

Dynamics of social change: towards more active mobility in Dutch primary school zones



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Photo cover: own photo, school zone of primary school 't Ravelijn, Oss.

Colophon

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Preface

After 2 great years at Radboud University, an instructive period has come to an end with this thesis. A study time that has been different than I was used to because of Corona. Despite the fact that fewer physical classes were given on campus due to Corona, I still felt very connected with Radboud University, my teachers and fellow students during this period.

The master program Spatial Planning with specialisation Urban and Regional Mobility for which this thesis was written has been a good choice for me. The master's specialisation fits well with my interests. I am really looking forward to working in the field of traffic and mobility. I am curious what the future will bring.

I would like to thank several people who helped me during the writing of my thesis. First of all, I would like to thank my supervisor, Arnoud Lagendijk, for his constructive feedback. I am grateful for the moments we had to exchange ideas. In addition, I want to thank my thesis lab group for the instructive sessions and feedback that was shared there. I would also like to thank my other fellow students for the journey we experienced together and the motivational words we shared during the master. Finally, I would like to thank my internship supervisor for his positivity and his involvement in my thesis and the suggestions he gave.

I hope to inspire you with this thesis in some way. Enjoy reading.

Ilse Krikken

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Summary

The majority of children in primary schools walk or cycle to school. A small part of the children is brought by car by their parents or caretakers. This small number of motorists makes the school zone unsafe. It is a problem that almost every primary school knows and must learn to deal with. In studies, speed is often examined in order to improve road safety in school zones. This research focuses on the collaboration between stakeholders. The main question of the research is:

How do stakeholders successfully, collaboratively improve active mobility and road safety in Dutch primary school zones?

It is an exploratory study that took place at a Dutch primary school in the municipality of Oss. Interviews were conducted with the traffic coordinator, the school director, a traffic parent, the area manager, the community officer, the enforcers and the project manager of Veilig Verkeer Nederland. In addition, two surveys were distributed. These surveys were completed by local residents and parents. Furthermore, the researcher observed the school zone.

The analysis showed that the school is the most important player in tackling road safety. The school will have to approach other stakeholders if help is needed. In the first instance, it is best for the school itself to work on road safety together with the teachers, parents and children. Appointing a traffic coordinator is essential to structure this. The traffic coordinator can best form a traffic working group with a few involved parents who support her in planning, organising and executing traffic activities. Drawing up an annual traffic plan with activities provides a good structure. In addition, the agreements that the school hopes the parents will adhere to must also be clearly stated in the school's policy. When new parents register at school, it is important to indicate immediately from that moment what is expected of the parents in the field of road safety. In order to be credible and to persuade other people to set a good example, it is important that the entire school team shows desired traffic behaviour. The school director has an important role to pay extra attention to this if it is very unsafe because she has authority. In addition to the standard traffic lessons and practical traffic activities with children, the school will also have to pay structural attention to the traffic behaviour of the parents. Thus, traffic actions for raising awareness will also have to be included in the annual traffic plan.

If the school finds it difficult where to start in tackling road safety, the help of an organisation such as Veilig Verkeer Nederland can be called in. Veilig Verkeer Nederland has contact with both the school and the municipality about road safety as the municipality plays a role in the design of the school zone. Major adjustments are usually not necessary in public spaces, but extra clarity with, for example, a sign does help. Good communication between the stakeholders is important for a successful collaboration. Clarity is the key. Clarity in both communication and road design. If people know what is expected of them and they understand why it is expected of them, they are more likely to do things right than when it is unclear. Positivity and enthusiasm are also pillars that make cooperation in the field of road safety more successful. It is best to request the enforcers as a last option if all previous actions between the other stakeholders have not had enough effect.

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1. Introduction

1.1 Research problem statement

There are approximately 6100 regular primary schools in the Netherlands (CBS, 2021). Most of these primary schools are located in residential areas. About 80% of all Dutch primary school pupils live within a radius of 3 kilometres from their school (VVN, 2021). The majority of primary school pupils walk or cycle to their school (CROW, 2016). These sustainable modes of transport are also known as active mobility (Markvica et al., 2020). Next to this group of school pupils who actively go to school, independently or under supervision, there is a group of pupils, about 12%, who are dropped off and picked up by car every day (Lankhuijzen & Lax, 2014; CROW, 2016). Motorised vehicles in the immediate vicinity of the school, the school zone, cause road safety problems (DiGiuseppi et al., 1998; CROW, 2016; Van den Berg et al., 2020; Bina et al., 2021).

An organisation that is fully focused on improving road safety in the Netherlands is called Veilig Verkeer Nederland. Every year, this organisation regularly receives complaints from parents, local residents, schools and municipalities regarding unsafe traffic situations caused by motorists in primary school zones (VVN, 2021). Unsafe traffic situations in primary school zones occur during the start in the morning and in the afternoon when the schools are finished. During these peak times, several road users converge in the school zone, which regularly leads to chaotic and complex traffic situations. The unsafe traffic situations mainly arise when motorists park incorrectly, drive too fast, cause unclear, confusing traffic situations and congestion (RTLNieuws, 2018; Rahman et al., 2019). Road safety in primary school zones deteriorates even further when it rains (SWOV, 2012; CROW, 2016).

Primary school pupils who walk or cycle to school are very vulnerable (Renard et al., 2022). Primary school pupils in the age group 4-7 years in particular, because they have little experience with traffic (SWOV, 2019). They do not yet know the traffic rules and these primary school pupils have to learn how to behave in traffic. Furthermore, their view is quickly limited by cars, as they are generally small. The school pupils also have difficulty in properly perceiving the speeds and distances of other road users (SWOV, 2019). If parents or caretakers experience the traffic situation in the school zone as too unsafe, they are inclined to transport their child(ren) to school by car (Hoekstra et al., 2010). An increased number of cars in the school zone leads to even more unsafe traffic situations, because this change increases the chance that school pupils have insufficient overview and therefore make unexpected movements or in the worst case be hit by a car (VVN, 2021). In conclusion, it is important that active mobility is encouraged and that cars are discouraged in order to make and to maintain the school zone as safe as possible.

In the Netherlands, parents have the freedom to decide for themselves and their child(ren) how they want to travel to school. It is not possible to make specific modes of transport obligatory. It is therefore extra important that the number of cars in school zones around peak times does not increase unnecessarily as a result of a feeling of unsafety. Parents and children who actively come to school contribute to road safety, in contrast to the small fixed group who normally come by car (Lankhuijzen & Lax, 2014; CROW, 2016). The design of the school zone also plays a role in improving road safety. Dutch municipalities mainly focus on physical measures and influencing behaviour (WOS, 2022). They argue that road safety problems in school zones often have nothing to do with the infrastructure, but more with the behaviour of the people (WOS, 2022). Improving road safety in school zones is not only a responsibility of the municipality, but also of the school, primary school pupils, parents or caretakers, police, local residents, surrounding companies and the school care staff (ROV,

2011). Agreements and collaborations between the various stakeholders are necessary to guarantee road safety in school zones as much as possible.

Research by WOS (2020), states that road safety in most primary school zones has not improved over the years. 69% of all Dutch people would like to see school zones become safer, according to Veilig Verkeer Nederland (VVN, 2021). Hence, to address this problem and to improve active mobility and road safety in primary school zones, it is necessary to understand the roles and strategies of the stakeholders. In addition, insight into the relationships, collaborations and mutual strategies between the stakeholders are important. Interesting answers that can be obtained from this research have to do with the sequence of the different steps that stakeholders can take towards more active mobility and road safety. Another interesting result that can be obtained is why certain collaborations between stakeholders are more successful than others.

1.2 Research aim and research questions

Research aim

The aim of the research is to explore and discover how stakeholders successfully can improve active mobility and road safety in Dutch primary school zones. Within the research, the focus is on gaining insight into the relations, dynamics and collaborations and the total complexity involved between and around the stakeholders who work together to achieve a successful school zone.

Main research question

How do stakeholders successfully, collaboratively improve active mobility and road safety in Dutch primary school zones?

Sub-questions

1. Who are the stakeholders and what are their roles and positions in Dutch primary school zones?

The first sub-question describes the roles and positions of the various stakeholders and how they contribute to active mobility and road safety in the school zone.

2. How are the relations and dynamics between the stakeholders involved?

The second sub-question examines the relations and dynamics between the different stakeholders.

3. What are the strategies around the stakeholders?

The third sub-question maps out the various resources and strategies surrounding the stakeholders.

4. To what extent does collaboration between the stakeholders lead to mutual strategies and how successful are these strategies?

The fourth sub-question concerns the collaboration between the stakeholders, their possible mutual strategies and evaluates their success.

1.3 Research relevance

1.3.1 Scientific relevance

Various studies have been conducted into road safety around primary schools. Many studies focus on speed reduction and managing speed in the school zone (Kattan et al., 2011; Zhao et al., 2016; Putri et al., 2017; Sun et al., 2018; Rothman et al., 2021). This is not surprising, as it is known that one of the main causes of serious traffic accidents around schools is speeding (Kattan et al., 2011). According to Rahman et al. (2019), one of the most important measures to improve road safety in school zones is to lower the speed limit during school hours. Many studies have also been conducted that have evaluated interventions in the (school)environment, such as the impact of adjustments to the road, the placement of traffic lights and markings (Kerkdijk, 2013; Zhao et al., 2016; Goldenbeld & Schermers, 2017; Yeo et al., 2020; Rothman et al., 2021). According to Bina et al. (2021), the literature on child safety and school mobility mainly focuses on identifying environmental risk factors for traffic accidents. According to the study by Bina et al. (2021), the behavioural dimension has the greatest influence on road safety. The study by Bina et al. (2021), concludes that interventions in the field of school mobility should target both human behaviour and the environment. Many facts are known about the traffic behaviour of Dutch parents and children with regard to the pick-up and drop-off behaviour to a primary school in the area (CROW, 2016). Research has also been conducted in the Netherlands into how parents deal with traffic education and how they should deal with traffic education for their children (Tabula Rasa, 2017). Eyler et al. (2007), conducted research to identify policies and factors influencing initiatives that promote active transportation to and from school. One of the conclusions of the study was that there must be effective relation between school staff, public safety officials, city officials, parents and school district representatives to establish and enforce policies (Eyler et al., 2007). The literature mainly indicates what is needed to encourage and improve road safety(-initiatives), but hardly zooms in on how things work in practice between stakeholders. All stakeholders are needed to implement a change in traffic 'habitual behaviour'. It is important to gain insight into the internal dynamics of the stakeholders with all its complexity. This research gives view on the stakeholder role. The relations and dynamics of the stakeholders and the environment around it are important elements that are central to this research. These are important elements, which are still poorly understood, to make the change process towards more active mobility more successful.

1.3.2 Societal relevance

The research is aimed at discovering and understanding the road safety problem, the stakeholders and the dynamics between them and the complexity of the entire transition to more active mobility in the school zone. The conclusions from the research contribute to changing traffic behaviour practice in Dutch school zones, so that these zones can become more traffic-safe. Society benefits from this, because fewer cars in the school zone creates a safer environment for young and unpredictable children (VVN, 2021). In addition, the transition to more active mobility has even more social benefits. First of all, children are more likely to start walking and cycling later in life if they learn to do it at an early age (CROW, 2016). The best way for children to learn to ride on a bicycle and thus participate in traffic is to do so in their own environment (CROW, 2016). If a child walks or cycles instead of being taken by car, it learns to participate in traffic independently and learns to develop traffic skills. Active travel leads to the highest satisfaction among people about their trips, so it is also positive for parents to use the bicycle (De Vos, 2019; Westman et al., 2013). In addition, active travel can make children more ready to learn and more alert (Westman et al., 2013; Van den Berg et al., 2020). Inactive mobility, such as car use, has also been linked to obesity and adverse health effects in later life (DiGuseppi et

al., 1998). The research therefore also contributes to the prevention of inactivity and obesity. It can be concluded that if children actively go to school, it is safer for everyone and it has advantages to learn to cycle and participate in traffic at an early age. Furthermore, going to school in an active way is good for human health. A final point relates to the environment. The exhaust fumes from cars are harmful to both the environment and human health (Koops, 2017). If children walk or cycle to school, many short car trips can be avoided (CBS, 2022). Fewer car trips reduce the chance of congestion around a primary school, which is an additional advantage.

