefit sharing</td>
<td>21% by other parties of 631,3 million euros, which is 132 million euros</td>
</tr>
<tr>
<td>A2: Obliged contributions - Tax increment financing</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 35: Effects on financial feasibility
The fourth sub-question is: *What are other effects of these instruments?* Based on the case studies this question can be answered. First the effect on risk is presented. Because of the change in scope associated with voluntary contributions and internal value capturing, the risk becomes higher. When tax increment financing is used this remains the same. Because the scope has changed, the value becomes higher as well. All instruments are likely to be socially accepted. The instruments voluntary contributions and internal value capturing do not interfere with the legal system, however to use tax increment financing more effectively adjustments have to be made to the legal system.

The last sub-question is: *Under what conditions can these instruments be used?* The most important conditions will be mentioned here. Voluntary contributions, by benefit sharing, can be used in every project whenever other parties benefit from the project. By involving these stakeholders, and keeping the scope flexible for their demands, it is more likely that these parties make a contribution. Internal value capturing can be used whenever land development plans are included in the project. By involving land development plans, and creating an integral project, revenues of land development can be used to fund the infrastructure. However, to use it effectively for improvement of the financial feasibility of a project, the extra revenues have to be higher than the extra costs. Tax increment financing does not work effectively in the current Dutch system. Especially in large projects, such as state roads, the profit can be neglected. Therefore a change in the Dutch system is necessary to make the instrument more effective.

Which instrument can be used, depends on what value one wants to capture. This is presented in the figure below.

![Figure 35: Choice of instrument based on created value](image)

So, first it must be determined what kind of value is created and for whom. Based on that determination, multiple options will arise. Next, the conditions related to these instruments must be considered. Furthermore, based on this research a choice can be made based on criteria and the financial feasibility. It can be concluded from the cases that with respect to improvement of the financial feasibility benefit sharing, or voluntary contributions, is the most promising instrument.
Even though voluntary contributions is the most promising instrument, in my perception in the current economic situation, it is questionable whether parties are willing to make a contribution based on land development. The expectations of revenues by land development were higher in the case studies than they are nowadays. Therefore it is less attractive to make large contributions based on land development plans. Another option is that the contribution is determined afterwards. This means less risk for the parties that make a contribution, in this case the municipalities, but more risk for the client. So, I wonder if it is still possible to use this instrument, and when this instrument is used if it is still as effective as in the case study here. Also, when contributions are determined afterwards the risk goes to the client instead of the stakeholder. Even though this can help stakeholders to make a contribution, one must keep in mind that it can also mean that no contribution will be made afterwards. So for the client it is more attractive to cover the risk beforehand and make agreements about the contributions beforehand, but for the stakeholders it is more attractive to determine the contributions afterwards (except when they expect that the value will rise in time).

Although internal value capturing is not called a promising instrument in this report, based on the case studies, in my perception it can be more effective than is shown here. Whenever the benefits of the land development are higher than the costs of developing, it can add to the financial feasibility of a project. But for this instrument the same applies as the voluntary contributions, in the current economic situation the benefits of land development are uncertain. So when the economic situation changes and the house prices rise again, it could be a useful instrument.

These conclusions are drawn based on case studies and theory. From the theory three instruments are chosen as input for the case studies. It must be noted, that the choice of these instruments is a limitation for the research. It is possible that other instruments are more effective for the financial feasibility than was thought, so therefore a conclusion can only be drawn based on the three instruments used. Another limitation of the research is the number of case studies. For this report three case studies were chosen, in which each instrument could be studied more extensively. Because every instrument is examined in one case, it is hard to draw a general conclusion. It is possible that for example, even though voluntary contributions are effective in the case study performed here, in other case studies voluntary contributions are less effective. So, even though conclusions are drawn from this research, the study is limited because of the choice of instruments and the number of case studies.
10. Discussion

In this chapter the report is discussed and recommendations are given for further research. As mentioned in the conclusion, in my perception it is questionable whether parties are willing to make contributions based on revenues from land development in the future. Van Ophem (2013) does not believe that contributions will be done based on land development in the future. However, he thinks that value capturing is more valuable as a process instrument, and not for capturing value. By involving stakeholders from the beginning, more commitment is created. This can speed up the process, and even create time gain which leads to lower costs. However, I wonder if it is true that involving stakeholders creates time gain, because by involving stakeholders more discussions arise. Therefore it is interesting to investigate this theory.

Another recommendation for further research applies to the instrument voluntary contributions. In this thesis every instrument is investigated in one case, and the most promising instrument was benefit sharing. This can be investigated further with more cases, to determine the average improvement in financial feasibility, other effects and conditions can be added. Another possibility is to use value capturing in a real case.