1.4 Reading guide

The research contains 7 chapters. Chapter 1 presents the introduction including the research problem statement, the research objective and the research sub-questions. In addition, this chapter discusses the scientific and societal relevance of the research. Chapter 2 contains background information about primary schools and the working method of Veilig Verkeer Nederland. Chapter 3 contains main concepts and theories and discusses the theoretical framework in which the various concepts and theories are incorporated. Chapter 4 describes the methodology including the research philosophy, strategy and methods for data collection. This chapter concludes with an elaboration of the validity and reliability of the research. Chapter 5 presents the selected case study and zooms in on the location. Chapter 6 presents the results of the interviews, observations and surveys. Finally, chapter 7 contains the conclusions of the entire study and recommendations for further research, but also a critical reflection and limitations of this research.

2. Context and background information

This chapter contains context and background information. This chapter describes the method and advices that Veilig Verkeer Nederland uses at primary schools.

Method Veilig Verkeer Nederland

Veilig Verkeer Nederland has an in-depth process, called VSO trajectory, to improve road safety around schools in a structural and sustainable way. During this process, Veilig Verkeer Nederland works together with the municipality, the school concerned, parents, children and local residents (VVN, 2020). Veilig Verkeer Nederland focuses mainly on influencing behaviour in a positive way and less on infrastructural design. According to Veilig Verkeer Nederland, minimal road changes are necessary if joint (informal) agreements can be made between stakeholders. Approximately 85% of parents are open to agreements regarding pick-up and drop-off of the children (VVN, 2020). In general, both local residents and parents are only prepared to make agreements and change their behaviour if they recognize and acknowledge the problems themselves (VVN, 2020).

The trajectory of Veilig Verkeer Nederland roughly consists of 6 different steps:

1. An intake interview with the stakeholders.
2. Mapping the traffic situation and making a traffic film.
3. Survey distribution to parents.
4. Discussing survey results and elaborate next steps; Draw up a follow-up plan.
5. Implementation of follow-up plan together with the school and parents.
6. Completion and evaluation.

Advice Veilig Verkeer Nederland

The project manager of Veilig Verkeer Nederland knows through experience which approach is effective for tackling road safety. She advises the following matters for all Dutch primary schools:

- Stimulate active traffic behaviour
In every school it is important to encourage active mobility of both parents and children. This means that more people walk or cycle to school.
- Create a traffic working group
Veilig Verkeer Nederland encourages schools to have a traffic coordinator who forms a traffic working group with involved parents. A traffic coordinator needs support and it is therefore important that the entire school team sets a good example.
- Coming up with positive actions together and having them carried out together by involved parents and children
A good approach is a positive approach and reward actions in combination with children. Thus, parents and children who both think about reward actions to stimulate active traffic behaviour. Children often think out of the box and if children take an action, it comes across as less pedantic to parents.
- Make (small) adjustments in the public space if necessary
In addition to the actions, it is good to look at the wishes and complaints that come from the survey from parents and that relate to public space. There is support for these adjustments. It is good to discuss with the municipality whether the adjustments are realistic and whether there is a budget available.

- Pay structural attention to road safety

It is important to understand that behaviour change is not achieved with one single action. Schools will have to continue to work on this. The project manager advises to make a traffic plan, an annual plan. In addition, a clear policy is necessary as well as clear communication towards the parents. It is wise to inform new parents immediately about desirable traffic behaviour at the school. Most parents adhere to the (requested) rules, it's a small part of the parents who don't do it right. It's a process and some parents don't want to change. It's important to also look at who is doing well rather than only emphasising the negative. It's good to accept that the situation will never be perfect.

What does not work is forbidding certain behaviour, because this does not contribute to awareness. It is important to make people think about their behaviour, so that they create a sense of awareness and responsibility. A negative approach such as addressing people or handing out fines does not contribute to awareness of behaviour.

In addition, Veilig Verkeer Nederland advises Dutch primary schools on ten matters to create more road safety in their school zone (VVN, 2018). These ten recommendations have been elaborated in table 4 and are presented in appendix B.

mobility, the success of the school zone is determined by traffic behaviour and the collaboration between the various stakeholders. The design of the school zone is also important. This together is summarised as road safety. Road safety together with active mobility determine the success of a school zone. The concepts and stakeholders in the outer zone have an indirect effect on the success of the school zones.

3.2 Active mobility

The concept active mobility includes walking and cycling (Pisoni et al., 2022). Various types of studies have been conducted on active mobility. The reasons why it is so difficult to shift from the car to cycling or walking are often discussed (Pisoni et al., 2022; Nello-Deakin, 2020; Ton et al., 2019). Several determinants are important when choosing the active mode. According to Ton et al. (2019), these determinants can be divided into six categories: individual characteristics, household characteristics, travel characteristics, built environment, seasonal and weather characteristics and working conditions. Murtagh et al. (2012), state that the choice of a mode of transport is influenced by a variety of factors, such as socio-demographic factors, the built environment and attitudes. According to Panter et al., (2008) the mode of transport of parents is determined by three factors: individual factors, physical environmental factors and external factors. Individual factors can be understood to mean the age, sex and behaviour of the child, but also the characteristics of the parents in terms of income and their perception. The physical factors have to do with the school route, including the distance, presence of bicycle paths, etc. Finally, external factors are related to, among other things, the weather conditions and the cost of the trip. A critical factor influencing children's travel behaviour is the distance to the school. If the school is located within 1.61 kilometres of the home, there is a greater chance of active travel to school (Wilson et al., 2007). The chance that a child will walk or cycle to school is almost three times greater if the distance between home and school is less than 1.61 kilometres (a mile) (Wilson et al., 2007).

According to the study by Eyler et al. (2007), initiatives to promote active mobility to and from schools can be challenging due to the influence of the built environment, the influence of policies and the lack of transdisciplinary collaborations. Initiatives to promote active transportation for children require collaboration from schools, communities and government agencies (Eyler et al., 2007). In terms of collaboration, school staff should have effective relations with public safety officials, city officials, parents, and school district representatives to establish and enforce policies (Eyler et al., 2007). Effective and influential factors for promoting active transport of children include: sidewalks, zebra crossings/crossing guards, concerns about personal safety, funding and the involvement of advocacy groups (Eyler et al., 2007). In addition, the careful design of pick-up/drop off areas and parking areas is also important for improving the active mobility of children and children (Eyler et al., 2007). The need for funding was divided into three main areas in the study by Eyler et al. (2007): personnel, program materials and improvements to the built environment. Paid parents or teachers make initiatives aimed at encouraging active mobility more permanent, especially if volunteers stop participating. In addition, money is needed for program material, such as for rewards, cards and promotional material. Finally, funding is needed for permanent improvements to the built environment such as more sidewalks or fences (Eyler et al., 2007).

Another study by Plevnik et al. (2017), has examined the travel habits of primary school pupils in Slovenia over the past thirty years. The patterns that emerged from the study correspond to patterns from abroad. The changes in the children's travel patterns correspond to the intense motorisation of the cities and this increase in car ownership is reflected in the growing use of the car. The study

concludes that attention to children's mobility should become an integral part of comprehensive transport planning. This planning should focus on reducing traffic in school zones and establishing infrastructure that encourages safe alternatives and discourages car use (Plevnik et al., 2017). The author states that road safety in school zones can be addressed by shifting the focus from safe driving to reducing car traffic. Access to the school zone and the facilitation of cars for parents and school staff should be restricted there (Plevnik et al., 2017). In addition to physically redesigning the school zones, significant efforts are needed for mobility management and for changing the habits of school staff, parents and children (Plevnik et al., 2017). The concept 'mobility management' promotes sustainable traffic and active mobility. Mobility management also regulates the demand for car use by changing the perceptions and travel habits of the population (Plevnik et al., 2017). The core of mobility management is "soft" measures such as informing, communicating, organising services and coordinating the activities of different partners (Plevnik et al., 2017). The effectiveness of "tough" measures like new cycle paths or the elimination of parking facilities are most often enhanced by "soft" measures (Plevnik et al., 2017). Compared to hard measures, soft measures require little financial input and often have a favourable cost-benefit ratio (Plevnik et al., 2017). According to Zdrahalova & Boumova (2016), the redesign of public space is closely related to greater support for pedestrian transport. Well-designed public spaces accommodate active mobility and promote human contact and social activities (Zdrahalova & Boumova, 2016).

Parents or caregivers influence the traffic behaviour of their children (Love et al., 2019; Frater & Kingham, 2020). Adult behaviour with regard to cycling to school varies according to the behavioural situation, the perceived environment and intrapersonal factors (Frater & Kingham, 2020). Love et al. (2019), argue that social capital of the school and community is needed to overcome parents' fears about the safety of their child(ren) during the journey to school. Social capital plays a role in successfully changing children's travel behaviour. In particular, the influence of school culture plays a major role in this (Love et al., 2019). Intervention programs implemented in an embedded manner in the school are able to overcome the strong reluctance of parents to allow children to travel unaccompanied (Love et al., 2019). Many factors influence transportation practices (Frater & Kingham, 2020). Factors that positively influence bicycle use include improved cycling infrastructure, urban design to meet the needs of cyclists, residential areas that slow down traffic, traffic education for motorists as well as non-motorists, restrictions on motor vehicle use in cities and enforcement of traffic regulations to protect cyclists (Frater & Kingham, 2020). Over the years, these measures have developed a cycling culture in which cycling is part of everyday life and this way of travelling is experienced as relaxed and safe (Frater & Kingham, 2020). Adults living in countries with low cycling rates often believe that cycling is a 'childish' activity and do not see this mode of transport as legitimate (Frater & Kingham, 2020). Multiple combined factors will influence the overall transportation culture in a certain place, but this process of culture change takes time (Frater & Kingham, 2020). In order to make walking to school safer for pupils and to encourage other people to use active modes of transport, the paper from Brachman & Church (2019), proposes the Safe Routes to School Infrastructure Improvement Model. This model could help municipalities in planning efficient investments in improving routes to schools. The model aims to minimise the overall distance and risk for pedestrians travelling to and from school. Thus, the routes should be as short as possible and contain as few risks as possible (Brachman & Church, 2019).

This literature highlights that the (feeling of) safety is very important for more active mobility.

3.3 Road safety

One of the main causes of serious traffic accidents around schools is speeding (Kattan et al., 2011). For many road security professionals, children are an extra point of attention because of their increased vulnerability. Children pose a higher risk in a traffic accident for various reasons. They are less noticeable to drivers than adults due to their smaller physical size. In addition, they have a higher tendency to behave unexpectedly, especially when they are engaged in other activities. Moreover, estimating the speed and distance of a vehicle is difficult for children (Dewar & Olson, 2007).

The chance of a fatal outcome after a collision between a pedestrian and a vehicle travelling at 37 km/h is 10% according to Anderson et al. (1997). At a vehicle speed of 45 km/h, the chance of a fatal outcome is 6 times higher (Anderson et al., 1997). To minimise the chance of a fatal outcome after a collision between a car and a pedestrian, it is therefore wiser to drive less fast in school zones. The effectiveness of reduced speed limits around schools is mixed and may vary by location. Several studies show that the success of school zones with reduced speed limits depends on traffic and road characteristics such as road classification, signage, markings, warning lights and speed displays (Kattan et al., 2011). For example, the average speed was lower in zones when fences were in place. In addition, several studies also showed that the presence of flashing lights or speed display devices also had a positive effect on the speed reduction (Kattan et al., 2011). A final example of speed reduction was due to the presence of crossing guards (Kattan et al., 2011). The article by Kattan et al., examined average speed compliance around, among others, school zones in the City of Calgary in Canada. A sample of 11 schools were randomly selected for the study. According to the article, a school zone is in effect between 8:00 AM and 4:30 PM. The research shows that speed display devices significantly reduced speed in school zones. This finding was consistent with previous speed studies (Kattan et al., 2011). Furthermore, chain-link fence could be used as traffic calming device in school zones. Also, the presence of traffic control equipment such as traffic lights and stop signs at intersections downstream of the study sites was found to be effective. Finally, the speeding percentages were lower for zones that were longer (larger school facades) and zones with schools and playgrounds that were closer to the roads (Kattan et al., 2011).

Another study by Rahman et al. (2019), state that one of the most important measures to improve road safety in school zones is the reduction of the speed limit during school hours (Rahman et al., 2019). Various traffic control equipment can be used to reduce the speed limit such as flashing lights, speed monitoring and signs. In the long run, the speed reducing effects of speed monitoring displays remain stable (Rahman et al., 2019). However, scientific research has not consistently shown that flashing signs or pavement markings significantly reduce vehicle speed in school zones (Goldenbeld & Schermers, 2017). High vehicle speeds increase both the chance of hitting a pedestrian and the risk of serious injury from a car (Rosén & Sander, 2009). If drivers are aware of the presence of pedestrians, they will be more inclined to adjust their driving behaviour (Cvitković et al., 2022). Research has been done in two small European towns where all road signs had been removed from the roads. This was done in the cities of Drachten in the Netherlands and Bombte in Germany. The removal of the traffic signs proved successful. Drivers slowed down without traffic lights and were more considerate of other road users (Cvitković et al., 2022).

According to Bina et al. (2021) the literature on children's safety and school mobility has mainly focused on identifying environmental risk factors for road accidents. According to the research done by Bina et al., (2021) the behavioural dimension had the greatest influence on road safety. A high probability of near misses was recorded in the school areas where risky behaviour was more common. Risky behaviour manifests itself in walking between manoeuvring cars and crossing paths without

zebra crossings. The presence of a 30 km/h speed zone was associated with a lower probability of observed near misses. The results of the study by Bina et al. (2021), support training programs aimed at parents as well as children, along with infrastructure improvements to promote safety and safe behaviour outside of schools. According to the latter study, interventions in the field of school mobility should therefore focus on both behaviour and the environment. According to the traffic safety adviser, if the school environment becomes safer, it will give children the confidence to go to school by bicycle (Kerssies, 2021).

From a young age, men are more often involved in traffic accidents than young women (WHO, 2007). This may be because men are on the road more often, but also have a greater propensity to take risks compared to women. Barton & Schwebel (2007)., argue that traffic behaviour is influenced by character, impulse control and gender. Research shows that young people seek sensation and this feeling increases between the ages of 9 and 14 (WHO, 2007). The higher risk of an accident may also be due to sociocultural reasons. Young adults and children who come from lower-class families are at increased risk of injuries (WHO, 2007). There are several restrictions that a child has in traffic, namely: limitations of size, limitations of vision, limitations of hearing, limitations of attention and limitations of judgment (WHO, 2007). Every child has its own pace in learning traffic skills. Parents are important when it comes to developing the right skills in traffic. Children learn the most from adults who mean a lot to them (ROV, 2015). The education of a child therefore plays a role in developing good traffic skills. Table 1 presents the development of children at a certain age and its effect on road safety.

Table 1: Children's traffic development (0-12 years). (Own design, 2022).

Age	Traffic ability of children
0-4 years	Children learn to walk between the ages of 1 and 2. Between 2.5 and 3 years, a child can learn to ride a balance bike. Between the ages of 3 and 4, children like to play (outside) with friends (ROV, 2015). They are not reliable and do not have motor-, sensory- and cognitive skills to participate in traffic independently (SWOV, 2019).
4-7 years	Most children start cycling from the age of 4. They find it difficult to maintain their balance on the bike and often swing when looking behind them. Within this age group, children find it difficult to empathise with other road users. Cause and effect do not yet exist for these children and they do not yet know that their actions have consequences. As a result, they are not yet able to recognise hazards properly. These children sometimes find themselves in complex traffic situations and it is therefore important that they go to school under the supervision of an adult (SWOV, 2019).
8-12 years	From the age of 8, children develop a sense of right and wrong. Children under the age of 8 are not yet able to properly assess the danger of traffic (ROV, 2015). From the age of 9 or 10, children are better at estimating dangerous situations. If the environment is safe, the child knows the traffic rules and the route, then the child is able to walk or cycle independently. Most children cycle and walk independently from the age of 9. Despite this independence, they still find it difficult to estimate the behaviour of other road users and to combine traffic rules (SWOV, 2019). Children at this age take more risk than other age groups. Research shows that at the end of primary school pupils still have difficulty with certain complex traffic situations on a bicycle (Twisk et al., 2018).

3.4 Stakeholders

According to ROV's research, various people and organisations are concerned with road safety around school zones. It is important that all these stakeholders are included in the improvement process and that they work together. Stakeholders are individuals and organisations that are harmed as a result of the implementation or completion of a project or they may be actively involved in the project (Aaltonen & Sivonen, 2009). The various people and organisations involved in road safety around primary schools are (ROV, 2011):

- **Parents**

When it comes to school traffic, the parents can be seen as important players. Parents can create unsafe traffic situations if the majority take their child(ren) to school by car. This group has to deal with the traffic situation on a daily basis and they can be very concerned about it. Part of this group complains about unsafe traffic situations and is annoyed by the behaviour of other parents. It is often a small part of this group that takes the lead in tackling road safety (ROV, 2011). In some cases, parents are willing to volunteer several times a week to help improve road safety around school. For example, parents can help as traffic sergeants. Traffic sergeants ensure that children can safely cross the road in the school zone. Nationally, there is a decline in the number of traffic sergeants in the Netherlands (De Vries, 2018). In 2006 there were 55,000 traffic sergeants active. Ten years later in 2016, the number of active traffic sergeants was 25,000 (De Vries, 2018). A traffic sergeant contributes to road safety, because traffic users change their behaviour and are more careful when they see a traffic sergeant on the road (De Vries, 2018). Parents who work together with the school to improve road safety in the school zone are generally referred to as traffic parents (VVN, 2021). Recent research by SWOV shows that 71.5% of all road users regularly use their telephone in traffic. The research also shows that if parents use their telephone on their bicycles or in the car, their children will also do this more often (SWOV, 2021). Parents are role models for their children (Hoekstra & Twisk, 2010).

- **School**

From a formal point of view, the responsibility of the school director and the teachers ends at the school gate. They are primarily responsible for providing good (traffic-)education. In practice, most schools, together with parents and the municipality, are also committed to improving the traffic situation in the school zone (ROV, 2011).

- **Primary school pupils**

Improving road safety around schools is aimed at allowing children to go to school safely. Parents are role models and should therefore be aware of their behaviour and actions in traffic in front of their children (Hoekstra & Twisk, 2010). The majority of accidents are caused by unsafe behaviour (Twisk, 2019). Children themselves can play a role in improving road safety by proving information and by co-executing (traffic-)activities (ROV, 2011).

- **Municipality**

The municipality is the road manager and is responsible for the design of the public space. If streets are well designed, this can lead to safer traffic behaviour among road users (ROV, 2011). National guidelines for designing streets have been developed by CROW. The education department within the municipality deals with the housing of schools and compulsory education (ROV, 2011). A safe school environment is not the primary responsibility of this

department, but it is a condition for good education and is therefore important for this department.

- **The police**

Enforcement of the traffic rules is the responsibility of the police (ROV, 2011). The community officer is the contact person for schools and traffic parents.

- **Advocacy groups**

There are various advocacy groups in the Netherlands that are committed to road safety such as Veilig Verkeer Nederland or Fietzersbond (ROV, 2011). For these advocacy groups, the safety of vulnerable road users is paramount. The Fietzersbond is committed to safe and comfortable cycling and Veilig Verkeer Nederland offers school materials and traffic education to make the school zone traffic safer. These advocacy groups want to reduce the risk of accidents and this reduces or prevents social costs (SOWV, 2020). In 2018, the social costs of road accidents were approximately €17 billion (SWOV, 2020). Cost items are for example: congestion costs, intangible costs, material costs and production loss (SWOV, 2020).

- **Other stakeholders**

Finally, there are also other people and companies who have to deal with road safety around schools. For example, local residents, surrounding companies and the carriers of day care (ROV, 2011).

3.5 (Mutual) strategies

Here we see the importance of strategies and how these can influence collaborations. Eyster et al. (2007), believe that active transportation to and from school is a feasible strategy to increase the physical activity of young people. Stark et al. (2018), recommends that more research should be done on non-school trips and with longitudinal datasets to further evaluate the interrelations between children's mode use, attitudes and well-being, in order to determine the most successful strategies for increasing active mobility in children.

Holden et al. (2020), proposes three ways to achieve sustainable mobility: electromobility, collective transport and low mobility societies. A radical systemic innovation – a 'transition' – in land transport is needed to move away from the current regime and towards a more sustainable mobility system. Transitions require qualitative innovations, realised by a variety of participants, which change the structure of the system (Köhler et al., 2009). Another study by McLaren examining the potential for a shift from car dependence to more sustainable transport. According to McLaren (2018), little research has been done on the ways in which parent-child mobility is linked to such a transition. Research by the 'Kennisinstituut Mobiliteitsbeleid' (KIM) shows that life events can break habits (KIM, 2017). This also applies in the field of mobility: ownership and preference for the car may increase in young adults. Important life events are, for example, moving house or becoming parents. People are open to information through these life events. People are not easily influenced and they have fixed patterns, but a life event can change this. This can be seen as a 'window of opportunity' (CROW, 2014). The BJ Fogg's behavioural model shows that three elements are needed to influence behaviour. The three elements are: motivation, ability (being able to change) and triggers (Alrige et al., 2021). If behaviour change does not occur, at least one of these elements is missing. To make behavioural change a success, this missing building block will have to be worked on.

The study of Fenton (2016), describes local debates and decision-making processes related to sustainable mobility in Bazel. The author concludes that individuals involved, who know how to expand

the 'strategy space' of processes, are crucial for the success of sustainable mobility transitions. These committed individuals are necessary, because these kinds of transitions require profound societal changes and to propagate these norms and practices, those involved should be courageous, committed and resilient. Fenton (2016), argues that early and active involvement of stakeholders in policy processes increases the range of outcomes of the process and its legitimacy.

Sustainable mobility will have to be structurally involved in political discussions (Fenton, 2016). In addition, an institutional reform and concentration of authority for sustainable mobility in a well-defined and funded entity in public administration is necessary, because this will provide clarity about the roles and responsibilities (Fenton, 2016). However, a reform does not have a direct and significant impact on output. In a democratic system, incrementalism seems inevitable (Fenton, 2016). Thus, instead of a few large, carefully planned changes, a series of small often intuitive changes will have to be embraced in order to achieve the long-term strategic goals. This decision-making strategy can be seen as evolutionary rather than revolutionary. Fenton (2016), argues that direct democracy improves the quality of processes and results. Stakeholders such as civil society groups and the media, who influence public debates, play an important role in shaping governance processes towards more sustainable mobility and their outcomes (Fenton, 2016). Sustainable mobility has become increasingly integrated in the strategies and policies of private and public actors operating at national, regional and local level (Fenton, 2016). An example is the Sustainable Urban Mobility Plan (SUMP) where the European Commission encourages municipalities to develop these plans to contribute to the broader European climate, energy and transport objectives. The transition to more sustainable mobility requires fundamental changes in established behavioural patterns and planning patterns (Fenton, 2016). Four challenges in the transition towards more sustainable mobility are: unintended rebound effects or ineffective results, lack of consensus about the nature of a more sustainable mobility system, path dependencies and vested interests, differentiated strategies that meet the needs of different groups (Fenton, 2016).

Organisations can respond to pressures from their institutional environment in different ways. The different strategies are: adaptation strategy, compromising strategy, avoidance strategy, dismissal strategy, and influence strategy (Aaltonen & Sivonen, 2009). The choice of strategy depends on several factors. The authors revealed the following factors: the position of the company in the network, the power of the stakeholders exerting pressure on the organisation, the legitimacy of the pressure or claims presented the stakeholders and the content of the claims in relation to the company's objectives, the means and ways by which stakeholders make their claim, the organisation's experience with stakeholder-related pressures, and the responses of other stakeholders in the project network to the pressures. An example of a stakeholder strategy to increase the road safety in school zones was seen in a Canadian report for the city of Toronto (Staff report, 2014). To improve school zone safety the school zone safety working group was formed. The working group was represented by multiple parties such as the public health service, the police service, the district school board, parking enforcement and green communities Canada. In this report it was addressed that a road safety strategy is more effective when there is consultation and collaboration, but that stakeholders also can benefit from sharing knowledge, data and experience to achieve a common goal.

3.6 Collaboration between stakeholders

The research of MacDonald et al. (2018), suggests that joint decision-making through influence on information and communication systems as well as monitoring and evaluation systems, indirectly and

positively effects partnership capacity. Citizens of a certain neighbourhood can jointly defend their interests in a kind of community organisation called: the neighbourhood association. These neighbourhood associations can differ in size, focus and other aspects, but are all aimed at maintaining or improving the quality of life in a geographically defined area (Donnelly & Kimble, 2008). To achieve their goal, neighbourhood associations provide a number of community services for their residents. Some examples include: providing social and recreational activities, helping to create a sense of community, disseminating information about what is going on in the area, focusing attention on neighbourhood problems and coordinating responses to these neighbourhood problems including housing, traffic and crime and quality of life within communities. According to Donnelly & Kimble (2008), successful efforts to bring about change are when neighbourhood groups mobilise their residents effectively and when local governments allow the participation of neighbourhood groups in the decision-making process. Neighbourhood associations are less successful in racially and economically diverse neighbourhoods because of the struggle to agree on common goals and strategies (Rabrenovic, 1996). According to Mesch & Schwirian (1996), organisational resources and coalition building appeared to be the most important factors explaining the effectiveness of neighbourhood organisations. Well-designed and maintained areas foster social inclusion, good citizenship and social cohesion (Orgambidez-Ramos et al., 2020). In contrast, poor quality areas such as noisy, dirty and the presence of drugs increase the likelihood of antisocial behaviour (Orgambidez-Ramos et al., 2020).