Also, tax increment financing can be investigated further. It was concluded that the improvement in financial feasibility caused by this instrument can be neglected. However, in other countries this instrument works more effectively. It might be interesting to investigate how the current legal system has to be adjusted, in order for TIF to work effectively, and what consequences arise from these changes. However, in my perception it is not very likely that the current tax system and legal system will be adapted in the Netherlands. With that in mind, this instrument is not usable for the Netherlands.

So it can be concluded from this chapter that further research can be done for specific instruments in order to use them more effectively and efficiently. Another question about value capturing is whether it is likely to be used in the future, with respect to the current economic situation in relation to land development, or whether it is more valuable as a process instrument.

In my perception it is useful to consider the interaction between the value for other parties, the costs and the contributions made. Whenever a stakeholder has a demand the costs can rise because of the changing scope of the project, but if this stakeholder wants to make a contribution because of this change in scope, and if this contribution is higher than the extra costs, the project can benefit from this change. In my observation most infrastructure projects nowadays in the Netherlands have an inflexible scope. This does not make it possible to negotiate with other parties. So the scope has to be flexible in order to negotiate with other parties about contributions.

In my perception A2 Maastricht is a good example of a project in which the focus is on value creation, which finally also helps to get contributions from other parties. In the beginning this integral project did not focus on the amount of contributions from other parties, but on the value creation of the project. At the end the parties were willing to make contributions, because they benefit from the project. So value capturing begins with creating value. Additionally, in all cases the window of opportunity is necessary to get contributions to the project.
REFERENCES


Offermans, R.N. (2003). Gains for trains: Capitalizing on transit investment. Rotterdam, Department of Regional Economics & Transport and Port Economics, Erasmus University


Ridder, H. De (2011). *Dynamic control of projects.* Blackboard TU Delft, Internal publication, course "Dynamic control of projects".


**Websites**

A2 Maastricht (2013). *De groene loper- een plan voor stad en snelweg.*


Amsterdam Connecting Trade (2013). *Wat is A4 Zone West?*
http://www.amsterdamconnectingtrade.nl/a4-zone-west Last consult: 12-4-2013.


CPB (2011). *Toelichting op prijssmutaties van de overhead (collectieve sector).*

Gemeente Haarlemmermeer (2013). *Schiphol Logistics Park.*

Gemeente Amstelveen (2013). *Bouwproject Bedrijventerrein De Loeten (voorheen Meerlandenweg).*

IRC (2004). *What is cost recovery.*


Rijksoverheid (2012). *Meerjarenprogramma Infrastructuur, Ruimte en Transport (MIRT).*


Rijksoverheid (2013c). *Wat is onroerendezuakbelasting?*


http://www.rijkswaterstaat.nl/over_ons/missiekerntaken/rijkswaterstaatinverandering/. 
Consulted at 5 December 2012.


Sam Houston State University (2013). *Creating value and capturing value*. 
http://www.shsu.edu/~dpg006/ECON%205333.day8.ppt


LIST OF FIGURES

Figure 1: Funding gap .................................................................................................................................................. 4
Figure 2: Value capturing .............................................................................................................................................. 4
Figure 3: Value capturing by creating extra value ...................................................................................................... 5
Figure 4: Relation created value and instruments ..................................................................................................... 7
Figure 5: Conditions value capturing ......................................................................................................................... 7
Figure 6: Funding gap ................................................................................................................................................... 17
Figure 7: Economical value (LPBL, 2010) .................................................................................................................. 23
Figure 8: Cost benefit analysis versus business case (LPBL, 2010) ........................................................................... 24
Figure 9: Social value - Direct and indirect effects .................................................................................................... 24
Figure 10: Relation value, price, costs (De Ridder, 2011) ........................................................................................ 26
Figure 11: Funding gap ............................................................................................................................................... 28
Figure 12: Value capturing ......................................................................................................................................... 29
Figure 13: Value capturing by creating extra value .................................................................................................... 29
Figure 14: Forms of value capturing (Huisman, 2006) ............................................................................................... 29
Figure 15: Relation value capturing with project ....................................................................................................... 34
Figure 16: Created value versus instruments .......................................................................................................... 39
Figure 17: Overview project (N201, 2013) ................................................................................................................ 44
Figure 18: Timing project based on (Provincie Noord-Holland, 2013)(Stuurgroep N201+, 2002) (Stuurgroep N201+, 2004) .......................................................................................................................... 45
Figure 19: Competency model (Stuurgroep N201+, 2002) ......................................................................................... 46
Figure 20: Value capturing - lower costs and higher contributions ........................................................................... 51
Figure 21: Funding sources (Stuurgroep N201+, 2004) ............................................................................................ 51
Figure 22: Business areas N201 (Stuurgroep N201+, 2004) .................................................................................... 53
Figure 23: Project view (A2 Maastricht, 2013) ........................................................................................................... 61
Figure 24: Timing project (A2 Maastricht, 2013) ........................................................................................................ 63
Figure 25: Value capturing - increase in costs and contributions .............................................................................. 66
Figure 26: Funding sources (A2 Maastricht, 2006) ..................................................................................................... 67
Figure 27: Tax increment financing (PWC, 2008) ....................................................................................................... 74
Figure 28: Relation municipal fund and OZB ............................................................................................................. 78
Figure 29: Value capturing through tax increment financing ................................................................................... 80
Figure 30: Value capturing instruments in relation to created value ........................................................................... 88
Figure 31: Conditions value capturing ..................................................................................................................... 89
Figure 32: Funding gap ............................................................................................................................................. 91
Figure 33: Value capturing ....................................................................................................................................... 91
Figure 34: Value capturing by creating extra value .................................................................................................... 92
Figure 35: Choice of instrument based on created value .......................................................................................... 93
Figure 36: Debt as a percentage of GDP (Studiegroep Begrotingsruimte, 2012) .................................................... 104
Figure 37: Traffic volume (KiM, 2012) .................................................................................................................... 106
Figure 38: Funding versus financing (Commissie Ruding, 2008) .......................................................................... 107
Figure 39: Traditional financing (OECD, 2008) ........................................................................................................... 108
Figure 40: On-budget investment spending (OECD, 2008) .................................................................................... 108
Figure 41: Off-budget investment spending (OECD, 2008) .................................................................................... 109
Figure 42: Situation 2002 .......................................................................................................................................... 113
Figure 43: Lower contribution state ......................................................................................................................... 113
Figure 44: Lower costs ............................................................................................................................................. 114
LIST OF TABLES