The safety of citizens and companies is no longer entirely a matter for the government. Citizens and companies are also taking the initiative in this regard. There is a shift from classical 'government' to 'governance' (Stol, 2016). Governance is a form of government aimed at coordinating activities between actors from government, business (the market) and civil society (Stol, 2016). Governance is the link between social initiative and public administration (Stol, 2016). In the case of a social initiative, a local partnership can take the initiative to pursue a social goal and to implement this itself with local residents or with other partners (Municipality of Amsterdam, 2022). In governance, it is no longer the government that takes the initiative and is leading. To bring about change with multiple parties, it is important to create support. It is useful to map out who still needs to be convinced and by whom and who can be key figures in this process to convince others. Three types of data are useful to map out the existing support: 1. Data on the current road safety situation. 2. Existing projects and activities 3. Existing structures and preconditions such as time, manpower and financial resources (Flemisch government, 2011). In the Netherlands, everyone has a free choice of means of transport, so to encourage people to active mobility it is important to have common drivers and good relations between stakeholders (Chavez Carrillo et al., 2019). Collaboration is an important category within participatory processes. A (successful) collaboration process consists of several dimensions. According to Newig et al. (2017), these three dimensions are:

1. The breadth of involvement. This concerns the range of stakeholders involved in the process.
2. Communication and collaboration. This concerns the intention, manner and direction of information flows.
3. Power delegation to participants. The degree of influence that participants have on the decisions to be made.

3.7 Collective action problem

Collaboration between stakeholders is not only needed at local level, but also at a national level and global level. One well-known example where cooperation on a global level is better than acting alone relates to global warming. In Paris at the end of 2015 an agreement was reached on a binding climate agreement. 192 countries plus the European Union have committed themselves to this agreement (UN, 2022). The agreements must reduce greenhouse gas emissions and limit global warming to a maximum of 2 degrees. In addition to global warming, another global complex environmental issue is litter in the (Mediterranean) Sea. Marine litter affects economic sectors including fishing, tourism, aquaculture, shipping and energy supply (Fossi et al., 2020). According to Fossi et al. (2020) effective marine litter control is hampered by: knowledge-related barriers, institutional and legislative-related barriers (weak implementation and enforcement of existing legislation and policies, lack of accountability and responsibility), financial-related barriers, operational-related barriers (including weak control and monitoring mechanisms of waste management implementation), technological related barriers, environment awareness, communication and empowerment related barriers. The low level of awareness and responsibility of all stakeholders is one of the biggest problems in effectively combating litter (Fossi et al., 2020). Essential to addressing the problem of marine litter are educational and awareness programs on marine litter at all levels of formal, non-formal and informal education and supporting civil society organisations that promote actions to prevent, reduce, monitor and manage (Fossi et al., 2020). In strengthening the interface between science, policy and society, the NGO community has a crucial role to play (Fossi et al., 2020). The NGO community ensures that society can respond effectively to societal challenges (Fossi et al., 2020). According to González-Laxe (2020), the fisherman's logic is described with three aspects, namely: profit maximisation, abundance and stock situation, and social and economic expectations. Fishermen usually act with an individual attitude rather than a collective attitude (González-Laxe, 2020). When problems in fisheries management arise from the analysis of resources and the configuration of markets, fishermen seek comfort through social conventions (González-Laxe, 2020). Small-scale fishing communities in Costa Rica are enabled by Marine Areas of Responsible Fishing (AMPRs) to apply for exclusive harvesting and management rights within spatially defined areas under a co-management policy framework (Chavez Carrillo et al., 2019). Variables such as monitoring and sanction mechanisms and the economic heterogeneity of actors have a positive influence on collective action in management (Chavez Carrillo et al., 2019). Variables that negatively influence collective action are mistrust between actors, internal conflicts, lack of government support and lack of mobility of resources (Chavez Carrillo et al., 2019).

Collaboration between stakeholders is needed not only globally, but also at a national level and local level. At the local level, cooperation is sometimes more beneficial in the long term. According to Foell & Foster (2021), local residents use collective action as a strategy to address community problems. Collective actions are persistent actions that individuals take to resolve social dilemmas (Foell & Foster, 2021). Collective actions often take place within the context of formal organisations and institutions, but more informal actions may also occur in the form of everyday acts of engagement and resistance (Foell & Foster, 2021). Two assumptions about the collective, according to classical collective action theory from behavioural economics, are the proximity of the participants and the well-defined boundaries (Ostrom, 1998). Social cohesion is explained by proximity and boundaries and it's necessary to foment the collective through the development of trust and norms of reciprocity (Foell & Foster, 2021). Engagement in collective action will be more successful when stakeholders can

effectively mobilise their available resources like financial, human and political capital (Foell & Foster, 2021).

Based on the preparatory work and conversations, plus refinement through the literature review, the following chapters will go deeper into the three dimensions that determine the success of collaboration, namely: the breath of involvement, communication & collaboration and power delegation to participants (Newig et al., 2017). The stakeholders are of course central to this research and the strategies will also be examined. What also emerged was the perceived safety of the traffic situation. This has a strong influence on the degree of active school mobility and thus on road safety (Plevnik et al., 2017; Frater & Kingham, 2020; Brachman & Church, 2019). The focus of the research will therefore be on these matters.

4. Methodology

This chapter describes the methodology used to answer the sub-questions and ultimately the main question. In the first section, the research philosophy related to the research will be assessed. Then the research strategy, including the case study selection and research population, is described. Subsequently, the data collection methods are described and also the way in which the data were analysed. The chapter concludes with the validity and reliability of the research.

4.1 Research philosophy

Scientific research can be done by researchers in different ways. There are different views that a researcher has about what science is and what contribution science can make to society. This view is partly influenced by the personal beliefs of the researcher, as well as by scientific schooling and the prevailing set of concepts and thinking patterns in their field or in science in general (Van Thiel, 2014). Collectively, these concepts and thinking patterns are known as 'paradigms' (Van Thiel, 2014). According to Holden and Lynch, the methodological choice should be related to the researcher's philosophical position and the social science phenomenon being analysed. Philosophy is an important part of research as it can lead to a better understanding of the research and the use of the right methodology (Holden & Lynch, 2004). All research paradigms or perspectives are described by ontology, epistemology, methods, and sometimes also by axiology (Žukauskas et al., 2018; Saunders et al., 2019). Ontology deals with the assumptions about the nature of reality, epistemology involves assumptions about knowledge and axiology is about the role of values (Saunders et al., 2019).

Four major paradigms can be distinguished for acceptance as the paradigm of choice in informing and guiding research, namely: positivism, postpositivism, critical theory and constructivism (Guba & Lincoln, 1994). The approaches of positivism and constructivism are more extreme than those of postpositivism and critical theory and may therefore be limiting for some studies (Holden & Lynch, 2004). Pragmatism is a fifth important research philosophy according to Sander et al. (2019). Positivists believe that there is one single reality or truth and that knowledge can be measured (Saunders et al., 2019). In contrast, constructivists believe that there are multiple realities, it is subjective, and knowledge needs to be interpreted to discover the underlying meaning. Positivism is typically deductive and constructivism typically inductive (Saunders et al., 2019). Postpositivists are more critical than positivists and argue that their claims about understanding the truth are based on probability rather than certainty. Post-positivists often refute what positivists claim. Critical theory emphasises the role of language and power relations. This philosophy seeks to question accepted ways of thinking and to give voice to alternative marginalised views (Saunders et al., 2019). Finally, pragmatism strives to reconcile both objectivism and subjectivism, facts and values, rigorous and accurate knowledge, and different contextualised experiences (Saunders et al., 2019). To inform future practice, research for a pragmatist starts with a problem and eventually brings practical solutions (Saunders et al., 2019). This research follows a pragmatic approach, as the research starts from a problem and the goal is to eventually obtain practical solutions. Also, this research reached probable facts and therefore partly concerns postpositivism. Critical theory would also seem like a good research philosophy, because society needs to change (in part). In particular, the travel behaviour of a particular population needs to change. However, this philosophy was not chosen, because the emphasis on the role of language is not central in this research.

4.2 Research strategy

In order to be able to answer the research question in a cohesive way, it is useful to look at the chosen research philosophy and to make the methodological choice between quantitative research designs, qualitative research designs and mixed methods research designs. The overall design or logical procedure that will be followed is called the research strategy (Van Thiel, 2014). Different data collection methods can be used given a certain research strategy (Van Thiel, 2014). The way in which the data will actually be analysed is the technique. Research strategies can be associated with a particular deductive, inductive or abductive approach and research philosophy. However, it is not strictly there are open boundaries between the research philosophies, research approaches and research strategies (Saunders et al., 2019). The aim of the study is to provide general advice for primary schools that have difficulty with (permanently) motivating parents and children to go to school in an active sustainable way. The research question is aimed at finding a solution to the problem. The aim of the research is to improve the situation (design). Partly descriptive research will therefore be carried out, because situations should be described. In addition, the added value of Veilig Verkeer Nederland in the entire transition process will also be evaluated which also makes the research evaluative. The following strategies will be applied in the research: survey and case study. According to Yin (2018), case studies are not only for exploratory purposes, but also suitable for descriptive and explanatory purposes. In the research strategy case study, multiple cases are examined in an everyday, real-life setting. The case studies relate to a primary school in the Netherlands. This concerns a primary school that worked together with Veilig Verkeer Nederland.

4.2.1 Case selection

It has been decided to choose a school that has completed a trajectory in collaboration with Veilig Verkeer Nederland that jointly improved road safety in the school zone. The case study for the research is primary school 't Ravelijn in the municipality of Oss.

4.2.2 Research population

The population is the complete set or elements from which a sample is taken (Saunders et al., 2019). There are more than 6000 primary schools in the Netherlands (CBS, 2021). Within the research, the adult actors involved in and around primary schools are the research population. The population consists of parents, school director, volunteers, municipality, local residents and a social organisation. Due to time constraints, it was impossible to collect data from this entire population and it was therefore necessary to draw a sample. The target group of this research consists of one Dutch primary school. The actors involved in and around the selected primary school form the total sample. The school director and the municipality of a primary school are fixed. The involved stakeholders: 'parents' and 'local residents' were randomly selected. In summary, the research population of this research consist of involved stakeholders in and around the chosen primary school in the Netherlands.

4.3 Research methods

The research methods are both qualitative and quantitative. Mixed methods were chosen, because this allows the researcher to collect a lot of data in a relatively short time, but also to clarify the reason behind the data.

4.3.1 Data collection

Collecting data about the stakeholders and the interaction between them is important in order to be able to answer the research questions properly. The most important stakeholders within the selected primary schools were first identified and then approached for an (expert) interview. The interviews

were held with the actors involved to gauge their ideas and interests. These interviews were conducted on the basis of an interview guide and an interview instruction was written. The interview manual lists a number of topics that should be discussed in every interview. This way of interviewing with a topic list that is used as a guideline is also called a semi-structured interview (Van Thiel, 2014). Semi-structured interviews are often used for explanatory and evaluative research purposes (Saunders et al., 2019). Some of the topics discussed in the interviews are: school zone situation, relations, communication, wishes and preferences, degree of participation. Prior to the interviews, each interviewee was asked whether he agreed to have the interview recorded. In addition, the interviewees were informed in advance how long the recording will be kept and how the answers given will be processed.

In addition to interviews, data was collected through observations on the selected cases. The researcher's role during these observations is that of a full observer. Due to the full observer role, the researcher participation is low and hides his identity (Saunders et al., 2019). The observations took place both in the morning and in the afternoon. The researcher arrived on site half an hour before the start of primary school and just before the end of school and observed the situation. Attention was paid to the points that emerged earlier in the interviews in order to check whether they correspond.

In order to clearly visualise the behaviour and preferences of the parents, the quantitative research method was applied. The greater the response of parents to this survey, the more reliable the results are. The survey was created using Qualtrics software. This web-based software collects all the answers, after which the data could be analysed.

The survey for the parents was first distributed personally via the researcher in the school zone and later the traffic coordinator distributed the survey online to all parents. The survey was completed by a total of 46 parents. The researcher handed out 32 QR codes to local residents to complete the survey. In total 22 local residents completed the survey.