Table 1: Strategies and instruments for value capturing ................................................................. 6
Table 2: Created value per stakeholder .......................................................................................... 31
Table 3: Scoring direct and indirect value capture ......................................................................... 33
Table 4: Promising instruments .................................................................................................... 39
Table 5: Role stakeholders ........................................................................................................... 45
Table 6: Role stakeholders ........................................................................................................... 46
Table 7: Created value stakeholders N201 .................................................................................... 47
Table 8: Resources stakeholders N201 ......................................................................................... 48
Table 9: Costs N201 (Stuurgroep N201+, 2004) ........................................................................... 50
Table 10: Contributions N201 (Stuurgroep N201+, 2004) ............................................................. 52
Table 11: Effects voluntary contributions N201 .......................................................................... 59
Table 12: Stakeholders A2 Maastricht ......................................................................................... 63
Table 13: Role stakeholders A2 Maastricht .................................................................................. 63
Table 14: Value created A2 Maastricht ....................................................................................... 64
Table 15: Resources A2 Maastricht .............................................................................................. 64
Table 16: Contributions (A2 Maastricht, 2006) .......................................................................... 67
Table 17: Costs and revenues first agreement (Avec-deBondt, 2002) ............................................ 69
Table 18: Regional contributions (A2 Maastricht, 2003) ............................................................. 70
Table 19: Regional budgets (Stuurgroep N201+, 2002)(Stuurgroep N201+, 2004) ..................... 70
Table 20: Effects internal value capturing ..................................................................................... 72
Table 21: Effects voluntary contributions .................................................................................... 73
Table 22: Stakeholders .................................................................................................................. 76
Table 23: Roles stakeholders ........................................................................................................ 76
Table 24: Created value stakeholders .......................................................................................... 77
Table 25: Dependencies stakeholders .......................................................................................... 77
Table 26: Estimated revenues land development (Avec-deBondt, 2002) ....................................... 78
Table 27: Profit from tax increment, based on (Rijksoverheid, 2013e) ......................................... 79
Table 28: Tax increment by increasing percentage, based on (Rijksoverheid, 2013e) ............... 80
Table 29: Effects tax increment financing ..................................................................................... 82
Table 30: Effect instruments on financial feasibility ................................................................. 84
Table 31: Effect on risk ............................................................................................................... 85
Table 32: Effect on value ............................................................................................................ 85
Table 33: Effect on social acceptability ....................................................................................... 86
Table 34: Effect on legal system .................................................................................................. 86
Table 35: Effects on financial feasibility ...................................................................................... 92
Table 36: Distribution cuts (Ministerie van Infrastructuur en Milieu, 2013) ............................. 105
Table 37: Contributions in 2002 (Stuurgroep N201+, 2002) ...................................................... 110
Table 38: Contributions in 2004 (Stuurgroep N201+, 2004) ...................................................... 111
Table 39: Comparison contributions (Stuurgroep N201+, 2002)(Stuurgroep N201+, 2004) .... 112
APPENDIX A: BACKGROUND

In this section the context will be given. First the economical context will be mentioned, which is the input for the political context. The political context is input for the tasks of Rijkswaterstaat. Last the developments in mobility are presented, which are important for development of infrastructure.