4.3.2 Operationalisation

The research consists of 13 steps. This section clarifies the different steps from the beginning to the final result. The first three steps, the preparation phase, had to be performed in chronological order. Step 4, 5, 6 and 7, the data collection phase, did not have to be followed sequentially, but were performed simultaneously. After completing step 4 to step 7, it was possible to start with the analysis phase (steps 8, 9 and 10). When this phase was completed, the final part of the research followed, namely writing down the results, making conclusions and recommendations (step 11, 12 and 13).

Step 1: Case selection

One Dutch primary school was selected for this research. A few years ago, this primary school completed a trajectory in collaboration with Veilig Verkeer Nederland to make the school zone more traffic-safe. One primary school has been chosen because this research has an in-depth and exploratory aim. In addition, one primary school was selected, because of the limited time to conduct the research. It depends on the purpose of the research which and how many primary schools are selected by the researcher.

Step 2: Stakeholder selection

The stakeholders were selected on the basis of literature and in consultation with social organisation Veilig Verkeer Nederland. The stakeholders in the research are those related to road safety in primary school zone 't Ravelijn. These stakeholders all benefit from a safer school zone at primary school 't

Ravelijn. In addition, the stakeholders themselves also have a role in improving traffic safety in the school zone at primary school 't Ravelijn.

Step 3: Approaching the stakeholders

The school director received an e-mail from the researcher. This e-mail described the purpose of the research and what the interviewee would gain from the interview. The school director was contacted by phone after she had indicated by e-mail that she agreed to an interview. In addition, the traffic coordinator was also called to schedule an appointment for an interview at the school itself. The names and e-mail addresses of the area manager and the traffic parents were obtained from the interview with the traffic coordinator. These stakeholders were also approached by e-mail for an interview. These interviews were conducted online via Teams. The contact details of the relevant community officer and the enforcers have been found via the internet. These stakeholders were also approached via e-mail for an interview. These interviews were conducted online via Teams. The project manager of Veilig Verkeer Nederland has been e-mailed and this interview also took place online via teams. The process of getting in touch with the parents and local residents can be found in step 5.

Step 4: Stakeholder interviews

The interview questions are based on the literature and questionnaires of Veilig Verkeer Nederland (see table 2). The author has chosen these topics because the discussions and literature show that participation, collaboration and communication together determine the success of cooperation. In addition, the feeling that parents have is a determining factor for their behaviour and thus for road safety.

Table 2: Operationalisation topics interviews (Own design, 2022).

<i>Topics</i>	<i>Operationalisation</i>
Perceived situation road safety in school zone	<ul style="list-style-type: none"> - <i>Road design</i> - <i>Behaviour of other road users</i>
Participation	<ul style="list-style-type: none"> - <i>Scope, diversity of stakeholders</i> - <i>Degree of influence</i> - <i>Effort</i>
Collaboration	<ul style="list-style-type: none"> - <i>Supportive policy</i> - <i>Agreements</i> - <i>Trust</i> - <i>Dynamic</i> - <i>Resources</i> - <i>Satisfaction</i> - <i>Mutual strategies</i>
Communication	<ul style="list-style-type: none"> - <i>Communication tools</i> - <i>Quantity</i>

Table 3 presents an elaboration of the (general) interview questions and their interpretations. The questions in the table have been made more abstract, because the questions during the interviews with the relevant respondent were more focused. The distance of the children to school could also have been looked at, as this influences active school mobility, but the research focused more on successful collaboration.

Table 3: Questions and interpretation (Own design, 2022).

Topic	Question	Interpretation
Perceived situation		
	How do you experience road safety in the school zone? (Ask for example)	Relates to subjective perception. If the school zone is experienced as safe, then there are probably many people cycling or walking to school or there are some drivers who are extremely dangerous.
	If you were to express road safety in the school zone in a number. What number would you give for the current situation?	If the grade 1 to 5 is given, the school zone is unsafe. 6 is moderate and from 7 the school zone is perceived as increasingly safer. This question contributes to the subjective perception of stakeholders about the school zone and can be compared with the observations.
Participation		
	How is road safety improved/maintained in the school zone? (By who?)	The actual contribution of the stakeholders. If some stakeholders that are important contribute little, this can be negative.
	Which stakeholders do you think are (structurally) concerned with safety in the school zone?	Provides insight into how stakeholders see each other. Experience may deviate from reality, but then it may say something about the relationship between the stakeholders.
	Do you think you can contribute to road safety? (How)	This question provides insight into how aware someone is of their own behaviour. If the majority of the stakeholders indicate that they can make a contribution, the school zone should be (more) safe.
Collaboration		
	What do you think of the roles of the stakeholders and the commitment they show with regard to road safety in the school zone?	Provides insight into the role of the stakeholder itself and the responsibility it takes. If the stakeholder does not contribute, this has a negative influence on the end result.
	How would you describe the relations between the stakeholders?	Provides insight into the relationships and dynamics of the stakeholders. If it is positive, the collaboration can be more successful.
	What are the results of the actions you have taken together with the stakeholders?	Provides insight into the collaboration and the result. Little result indicates that they do not have the right approach or are contributing little.
Communication		
	How often and in what way do you have contact with the various stakeholders?	Provides insight into the relations and dynamics of the stakeholders. Two-way communication sometimes works better than one-way.
	Do you think there is room for improvement in the contact between stakeholders? (How?)	Provides insight into the relations and dynamics of the stakeholders. Many improvements can mean that the current way of communication is not desirable. This can also put pressure on the collaboration and ultimately the result.

Step 5: Design online survey

The two surveys provided insight into the thinking of the parents and the local residents. Both surveys are designed with the survey software Qualtrics. The local residents of the primary school were mainly approached personally by the researcher, but if a local resident was unable to open his door, the QR-code was dropped in the letterbox. The local residents received a note with a QR-code that they could scan with their phone to complete the online survey. They could complete the survey at a time that suited them best. The parents were asked to complete the online survey through the school-parent communication portal. The traffic coordinator has shared the link of the survey with the parents via this school-parents portal. The same kind of questions as in the interviews were asked in the surveys. See appendix A for the questionnaires completed by local residents and parents.

Step 6: Observations in the school zone

Veilig Verkeer Nederland gives primary schools 10 'golden rules' for more road safety in their school zone (VVN, 2018). Based on these rules, the first 10 observations of this research were determined (See appendix B, table 4). If these first 10 rules are not observed, this means that improvements can be made to make the school zone more traffic safe. The researcher observed the phenomena 11 to 14, in order to check the answers given by the respondents in the interviews and which were also reflected in the surveys. The researcher's observations are presented in appendix B (Table 9).

Table 5 shows the different research instruments that were used to collect data for the different sub-questions.

Table 5: Operationalisation research methods (Own design, 2022)

Sub-questions	Research instrument and respondents
<i>Who are the stakeholders and what are their roles and positions in Dutch primary school zones?</i>	<ul style="list-style-type: none"> • Interview traffic coordinator • Interview school director • Interview traffic parents • Interview area manager • Interview Veilig Verkeer Nederland • Interview surveillance and enforcement • Interview community officer • Survey local residents • Survey parents • Observations
<i>How are the relations and dynamics between the stakeholders involved in Dutch primary school zones?</i>	<ul style="list-style-type: none"> • Interview traffic coordinator • Interview school director • Interview traffic parents • Interview area manager • Interview Veilig Verkeer Nederland • Interview surveillance and enforcement • Interview community officer • Survey local residents • Survey parents •
<i>What are the strategies around the stakeholders</i>	<ul style="list-style-type: none"> • Interview traffic coordinator • Interview school director • Interview area manager • Interview Veilig Verkeer Nederland • Interview surveillance and enforcement • Interview community officer • Survey local residents • Survey parents
<i>To what extent does collaboration between the stakeholders lead to mutual strategies and how successful are these strategies?</i>	<ul style="list-style-type: none"> • Interview traffic coordinator • Interview school director • Interview traffic parents • Interview area manager • Interview Veilig Verkeer Nederland • Interview surveillance and enforcement • Interview community officer • Survey local residents • Survey parents • Observations

Step 7: Transcribing the interviews

Prior to the interview, the interviewees were asked whether they agreed to a recording of the interview. The recordings have been listened to by the researcher and they have been fully transcribed. Moments of short silences or funny remarks are also visible in the transcripts.

Step 8: Adding the transcripts in ATLAS.ti

ATLAS.ti is a software program that is useful in analysing qualitative research data. This software was chosen, because it is a functional program to use and very useful for mapping out the relations between the various stakeholders. After starting the program, a new project can be created. Then the program asks for the name of the project. After the new project has been created, the transcripts can be added via the "Add Documents" button.

Step 9: Data analysis interview transcripts

The transcripts in ATLAS.ti are encoded. Many types of codes have been used such as relations, collaboration, negative, positive, strategy, mutual strategy, road safety contribution, participation, participation, agreements and dynamic. Subsequently, the codes relating to relationships, for example, have been given a common colour. In this case it was the colour blue. All codes related to positive collaborations or experiences were given the colour green. The colour yellow related to the stakeholders. And the colour brown was given to things linked to the identity of the school. After the codes were created, the codes were placed in different code groups. There were 5 code groups in total: improvements, procedures/ strategies, relations and dynamics, stakeholders and success. In addition, a network was created for each stakeholder. This network was created on the basis of the interviews with the stakeholders in which they indicated with whom they maintained relationships. The analysis done with ATLAS.ti is presented in appendix C.

Step 10: Data analysis surveys

The surveys were analysed using Excel. Tables were created. The tables present, among other things, how traffic safe parents consider the layout of the street and how they think they can contribute to road safety. The willingness of the stakeholders to structurally contribute or change their current traffic behaviour is of course very important.

Step 11: Case description

Within this step, the researcher noted some basic information about the selected primary school, including its size and core values. In addition, the researcher visually presented the location of the primary school within this step.

Step 12: Processing the results

Within this step, the researcher describes his results in a careful and structured manner.

Step 13: Draw conclusions and make recommendations based on the results

Based on the results, the researcher notes his conclusion within this step and makes recommendations.

4.3.3 Data analysis

The recorded interviews have been transcribed. This is a time-consuming process, but the interviewee's story is written down completely. This reduces the chance of making mistakes. The

summaries are shown in appendix A. The transcripts have been uploaded in ATLAS.ti. The transcripts were then analysed in ATLAS.ti. The analysis will be done by making categories/similarities and differences between the different things said by different interviewees. The elaborations can be found in appendix C. The quantitative data analysis of the research was done by making use of Excel and GraphPad Prism 9.

4.4 Validity and reliability

Validity and reliability are important criteria for sound scientific research (Van Thiel, 2014).

Validity

There are two types of validity: internal and external validity (Van Thiel, 2014). Internal validity relates to the strength of the study itself and that the findings are not caused by other factors. It is important that the assumed (causal) relationship between the independent and the dependent variable actually exists and that the given theoretical construction is adequately operationalised (Van Thiel, 2014). The internal validity can be increased by taking measures. For example, the interviewer may ask whether the interviewee has understood the questions correctly. The interviewer does this to get confirmation. After the interview, the interviewer can also apply the technique of 'participant or member validation' (Saunders et al., 2019). This is a technique in which the interviewer returns a summary of the conversation to the participants so that they can confirm its accuracy and make any comments to correct the content. Within this study, the summaries were sent by the researcher to the interviewees. External validity is related to the extent to which the findings can be generalised (Saunders et al., 2019). The external validity of this study is difficult to determine because it is a one-depth case study. The results of the study can be used for other Dutch primary schools, but there has been no comparison with other schools. A positive point is the input from Veilig Verkeer Nederland, which has knowledge of several primary schools in the Netherlands and the advice can therefore also be used for several schools. Validity can also be increased by using triangulation (Saunders et al., 2019). Triangulation means that more than one data source and method of collection is used (Saunders et al., 2019). This research uses three different sources: interviews, observations and surveys.

Reliability

Reliability is related to accuracy and consistency with which the variables are measured (Van Thiel, 2014). A study is considered reliable if a researcher is able to replicate a previous study design and achieve the same findings (Saunders et al., 2019). The more consistently and accurately the variables are measured, the more certain it is that the results are not coincidental (Van Thiel, 2014). To guarantee the reliability of this research, both the data collection methods and the method are described as accurately as possible. In this research, the accuracy and consistency are guaranteed by semi-structured interviews and the correct elaboration of the findings. This transparency enables other researchers to conduct the research in the same way and thereby generate the same results. In this research interview guides are used to accurately conduct the semi-structured interviews. In addition, the themes that emerged in the interviews have been operationalised and this gives the researcher guidelines for analysing the data. This study also contains an observation schedule, which improves accuracy. Repetition increases the reliability of a study, because it provides certainty that the results found are indeed correct (Van Thiel, 2014).

5. Case description

Chapter 5 consists of two sections. The first part contains general information about the primary school itself. The second section of this chapter contains information about the location of the school zone and the surrounding area. Chapter 5 is intended to provide context to the reader before explaining the results of the analyses. The results are presented in the next chapter.

5.1 Identity primary school

The case chosen for this in-depth study is the public primary school 't Ravelijn in the municipality of Oss. The primary school has about 130 children divided into six groups (Stichting SAAM, 2020). There are 15 employees working at the school. The school has a continuous schedule, which means that all children eat and drink at school at lunchtime as a fixed part of the day's program. The school uses the five equal days model. Classes start at 8:30 AM and end at 2:15 PM (Stichting SAAM, 2020). As a public school, the school is open to everyone. Because of the varied composition of the school, children learn to deal with differences in a good atmosphere. The school has three pillars: equality, cooperation and communication. These pillars are also rooted in the five core values (Stichting SAAM, 2020).

Core values

The core values of primary school 't Ravelijn are (Stichting SAAM, 2020):

- *Involvement*
Primary school 't Ravelijn stimulates the natural curiosity of children, which increases their intrinsic motivation. The school sees involvement as the basis of development, because then a child is more willing to learn.
- *Responsibility*
Primary school 't Ravelijn tries to teach children to be responsible for themselves, others and the environment for an active participation in society in the future.
- *Development*
Primary school 't Ravelijn stimulates children from a positive approach to develop themselves in the field of personality, knowledge, skills and creativity.
- *Together*
Primary school 't Ravelijn believes it is important that parents/carers are closely involved with the school. The children, parents and teachers are connected to each other in an open and respectful way. Primary school 't Ravelijn also encourages children of different ages to play with each other and to learn from each other.
- *Unique*
Primary school 't Ravelijn assumes that it is good that every child is different and therefore unique.

PBS-school

Primary school 't Ravelijn works with a PBS approach. PBS stands for 'Positive Behaviour Support'. This way of working focuses on teaching and reinforcing desired behaviour and on preventing problem behaviour (Stichting SAAM, 2020). It mainly emphasises the positive things children do and puts less emphasis on the negative. For example, children are explained what is expected of them at school and how they should behave towards other children. The children know very well what is expected of them and that gives them clarity. Good behaviour is rewarded in the form of compliments and activities that can be earned.

Brabant traffic label (BVL)

Primary school 't Ravelijn is in possession of the Brabant traffic label. This is a quality label that was created in 1997 to stimulate traffic education in schools and to guarantee high quality (BVL, 2022). If a school is in possession of the label, it shows the environment that the school is committed to traffic education and safety around the school. A school therefore demonstrates with the label that road safety is a structural part of the school policy. Important in this respect are traffic lessons at schools, parent participation and a traffic-safe school environment. In order to earn and maintain the label, a school must meet a number of criteria. A school will have to be able to demonstrate annually that they have planned activities and have been involved in traffic education and road safety. The label has different values. There is a bronze, silver and gold label. Primary school 't Ravelijn is in possession of the bronze label. For bronze you have to organise a certain number of activities per year, for silver more effort is required and for gold even more. According to the school coordinator of primary school 't Ravelijn, it is important to look at what is feasible for a school.

Trajectory Veilig Verkeer Nederland

The municipality of Oss had a shortlist of primary schools that had been selected to be eligible for the trajectory in collaboration with Veilig Verkeer Nederland. The street next to primary school 't Ravelijn had to be completely renovated, because the sewage system had to be replaced. In addition, the municipality received various reports from primary school 't Ravelijn and from parents that the traffic situation with the pick-up and drop-off of the children was experienced as unsafe. Due to the fact that the entire street would be replaced and due to various complaints from the school and parents, the municipality had decided to start the process at primary school 't Ravelijn. The municipality also thought it was a great idea that Veilig Verkeer Nederland could think along with the redevelopment of the street. The trajectory was initiated in mid-2020. This trajectory has taken longer than usual due to Corona.

Stationssingel before the redevelopment

The Stationssingel is the street next to the school that has been completely redesigned. At the left red dot in figure 3 which is now a T-junction, there used to be a roundabout. Most people did not use this roundabout as they should and therefore it has been decided to remove it and create a T-junction in its place. In addition to the T-junction, a kiss & ride strip has been created. In figure 3, the kiss & ride strip is indicated by the blue stripe. A kiss & ride strip is intended for parents to quickly drop off their child(ren) by car in the morning. Parents can stop their car on the strip in the morning, give their child(ren) a kiss and continue driving immediately. In the afternoon, according to the signage, it is allowed to park on the kiss & ride strip.

5.2 Location

Primary school 't Ravelijn is located in Ravenstein, in the municipality of Oss. The school shares one building with another (Catholic) primary school, a childcare centre and a library. In figure 3 the location of the school is indicated by an arrow. The Catholic primary school is located on the left side of primary school 't Ravelijn. The smaller black area is the childcare centre and the black area with the book is the library. The blue line in the figure is the kiss & ride strip and the orange dotted lines indicate that these streets are only accessible to pedestrians and cyclists. Finally, the orange cross indicates a location where parents can park their car all day long. The local residents who completed the survey mainly live in Lamoenenhof, Stationssingel, Monseigneur Borretlaan and behind the last-mentioned street.

Figure 2 gives an impression of the Stationsingel where the kiss & ride strip can be seen. The photos were taken on the red dots visible in figure 3.



Figure 2: Impression of the Stationsingel (Own pictures, 2022)

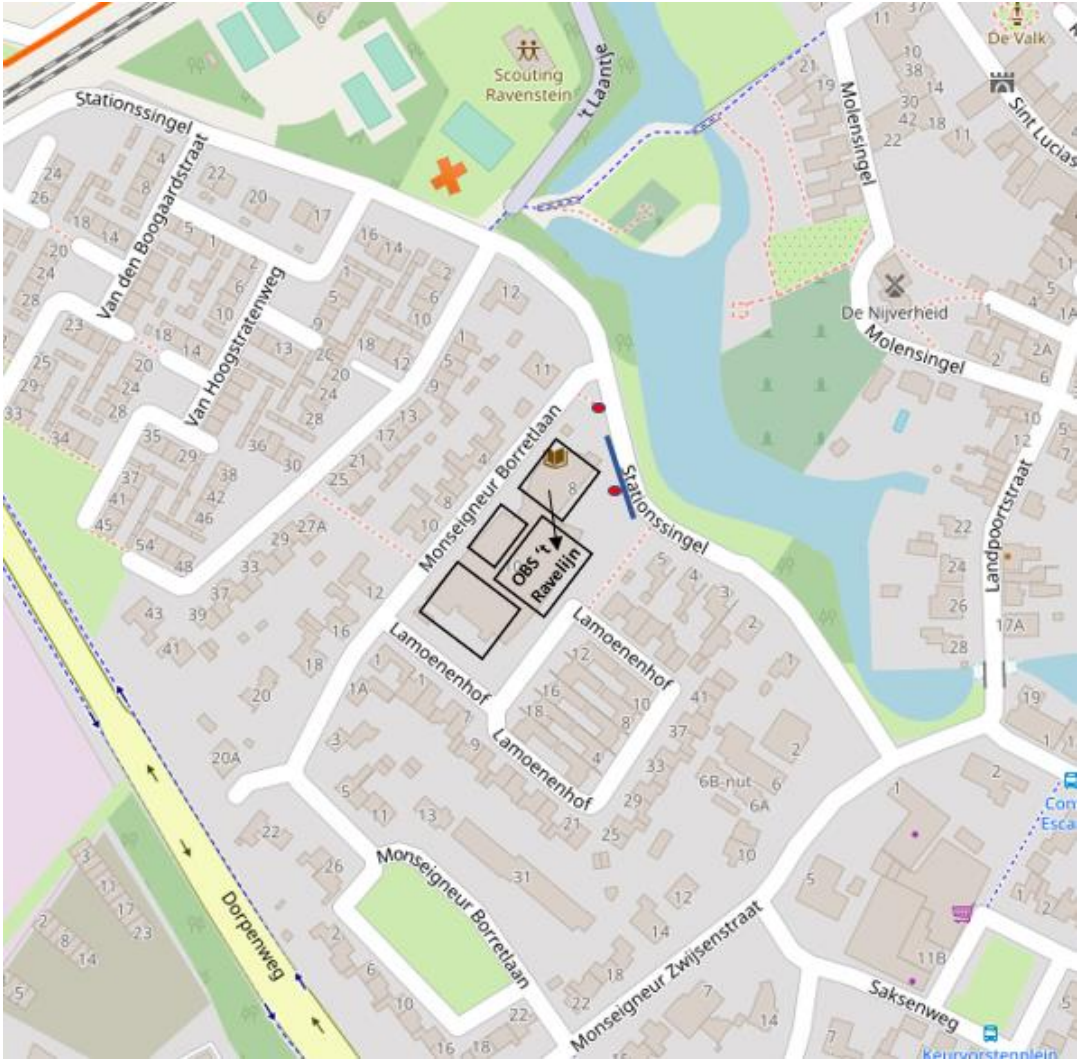


Figure 3: Map with location of primary school (Adjusted by the author from OpenStreetMap, 2022)

6. Results

This chapter contains an analysis and description of the data obtained through interviews, surveys and observations. The chapter consists of four sections. The first section 6.1 contains a description of the stakeholders involved and their contribution to improving road safety in a school zone. This section contributes to answering sub-question 1, followed by an elaboration of the relations and dynamics between the various stakeholders presented in section 6.2. Section 6.2 contributes to answering sub-question 2. Subsequently, section 6.3 contains the strategies of and around the stakeholders and this section adds to answering sub-question 3. Finally, section 6.4 describes an elaboration of the performance of the collaborations between the stakeholders. This last part contributes to answering sub-question 4. The purpose of this chapter is to inform the reader about the results, through visualisation and description of the results, so that eventually an answer can be given to the main question.

6.1 The stakeholders in the process

There are several relevant stakeholders that are important in the process of improving road safety in the school zone. The stakeholders that are relevant in improving road safety in the school environment of primary school 't Ravelijn are: the primary school pupils, the parents, the traffic parents and the traffic coordinator (traffic working group), the school director, the area manager, the community officer, the enforcers, the local residents and the project manager from Veilig Verkeer Nederland.

Primary school pupils

Most of the children of primary school 't Ravelijn live nearby, but a number of children travel daily from the suburbs to the school. Children can generally not be blamed for the way they go to school, because the parents mainly determine this for them.

The parents

Most parents indicate that they contribute to road safety by not coming by car, but taking their child(ren) to school by foot or by bicycle (see table 6). The parents who do come by car indicate that they use the kiss & ride strip for a short time and if they park longer, they drive a bit further to the parking lot. The surveys distributed among the parents of primary school 't Ravelijn show that 57.8% do not think the school zone is clearly visible enough. This is also reflected in the moderate score, because parents rate road safety in the school zone with an average of 5,1.

Table 6: Survey results parents - modes of transport towards school (Own design, 2022).

Average mode of transport during the week	Walking with parent	Walking independently	Cycling independently or with friend(s)	On own bike	Transported by parent on a bicycle	With the car	N
Single mode of transport	3 6.5%	0 -	5 10.9%	8 17.4%	4 8.7%	7 15.2%	27
Mixed mode of transport	7 15.2%					n/a -	7
	12 26.1 %						12
■ Active mobility ■ Mobility by car							46

From the total of 46 respondents, 7 parents indicated that they come structurally to school by car. Expressed as a percentage, it appears that 15.2% use the car as a structural means of transport for school (see table 6). This retrieved information from the survey is in line with the reported 12% by the literature (Lankhuijzen & Lax, 2014; CROW, 2016). Single mode or transport in table 6 means that these parents only go to school on foot, by bike or by car. On the other hand, mixed modes or transport means that a parent chooses, for example, to take their child(ren) to school one day by car and the next day by bicycle. Or the parent decides on a daily basis whether to take their child(ren) to school by foot or by bicycle, which is still an active mode of travel. The survey also shows that 57,8% of the parents think that the school pays sufficient attention to traffic education and a safe school zone. The other parents judge that the school does not pay enough attention to this or do not know what and how much the school is doing about it. 88.6% of the parents indicate that they themselves contribute to road safety in the school zone. In addition, 86.7% of the parents think that traffic parents are useful in making the school zone more traffic safe. However, 55% of the parents indicate that they are not aware of the fact that there are two traffic parents at primary school 't Ravelijn.