Economical context

Since the start of the financial crisis, the economic situation has changed in the Netherlands. According to "Studiegroep Begrotingsruimte" (2012): "Since the financial crisis, the economic growth in the Netherlands has been low or negative. In 2009, when world trade fell back by 13%, the Dutch economy shrank with 3.5%. (...) Netherlands has lost six year GDP-growth since the start of the crisis. The GDP-volume will not be back at the level of 2008 until 2014. This is also reflected in the condition of government finances: The deficit and debt are at a high level since 2009." Since 2009 there are relatively high government deficits.

In the figure below, based on a graph of "Studiegroep Begrotingsruimte" (2012), the debt is expressed as a percentage of the GDP. EMU debt is the total outstanding loans of the central government, social security funds and the local governments minus the mutual debts of those parties. EMU debt is presented as a percentage. This is the ratio between the EMU debt to GDP. This is expressed in the red line in the figure. The EMU balance is the total income minus the expenditures of the central government, social security funds and local governments. The EMU balance is expressed with the blue line. (Rijksoverheid, 2013a)

From the figure can be concluded that the EMU debt is expected to increase, while the EMU balance is expected to decrease. There can be seen that the negative economic developments have an impact on the government. Without measures the debt increases in the next few years. According to "Studiegroep Begrotingsruimte" (2012) the debt will only decrease when the EMU balance is smaller than two percent. With an EMU balance of zero or positive, the debt will decrease faster.

Besides the economic relevance for taking measures to realize a EMU balance smaller than two percent, the European Union has rules about the limit of the EMU balance and the EMU debt. The EMU balance is limited to minus three percent and the EMU balance must be higher than sixty percent. So measures should be taken by the government to decrease the debt, and stay within the rules of the European Union. (Kabinet Rutte I, 2011)
Political context

Due to the economic crisis, the government has to take measures to avoid facing a larger debt in the future. The government cuts into different sectors to realize an EMU balance of less than minus two percent. It is a political choice how the saving package is designed. The ministries depend on the choices about the budgets made by the government. (Studiegroep Begrotingsruimte, 2012)

The budget cuts also hit the Ministry of Infrastructure and Environment and Rijkswaterstaat. Rijkswaterstaat has to save 1,64 billion euros up to 2020 in total, on both maintenance and projects. Besides these cuts there are also budget cuts on the “Infrastructuurfonds”, made in an additional agreement. In a letter from Minister Schultz van Haegen to the Parliament of December 2012 is stated about the additional cuts: “In this supplementary agreement a structural financial target of 250 million euro is included, borne by the “Infrastructuurfonds”. This task adds up to a maximum of 3,75 billion euro in the period up to 2028. In addition, there still remains the task of filling in the Budget Agreement of approximately € 3 billion (for the period 2014 to 2023). After 2023, the structural impact of this task is proportionally charged to the investment scope. From the task, that still has to be filled, 2,6 billion euro is charged to the “Infrastructuurfonds” and 0,4 billion euro is charged to the “Deltafonds”. The total adds up to 6,4 billion euro of savings for the “Infrastructuurfonds”.” (Binnenlands Bestuur, 2012)(Rijkswaterstaat, 2012a)

The Minister has to take decisions about the content of the cuts. Minister Schultz van Haegen, Minister of Infrastructure and Environment, has stated on 4 December 2012 that for the content of the cuts coherent decisions will be made on all projects. The total impact of the cuts can be determined better in this way. The Minister wrote in a letter to the parliament (2013): “The goals and ambitions of the ‘Structuurvisie Infrastructuur en Ruimte’ are not feasible with the available financial resources. This means that the expected bottlenecks in the network of state roads cannot be solved for 2030. (...) In outline, it means that we capture the cuts mainly by using the resources available until 2028. Hereby projects can continue, but later in time. Therefore the state contribution only has to be deleted from a relatively small number of projects.” In the table below the cuts are presented. Due to these cuts, projects will be delayed or even deleted. (Ministerie van Infrastructuur en Milieu, 2013)

<table>
<thead>
<tr>
<th>Distribution cuts ‘Infrastructuurfonds’ (in billions euro)</th>
<th>Spring agreement</th>
<th>Additional Rutte II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>2,62</td>
<td>3,75</td>
<td>6,37</td>
</tr>
<tr>
<td><strong>Roads</strong></td>
<td>1,5</td>
<td>1,93</td>
<td>3,43</td>
</tr>
<tr>
<td><strong>Waterways</strong></td>
<td>0,17</td>
<td>0,28</td>
<td>0,45</td>
</tr>
<tr>
<td><strong>Railway</strong></td>
<td>0,79</td>
<td>1,24</td>
<td>2,03</td>
</tr>
<tr>
<td><strong>Regional/local</strong></td>
<td>0,16</td>
<td>0,3</td>
<td>0,46</td>
</tr>
</tbody>
</table>

Table 36: Distribution cuts (Ministerie van Infrastructuur en Milieu, 2013)

MIRT

Political decisions have an influence on the ministries, like the ministry of Infrastructure and Environment. Even though this ministry is responsible for infrastructure, Rijkswaterstaat is the executive organization for the Netherlands. But how does the political decisions affect Rijkswaterstaat? Rijkswaterstaat aims to establish safe and smooth traffic on roads and waterways. Other goals include a safe and clean national water system and protection against floods. It manages the network of national roads (5,695 kilometres), the network of national waterways (1,686 kilometres canals and rivers and 6,165 kilometres waterways in open water) and the national water system (65, 250 kilometres) for this purpose. (Rijkswaterstaat, 2012a)

In order to fulfill these goals new infrastructure will be developed. The Ministry of Infrastructure and Environment decides which projects will be performed. Each year, on “Prinsjesdag”, a multiannual program for infrastructure, public space and transport is presented. In Dutch this program is called “Meerjarenprogramma Infrastructuur, Ruimte en Transport” or “MIRT”. In this program an overview of projects and programs, on which the government along
with provinces and municipalities is working, is presented. This program is written by, among others, the Ministry of Infrastructure and Environment. Rijkswaterstaat operates on the basis of this framework on projects with a budget derived from the budget of the "Infrastructuurfonds". The cuts, described in the previous section, have an influence on this budget and program. (Rijksoverheid, 2012)

**Developments in mobility**

Even though budget cuts hit Rijkswaterstaat and the ministry of Infrastructure and Environment, there still have to be dealt with an increasing mobility. In the coalition agreement of 29 October 2012 is stated that the infrastructure and mobility are critical for the economy. Rijkswaterstaat is responsible for the state roads in the Netherlands. This organization works on a smooth and safe flow of traffic. The scope, mentioned in chapter X, describes the context of the research. The focus in this research is on the state roads.

To give insight in the developments of infrastructure, the development of mobility is important. The definition of mobility refers to the movement of people or goods, which can be made operational by looking at the number of kilometers that all persons jointly travel every year. Constructing new roads and additional strips is done to increase the mobility. An aspect of mobility is loss of traveling time. With a higher loss of traveling time, the mobility will decrease which has a negative impact on the economy. (Victoria Transport Policy Institute, 2011)(Kennisinstituut voor Mobiliteitsbeleid, 2013)(Rijkswaterstaat, 2012b)

In the Netherlands in 2013 were 38 highways with a total length of 2500 kilometers. But because of the increasing traffic volume, investments are still necessary. In the figure on the right (Kennisinstituut voor Mobiliteitsbeleid, 2012) the road traffic on the state roads and the lost traveling time are presented. There can be seen that the road traffic, or the traffic volume, on the state roads increases over recent years. The lost time congestion increased from 2000 till 2008. From 2010 till 2011 the lost time by congestion and delays decreased, even though the traffic volume has increased. This can be explained by for example traffic management. (Rijkswaterstaat, 2012c)

![Figure 37: Traffic volume (KiM, 2012)](image)

To avoid congestions and delays, which leads to lost traveling time, new roads are constructed or additional strips are made on existing roads. The amount of state roads has increased over a period from 2001 till 2012. From 2007 till 2012 the amount of kilometers state roads has increased as well. When the traffic volume continues to rise, the amount of kilometers state roads has to increase as well to remain the same level of mobility. (CBS, 2012)

From the figure above can be concluded that the traffic volume has increased in the last years. The total state roads has increased as well, which resulted in a lower loss traveling time. When the traffic volume continues to increase, measures should be taken to deal with the mobility.

There can be concluded that the economic crisis had an influence on the government finances. To avoid facing a larger debt in the future, measures should be taken by the government. Therefore budget cuts are made. These cuts are also made for the budget of Rijkswaterstaat and the “Infrastructuurfonds”. With a lower budget, the increasing demand of mobility should be accommodated by Rijkswaterstaat because mobility is crucial for the economy. This means that investments have to be made, even though there are budget cuts. In the following section the problem will be further described.
APPENDIX B: CURRENT FUNDING MECHANISMS

In this chapter more background information about funding mechanisms is given. For the complete context of the problem these mechanisms are given. This is additional information to section 1.2. In section 1.2 a distinction is made between funding and financing. The focus of this research will be on the funding part of a project. However, there are different forms of funding and financing. A distinction can be made between private and public funding or financing.