The traffic parents

Primary school 't Ravelijn has two traffic parents. The two parents are registered at VVN. Traffic parents are parents who voluntarily contribute to a traffic-safe school environment. Traffic parents can contribute in many different ways, such as helping with the implementation and organisation of practical traffic activities for the children, supporting teachers with traffic lessons, drawing attention to road safety among other parents and thinking about a safe school-home route. Stimulating, for example, more active mobility such as walking and cycling to school by means of reward campaigns is also an activity that traffic parents can perform.

The two traffic parents contribute to road safety by supporting the school during practical traffic activities and actions. In the past, for example, the traffic parents distributed flyers with desirable traffic behaviour to parents and addressed other parents directly about their unsafe traffic behaviour. Another traffic action in which the traffic parents supported the school was an action with green and red parking tickets. The traffic parents handed out these parking tickets. If a car was parked correctly, it received a green card and a car received a red card if it was parked incorrectly. In Corona time, the traffic parents also supported the school, because there had to be a waiting area for the parents. Parents were no longer allowed to enter the school yard. The traffic parents then supported the school by closing off the kiss & ride strip with pawns. This space could then be used for parents to wait for their children. In addition, the traffic parents contribute to road safety in the school zone because they meet with the traffic coordinator three to four times a year to discuss the annual traffic planning and traffic activities. One traffic parent also handed out tickets to the neighbourhood stating that the school is working on tackling traffic nuisance in the neighbourhood. In addition, the traffic parent also regularly complained to the municipality about the design of the school zone.

"I think the role of a traffic parent is the least sexy variant of being involved in school. It's a bit of a thankless job. As a traffic parent you are of course not in a very good situation if you address other parents about their traffic behaviour, because you simply have no authority and cannot enforce anything. You can ask other parents to adjust their traffic behaviour, but then you end up in the situation of the nagging parent." – Traffic parent (See supplementary information. Transcript 2, p. 23, 32. Line: 706 - 708, 1044 -1046, 1048-1049).

The traffic coordinator

The traffic coordinator can be seen as a coach who supports and advises the school for several years in the implementation and organisation of practical traffic lessons in the schoolyard and in the vicinity of the school. The traffic coordinator ensures that theoretical and practical traffic education is provided in all groups at a school and that road safety and traffic education are also structurally included in school policy. The traffic coordinator also ensures that there is communication with the parents/carers about traffic activities and their role in road safety. Finally, the traffic coordinator maintains contact with the municipality if there are problems in the school environment.

Primary school 't Ravelijn has earned the bronze Brabant traffic label. The label is a quality label for primary schools that give road safety a permanent place in their school policy (BVL, 2022). The traffic coordinator at primary school 't Ravelijn is a teacher of combination group 1-2. The traffic coordinator arranges and organises activities that fall within the traffic label. In addition, she maintains contact with the traffic parents and makes the ultimate choice in getting new traffic methods. In group 7/8 there is a traffic activity from the education package of Veilig Verkeer Nederland, namely the blind spot project and all children from group 1 to 8 receive traffic education from their own teacher. The traffic coordinator provides traffic education to her own group, making use of materials that the school has available and the website of the traffic label where different traffic topics are discussed each month with different assignments. The traffic coordinator is the main contact person for parents regarding traffic activities. The traffic coordinator also occasionally asks parents via the parent portal to encourage their children as much as possible to walk or cycle to school. In addition, the traffic coordinator does not park her car in the residential area, but a little further from the school.

“Sometimes you have parents who can be very persistent. For example, parents who still park on the roadside, while this is not allowed. At the same time, you also have parents who do adhere to the rules, but who also ring the bell with the municipality if it is not safe. Which is sometimes justified, but yes it starts with the traffic behaviour of parents.” – Traffic coordinator (See supplementary information. Transcript 1, p. 5, 20. Line: 77-78, 80, 603 - 604).

The traffic working group

Traffic working groups are present at various Dutch primary schools. A traffic working group ensures that traffic safety is constantly brought to the attention. At primary school 't Ravelijn, the traffic working group consists of the two traffic parents and the traffic coordinator. At the beginning of the school year, the traffic actions and spearheads are discussed. The traffic actions are recorded in an activity plan. In order to maintain the traffic label, the school is obliged to carry out a number of activities in the field of traffic every year. Due to Corona, fewer activities have taken place in recent years. Primary school 't Ravelijn has a limited budget and therefore has to make choices in the activities they want to organise every year. In addition to devising and planning traffic activities and actions, the traffic working group also pays attention to traffic safety during the school year.

“I think that in many cases we are a kind of information source or a consultation group. We support the traffic coordinator in the traffic tasks and traffic activities, but I think the majority comes from the traffic coordinator.” – Traffic parent (See supplementary information. Transcript 2, p. 33. Line: 1067-1070).

The school director

The school director recently started her job at primary school 't Ravelijn. She has held various consultations with the SAAM foundation of which the school is a part. This foundation includes 26 primary schools from the municipality. The school director has both the administrative duties and the duties of a janitor, as these are both lacking. She is also busy with next year's formation and puzzles with which teacher will occupy which group. In addition, she looks at the new developments and what the school wants to continue with and elaborates this in the school plan. Besides, the school director investigates where the money will be spent on and how these expenditures link to the vision that the school has.

The school director has contributed to road safety at primary school 't Ravelijn in various ways. First of all, the school director had an introductory meeting with the traffic working group. The school director has adopted a positive and enthusiastic attitude towards the traffic working group. She believes that road safety is important, but it has not yet been her priority. This is because she had to deal with a lot of issues and she felt that quite a few issues in the field of road safety had already been handled well. In addition to the conversation with the traffic working group, the school director has sent a message requesting the parents of group 4 to practice cycling with their child, because from now on they will cycle to the gym. The school itself has also paid extra attention to this with the children of group 4. The school director has also asked parents to turn off their car while waiting for their children, after a complaint was received from one local resident. The school director has also been in contact with the other school in the same building about this incident.

“Now that I mention all the activities that I have done so far since I started working here, it's actually been more about traffic than I thought.” – School director (See supplementary information. Transcript 4, p. 57. Line: 1956- 1957).

The local residents

The local residents rate the road safety in the school zone just like the parents with an average of 5.1. Figure 4 makes it extra clear that only a few local residents are satisfied with the safety in the school zone, because only one local resident is completely in the green area. The five local residents who are deep in the red section can provide input for improvement in order to achieve a higher score. The survey among the local residents also shows that the majority, namely 68%, indicate that they can contribute to road safety in the school zone. Some examples that local residents gave of their own contribution to road safety is by driving calmly and by not traveling during school peaks. One local resident indicated that local residents living around the school can make a contribution by cutting their hedges shorter.

In addition to the low marks given by local residents for road safety in the school zone, 100% of local residents believe that there is no visible enforcement in the school zone. This is in line with what the traffic parent also stated in the interview. Finally, the majority of local residents (86.3%) indicated that it is too busy in the morning with cars in the school zone.

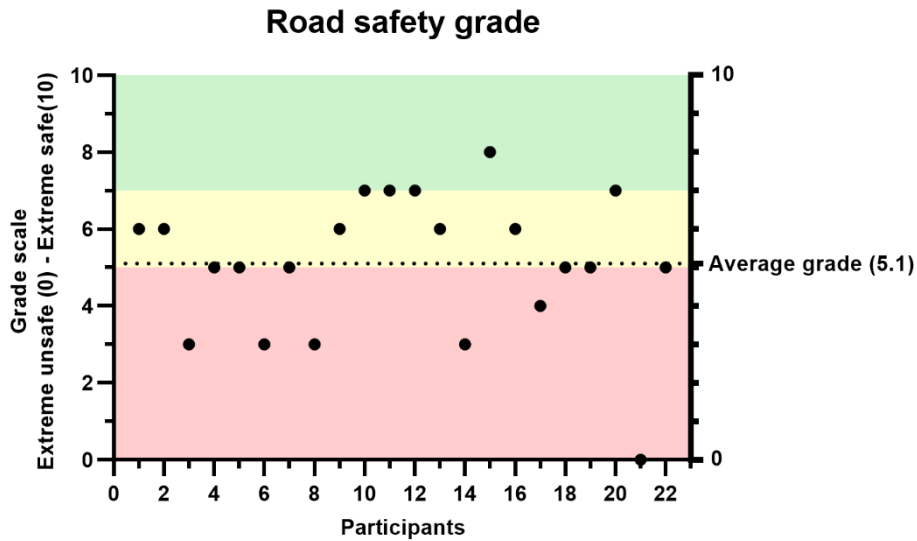


Figure 4: The local residents' perception of road safety expressed in a grade

The area manager

From within the municipality, the area manager is the contact person for schools and other stakeholders regarding the design of the school environment. The area manager is responsible for the design and management of the public space in his municipality. This actually concerns everything that can be seen outside except the real estate. He is responsible for the design of the roads, greenery, lighting, sewerage and trees and is a point of contact for residents, village and district councils, companies and schools. In addition, he is also the manager of the maintenance specifications. This includes mowing, brushing and sweeping the pavement. Small reports are handled by the field service, such as a loose tile or a branch that blows from a tree. The area manager is called in for matters for which a plan or study has to be made. Thus, an area manager can be seen as a director who has the overarching overview of everything that happens in a certain area.

The area manager contributed to road safety at primary school 't Ravelijn by coming into contact with the school after various complaints. The traffic situation with the pick-up and drop-off of the children was experienced as unsafe. According to the area manager, the street would already be tackled, because the sewage system needed to be replaced. The street next to primary school 't Ravelijn has now been completed and a kiss & ride strip has been realised. The area manager himself has occasionally visited the school, but does not see any particularities there compared to other schools. He has made adjustments to the signage of the kiss & ride strip. He thought that it is feasible to use the kiss & ride strip correctly in the morning, but not in the afternoon, because parents often come earlier and children sometimes come out later. The area manager thinks the signage in a number of streets around primary school 't Ravelijn is still inadequate. He has indicated that even more signage will be added, so that it becomes clearer when the no-parking zone starts and when this zone ends.

“People are often a bit rushed and they all want to park in front of the school, because there is actually plenty of parking space further down the street, but then again people don't want to walk 10 or 20 or 30 meters. They all want... because they are often late... then they want to park in front of the door and quickly go back to work or where they need to go. So yeah, there's always a bit of a rush factor and a laziness factor that people all want to park next to the schoolyard anyway. Actually, all the situations or the hassle that arises at that school can be traced back to people's behaviour for 90-95%.” – Area manager (See supplementary information. Transcript 5, p. 67-68. Line: 2311 – 2312, 2315 – 2321).

The community officer

The community officer is the intermediary between citizens and the police. He is the first point of contact for citizens if they have questions or encounter (less urgent) problems. If necessary, the community officer approaches other partners from his network to solve the problem and to help the citizen(s) as best as possible.

The community officer has spoken to the (former) director of primary school 't Ravelijn and indicated that if he is needed to assist in the school zone, they can always reach him. If the community officer normally receives a notification regarding parking policy, he asks his colleagues from surveillance and enforcement to go to that location. He does not concern himself with parking policy, but he does think that he should be visible every now and then in the vicinity of schools. So far, the community officer has not had any complaints from primary school 't Ravelijn about nuisance or other matters. The community officer believes that the school should first work with the parents to find a solution before fines are handed out.

“Usually when we are at a school, very little happens that goes wrong.” – Community officer (See supplementary information. Transcript 3, p. 42. Line: 1404).

The enforcers

The areas in the municipality of Oss are divided among the enforcers. There are two enforcers who check the area where primary school 't Ravelijn is located. The task of the enforcers is to pick up reports in their area. On a daily day, enforcers often check the hot spots. Hotspots are places with a lot of reports about traffic nuisance, loitering youth or nuisance caused by garbage or dogs. Primary schools are generally not seen as hotspots, because the enforcers receive few reports about them.

The two enforcers are new in the area and have been given the task of overseeing the entire outlying area and also two neighbourhoods. It is a large area for the enforcers and each area requires a slightly different way of enforcement. The enforcers find it important that cars do not park on the sidewalk or next to a zebra crossing in school zones.

“We are happy to collaborate if there are problems. We want to make children feel safe, because that's what it's all about. That it's safe for the neighbourhood and the children.” – Enforcers (See supplementary information. Transcript 7, p. 113. Line: 4018 - 4020).

Project manager Veilig Verkeer Nederland

The main goal of Veilig Verkeer Nederland is that everyone can drive safely on the street (VVN, 2021). They do this by helping people and organisations in a way that they, themselves can easily contribute to road safety. Veilig Verkeer Nederland is often asked by schools in cases where the school itself has already tried everything to improve traffic safety around the school, but were unable to do so. It also happens that the school receives a proposal from the municipality to cooperate with Veilig Verkeer Nederland.