Public versus private

According to commission Ruding (2008) there are four quadrants with respect to public-private funding and financing. The first quadrant, bottom left, is public financing and public funding, the classical model. In this case the road is funded and financed by public parties, like the government or local government or a combination of both.

The second quadrant, upper left, is private financing with public funding, the so-called DBFM contracts. In these contracts the financial resources are arranged by the consortium. This is partly done by equity and by debt, from a bank or institutional investor. Eventually the government funds the road, by paying the consortium. (Commissie Ruding, 2008)

The third quadrant, bottom right, is public financing with private funding. In this way there is a public exploitation of infrastructure, for example public toll roads. The fourth quadrant, upper right, is private financing with private funding. In this option there is a private exploitation of infrastructure, for example private toll roads. In this research there will be sought for alternative funding by third parties. This can either be a private party or a public party, but not central government. (Commissie Ruding, 2008)

Funding mechanisms

As stated in section 1.2 two extremes of funding of projects can be found, namely 100% funding by public parties or 100% funding by private parties. In between a mix of these extremes can be found. Another distinction can be made on basis of timing and amount. These options are considered below.

The first option is traditional financing from the public budget. The initial investment is paid for by the government. After the investment it makes additional payments to maintain the asset. This can be done with a Design & Build contract. With a Design & Build contract there is no Finance-component. In this case the client, RWS, funds and finances the project, because there is hundred percent funding by RWS. With this contract, the client can pay the contractor in terms. Eventually after construction and take-over the full amount of the price is paid. (OECD, 2008)
a. Traditional Financing from the Public Budget

Figure 39: Traditional financing (OECD, 2008)

The next figure shows the budget consequences of the government borrowing the to pay for the infrastructure asset that is being built. Initially it balances a debt of 100. In each year there is a set of payment of the principal loan, as well as payment for maintenance. Because of the loan, there is also payment of interest. In other words, the government borrows money from banks to make the investment. So the government finances and funds the project. (OECD, 2008)

b. On-Budget Investment Spending

Figure 40: On-budget investment spending (OECD, 2008)

The next figure illustrates the impact on public finances of the private sector taking up debt to undertake an initial investment. This debt is not made part of the public sector’s budget. But the public sector makes payments to the private partner to pay off this debt and interest. Additional payments are made for maintenance. In a contract with a Finance-component a special purpose company finances the road. Additional there is also a Maintain-component, which means that the company maintains the road during an agreed period. In the case of a DBFM contract there are other options for payments done by Rijkswaterstaat. (OECD, 2008)
In the figure above a special purpose company finances the project. The government does annual payments to this company. There are different mechanisms for these annual payments. The first option is shadow toll. The second option is availability payments. These options will be described below.

**Shadow toll**
In the discussion paper “A roadmap to funding infrastructure development” from Ugarte et al. (2012) is the definition of shadow toll: “Shadow tolls are schemes where payments made by the State to the private Concessionaire are calculated on a per vehicle basis.” This means that the government pays shadow toll on the basis of a price per vehicle passing. The government pays shadow toll with the infrastructure fund. An example of a project with shadow toll in the Netherlands is A9 Wijkertunnel. In this project the government pays shadow toll for a period of thirty years. A benefit of shadow toll is that it is possible to realize projects with a smaller budget. A disadvantage is that the amount of shadow toll has to be determined on basis of prediction of the use of a road or tunnel. In the case of the Wijkertunnel the tunnel was used more often than estimated, and therefore the government paid more shadow toll than planned. (Wegenwiki, 2013)

**Availability payments**
The second option is availability payments. These payments are made by the government in exchange for a service level. In contrast to shadow toll the payments are independent of the level of traffic. The availability payments are made during a period of twenty till thirty years, depending on the agreed period in the contract. These payments are also made on basis of the infrastructure fund. (Werkgroep Mobiliteit en Water, 2010)(Ugarte et al, 2012)

There are different options for Rijkswaterstaat to fund a project. The payments can be spread over a longer period through availability payments or shadow toll, but the payments can also be done in a relatively short period.

Mostly public funding is used nowadays. Also more often private financing is combined with this public funding, which means that mechanisms as availability payments and shadow toll are used. However, the timing for the payments are only used to discount the cash flows. For this research the net present value of projects is important for determining the cost recovery and finally the financial feasibility of a project.
APPENDIX C: N201 CONTRIBUTIONS 2002 VERSUS 2004

In the regional agreement of N201+ in 2002 the costs were estimated at 717 million euro. With this plan a contribution from the state was asked. However, this contribution was estimated to be higher, than the reality after the plan was presented. Therefore the plan was examined once more, it became more sober so the costs became lower. Also, the regional contributions became higher. This game is presented in numbers in this appendix.

First the costs and contributions in the agreement of 2002 are mentioned in a table. Then the costs and contributions of 2004 are presented, which is the master plan. The difference is determined and presented in a figure as well.

**Contributions 2002**

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributions</td>
<td></td>
</tr>
<tr>
<td>Regionaal Orgaan Amsterdam</td>
<td>97,0</td>
</tr>
<tr>
<td>MIT (N201+)</td>
<td>315</td>
</tr>
<tr>
<td>BONRoute</td>
<td>27,2</td>
</tr>
<tr>
<td>Province NH</td>
<td>72,6</td>
</tr>
<tr>
<td>PPP-facility</td>
<td>1,5</td>
</tr>
<tr>
<td>Areas</td>
<td></td>
</tr>
<tr>
<td>Amstelveen</td>
<td>14,4</td>
</tr>
<tr>
<td>Aalsmeer/Uithoorn</td>
<td>15,9</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>27,2</td>
</tr>
<tr>
<td>Additional</td>
<td></td>
</tr>
<tr>
<td>BONRoute</td>
<td>4,5</td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>4,5</td>
</tr>
<tr>
<td>Aalsmeer/ROA/PNH (Middenweg)</td>
<td></td>
</tr>
<tr>
<td>Uithoorn</td>
<td>4,1</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>9,5</td>
</tr>
<tr>
<td>PNH</td>
<td>22,6</td>
</tr>
<tr>
<td>PNH additional</td>
<td>-</td>
</tr>
<tr>
<td>Province Utrecht</td>
<td>8,0</td>
</tr>
<tr>
<td>Private parties</td>
<td></td>
</tr>
<tr>
<td>Bloemenveiling Aalsmeer</td>
<td>5,0</td>
</tr>
<tr>
<td>Schiphol Group</td>
<td>5,0</td>
</tr>
<tr>
<td>Infrastructuurfonds</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>VAT Compensation</td>
<td>78</td>
</tr>
<tr>
<td>PNH rice costs</td>
<td>5,0</td>
</tr>
<tr>
<td>Total</td>
<td>717</td>
</tr>
</tbody>
</table>

*Table 37: Contributions in 2002 (Stuurgroep N201+, 2002)*
### Contributions 2004

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Character contribution</th>
<th>Interest %</th>
<th>Index</th>
<th>Price level</th>
<th>Index till</th>
<th>Basis contribution</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contributions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regionaal Orgaan Amsterdam</td>
<td>Real</td>
<td>IBOI</td>
<td>2005</td>
<td>Full</td>
<td>112,5</td>
<td>110,2</td>
<td></td>
</tr>
<tr>
<td>MIT (N201+)</td>
<td>Real</td>
<td>IBOI</td>
<td>2001</td>
<td>2006</td>
<td>140</td>
<td>142,9</td>
<td></td>
</tr>
<tr>
<td>MIT (inzet Mediapark)</td>
<td>Real</td>
<td>IBOI</td>
<td>2001</td>
<td>2006</td>
<td>30,0</td>
<td>30,3</td>
<td></td>
</tr>
<tr>
<td>BONRoute</td>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td>27,2</td>
<td>25,8</td>
<td></td>
</tr>
<tr>
<td>Province NH</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>72,6</td>
<td>83,2</td>
<td></td>
</tr>
<tr>
<td>PPP-facility</td>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td>0,9</td>
<td>0,9</td>
<td></td>
</tr>
<tr>
<td><strong>Areas</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amstelveen</td>
<td>NPV</td>
<td>6,5</td>
<td>2001</td>
<td>14,4</td>
<td>18,1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aalsmeer/Uithoorn</td>
<td>NPV</td>
<td>6,5</td>
<td>2001</td>
<td>9,9</td>
<td>12,7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Real</td>
<td>4%</td>
<td>2001</td>
<td>Full</td>
<td>27,2</td>
<td>31,8</td>
<td></td>
</tr>
<tr>
<td><strong>Additional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BONRoute</td>
<td>Nominal</td>
<td></td>
<td></td>
<td></td>
<td>4,5</td>
<td>4,3</td>
<td></td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>4,5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Aalsmeer/ROA/PNH (Middenweg)</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>4,5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Uithoorn</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>4,1</td>
<td>4,6</td>
<td></td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>Real</td>
<td>4%</td>
<td>2001</td>
<td>Full</td>
<td>9,5</td>
<td>11,1</td>
<td></td>
</tr>
<tr>
<td>PNH</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>22,6</td>
<td>25,4</td>
<td></td>
</tr>
<tr>
<td>PNH (additional)</td>
<td>Real</td>
<td>Project</td>
<td>2005</td>
<td>Full</td>
<td>15,5</td>
<td>15,5</td>
<td></td>
</tr>
<tr>
<td><strong>Private parties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloemenveiling</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>4,0</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>Nominal</td>
<td></td>
<td></td>
<td>15,0</td>
<td>15,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructuurfonds</td>
<td>Nominal</td>
<td></td>
<td></td>
<td>2,5</td>
<td>2,5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAT Compensation</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>71,0</td>
<td>74,4</td>
<td></td>
</tr>
<tr>
<td>PNH rice costs</td>
<td>Real</td>
<td>Project</td>
<td>2001</td>
<td>Full</td>
<td>11,9</td>
<td>13,1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>636,4</td>
<td></td>
</tr>
</tbody>
</table>

*IBOI is the average price rise of gross investments of the public sector. The IBOI is used to index the price for future contracts and agreement. (CPB, 2011)*
Comparison contributions

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>2002</th>
<th>2004</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contributions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regionaal Orgaan Amsterdam</td>
<td>97,0</td>
<td>110,2</td>
<td>+13,2</td>
</tr>
<tr>
<td>MIT (N201+)</td>
<td>315</td>
<td>142,9</td>
<td>-172,1</td>
</tr>
<tr>
<td>MIT (mediapark)</td>
<td>-</td>
<td>30,3</td>
<td>+30,2</td>
</tr>
<tr>
<td>BONRoute</td>
<td>27,2</td>
<td>25,8</td>
<td>-1,4</td>
</tr>
<tr>
<td>Province NH</td>
<td>72,6</td>
<td>83,2</td>
<td>+10,6</td>
</tr>
<tr>
<td>PPP-facility</td>
<td>1,5</td>
<td>0,9</td>
<td>0,6</td>
</tr>
<tr>
<td><strong>Areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amstelveen</td>
<td>14,4</td>
<td>18,1</td>
<td>+3,7</td>
</tr>
<tr>
<td>Aalsmeer/Uithoorn</td>
<td>15,9</td>
<td>12,7</td>
<td>-3,2</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>27,2</td>
<td>31,8</td>
<td>-4,6</td>
</tr>
<tr>
<td><strong>Additional</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BONRoute</td>
<td>4,5</td>
<td>4,3</td>
<td>-0,2</td>
</tr>
<tr>
<td>Aalsmeer</td>
<td>4,5</td>
<td>5</td>
<td>+0,5</td>
</tr>
<tr>
<td>Aalsmeer/ROA/PNH (Middenweg)</td>
<td>5</td>
<td></td>
<td>+5</td>
</tr>
<tr>
<td>Uithoorn</td>
<td>4,1</td>
<td>4,6</td>
<td>+0,5</td>
</tr>
<tr>
<td>Haarlemmermeer</td>
<td>9,5</td>
<td>11,1</td>
<td>+1,6</td>
</tr>
<tr>
<td>PNH</td>
<td>22,6</td>
<td>25,4</td>
<td>+2,8</td>
</tr>
<tr>
<td>PNH additional</td>
<td>-</td>
<td>15,5</td>
<td>+15,5</td>
</tr>
<tr>
<td>Province Utrecht</td>
<td>8,0</td>
<td>-</td>
<td>-8,0</td>
</tr>
<tr>
<td><strong>Private parties</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloemenveiling</td>
<td>5,0</td>
<td>4,5</td>
<td>-0,5</td>
</tr>
<tr>
<td>Aalsmeer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schiphol Group</td>
<td>5,0</td>
<td>15,0</td>
<td>+10</td>
</tr>
<tr>
<td>Infrastructuurfonds</td>
<td>2,5</td>
<td></td>
<td>+2,5</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAT Compensation</td>
<td>78</td>
<td>74,4</td>
<td>-3,6</td>
</tr>
<tr>
<td>PNH rice costs</td>
<td>5,0</td>
<td>13,1</td>
<td>+8,1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>717</td>
<td>636,4</td>
<td>-80,6</td>
</tr>
</tbody>
</table>

Table 39: Comparison contributions (Stuurgroep N201+, 2002)(Stuurgroep N201+, 2004)
This can be presented in different steps in figures:

**Step I: Agreement 2002**

![Budget Costs Diagram](image)

*Figure 42: Situation 2002*

In this figure the costs were estimated at 717 million euro, and funding was planned for these costs. The budget presented was for the province Noord-Holland, with fractions of all contributions made by other parties. The largest fraction is from the state, which is 315 million euro (as was planned).

**Step II: Less contribution by state**

![Budget Costs Diagram with Funding Gap](image)

*Figure 43: Lower contribution state*

After the plans were presented the state had a budget available from MIT of 173,2 million euro instead of 315 million euro. This causes a funding gap.

**Step III: Plans adjusted – lower costs**
The plans were sobered, and the costs were lowered with 80,6 million euro. Therefore the funding gap became smaller.

**Step IV: Increase in contributions**

Finally the contributions became higher of different parties, as can be seen in the table. This closes the funding gap.