The contribution that Veilig Verkeer Nederland has made to road safety at primary school 't Ravelijn is more awareness among parents of their own traffic behaviour by means of a traffic film and a survey that has been set up. Veilig Verkeer Nederland discussed the results of the survey and the wishes that flowed from the survey with the traffic working group and the municipality. The municipality has adapted the physical design of the school zone at primary school 't Ravelijn. The desired traffic flows and traffic behaviour rules that are preferred in the new situation have also been

discussed by Veilig Verkeer Nederland together with the traffic working group and the area manager. For this new traffic situation, Veilig Verkeer Nederland has made a postcard containing traffic behaviour rules that are desirable in the school zone (See appendix E). Finally, an action list has been drawn up by Veilig Verkeer Nederland and the traffic working group. The school can use this action list to draw attention to the desired traffic behaviour and to keep this desired traffic behaviour under attention. Veilig Verkeer Nederland has also given the traffic working group various advices for the future.

“There are a lot of parents at primary school 't Ravelijn who come by bicycle. In my experience because the last time I was there and I thought yes ... you know, depending on the circumstances, it is going very well. But that's probably also because of course I'm in a lot of places where it's much, much worse. But I can't pronounce that. You know, every school has its own experience, but of course I go to several schools. And I can join a school and then I really think what are we talking about. Those few cars that were parked wrong. I always say that the majority of parents are doing just fine. It's a small part that doesn't do it right. And that's what we do it all for, but the majority of parents stick to the rules and they just do it well.” – Project manager Veilig Verkeer Nederland (See supplementary information. Transcript 6, p. 87, 96. Line: 3084 - 3087, 3089 – 3091, 3400 - 3401).

6.2 Relations and dynamics

This section contains an elaboration of the relations and dynamics between the various stakeholders, who all benefit from a traffic-safe school zone at primary school 't Ravelijn. The relations between the stakeholders are visually represented in figure 5. In mid-2020, a trajectory was started at primary school 't Ravelijn in collaboration with Veilig Verkeer Nederland to improve road safety in the school zone. The trajectory was temporary and now primary school 't Ravelijn is working on road safety in the school zone on its own again. Appendix D shows the current relations between the stakeholders without Veilig Verkeer Nederland. This is the usual situation at primary school 't Ravelijn.

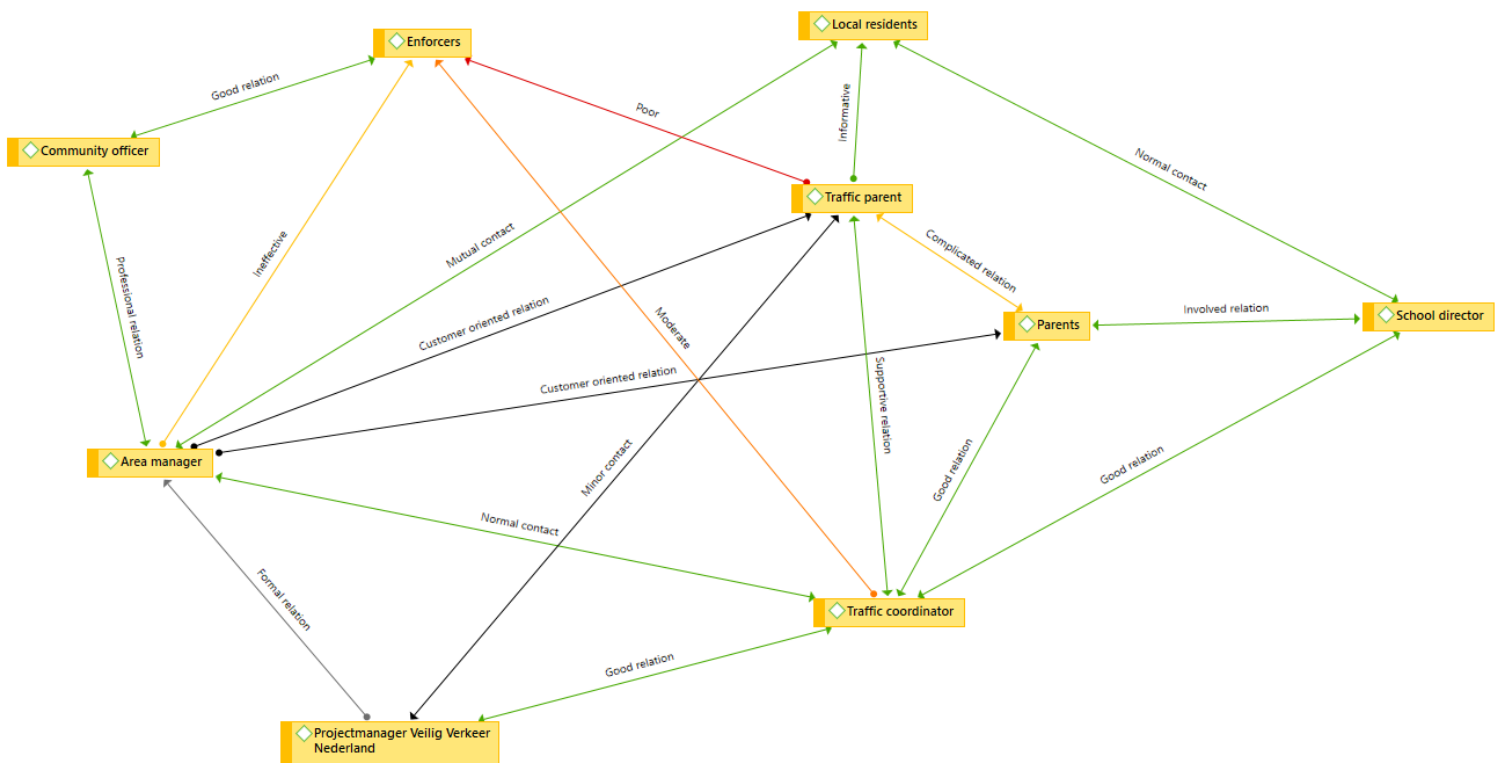


Figure 5: Stakeholder relations including VVN

The arrows in figure 5 contain different colours namely: grey, green, yellow, orange and red. The colour green means that the contact between the stakeholders is good and smooth. Yellow means that the contact is not always smooth, but still good. The colour orange indicates that the contact can be improved. Then the colour red which indicates that the relationship and communication is bad. Finally, the colour grey indicates that the relationship is professional and stable. Appendix C contains the analysis of the relations per stakeholder.

Project manager Veilig Verkeer Nederland

The trajectory would actually be done by primary school 't Ravelijn and also by the other primary school with which the building is shared. However, this other school announced at the time that it was not interested in the trajectory. During the whole project, the project manager of Veilig Verkeer Nederland had good contact with the traffic coordinator of primary school 't Ravelijn. In figure 5 the arrow between the project manager and the traffic coordinator is therefore shown with a green colour. Together they discussed the traffic situation and the project manager directed to distribute the survey

among the parents. Due to Corona, the traffic coordinator and the project manager jointly decided to postpone the survey, because it was not realistic to set out an action plan immediately afterwards. Ideally, a school would like to be able to take action immediately after the results of a survey are known. The relation was good and they kept each other informed. In addition to the traffic coordinator, the project manager also had contact with the area manager during the process. Whenever the project manager had agreed something with the traffic coordinator, the area manager was informed by e-mail. The contact between the area manager and the project manager was very formal. This is shown in figure 5 with a grey arrow. The project manager normally has projects in Limburg, where contact with the municipalities is much more informal. In Limburg municipalities, the project manager knows the most people, because she has often worked with them and there is confidence in each other that the process will go well. The project manager describes the contact with the area manager as "different" and in her opinion he showed little understanding for the Corona situation that was playing at the time. The project manager of Veilig Verkeer Nederland had taken over this trajectory from a colleague from Brabant, because he simply did not have time for this. By the time the project manager came into contact with the area manager, the Stationsingel had already been adjusted. The project manager had suggested to focus more on the behavioural side of the trajectory, because the street was already finished anyway. As soon as the surveys were distributed and the results were known, the project manager invited the traffic coordinator, the project manager and the traffic parents to discuss further actions. The one-time physical consultation at primary school 't Ravelijn was positive, according to the project manager. The project manager experienced the meeting as a good, constructive consultation between her the area manager, the traffic parents and the traffic coordinator. The analysis of the relations that the project manager has with the other stakeholders is presented in appendix C.

The area manager

During the process, the area manager had more contact with the school, the traffic coordinator and the traffic parents than usual. In addition, he also had contact with the project manager of Veilig Verkeer Nederland during this process. The area manager has also been in contact with the former school director of primary school 't Ravelijn. There has been no contact with the current school director of primary school 't Ravelijn about road safety in the school zone. The area manager assumed that Veilig Verkeer Nederland would advise on the infrastructural design of the school zone, because the street next to the school would be completely renovated. However, there has been miscommunication about this and in the end this did not happen. The area manager therefore made the new design of the street with his colleagues without the advice from Veilig Verkeer Nederland, which would also include the wishes of the school and parents, because he had a tight schedule. The relationship between Veilig Verkeer Nederland and the area manager was somewhat difficult, especially with regard to the communication. At the start of the process, Veilig Verkeer Nederland showed little initiative and ignored the request of the area manager to send an expert who would think along about the infrastructure. The area manager also expected to receive the results from the parents' surveys sooner, so that he could include this information in the street design. The area manager didn't understand that it had to take so long. The area manager has expressed his dissatisfaction about this to the project manager several times. The relationship improved at the end of the process, but the area manager found it a bit disappointing and he had expected more input from Veilig Verkeer Nederland with regard to the design of the street.

Outside the trajectory, the area manager occasionally has contact with the traffic parents if they approach him about matters where they are not satisfied with. The area manager indicates that he thinks along with the traffic parents and ultimately makes a decision that is best for everyone. The area manager understands that he cannot satisfy everyone with his decisions, but he is used to that. He sees the relationship between him and the traffic parent as good. This also applies to the relationship with the local residents. They also sometimes have requests and the area manager likes to think along with them. The area manager is also in contact with the community officer. The area manager has monthly consultations with various municipal authorities, in which the community officer also participates. They know each other and know where to find each other if necessary. The area manager is less positive about the enforcers. He has sometimes made requests to check a school, but the enforcers don't come at the right time or are dressed too conspicuously, so that people automatically behave better.

The traffic coordinator

The traffic coordinator has contact with the school director, the (traffic) parents and the area manager. During the process, the traffic coordinator on behalf of the school had the most contact with the project manager of Veilig Verkeer Nederland. The traffic coordinator kept the traffic parents informed about the matters that she discussed with the project manager or the area manager during the trajectory. The relationship between the area manager and the traffic coordinator is good. She has no structural contact with the area manager, only if necessary. During the trajectory, the traffic coordinator had more contact with the area manager than outside it. The relationship between the traffic coordinator and the school director is good. The school director considers traffic activities important and has a positive attitude towards them. The traffic coordinator makes important decisions regarding traffic in consultation with the school director. There is a positive dynamic between the two. The traffic coordinator is of the opinion that the enforcers can do more for the school by, for example, checking the school zone more often at peak times. There is no direct contact between the traffic coordinator and the enforcers.

The traffic parents

The traffic parents have a good relationship with the traffic coordinator. Together they form a good and strong team. Together they discuss the traffic actions and traffic planning and they have a meeting about two to three times a year. There is a safe and confidential atmosphere and both the traffic parent and the traffic coordinator fully dare to express their frustrations and wishes. They know what to expect from each other as they have been working together for a while now. There is a good and positive atmosphere between the traffic parents and the traffic coordinator. The traffic parents have not yet spoken to the school director about traffic matters, but they do plan to consult with them in the future. The traffic parents sometimes inform the local residents about the fact that they are working on road safety, but otherwise there is no relation between these stakeholders. The traffic parents contact the area manager if they see improvements in the public space. The traffic parents find it a pity that they are little involved in the designs about public space, because they would like to contribute ideas. The relationship between the traffic parents and the area manager is not always ideal from the perspective of the traffic parents. The traffic parents once had contact with project manager of Veilig Verkeer Nederland. That contact was good, but they do not speak to each other further. The traffic parents think that the enforcers should visit the school zone more often at peak times and then address people. There is no direct contact between the traffic parents and the enforcers.

The school director

The school director has a good relationship with the traffic coordinator and with the parents of the school. The lines of contact are short between the parents, the children and the school team. The school director plans to have contact with the traffic coordinator in the future about shaping traffic policy and how the parents can be permanently involved in this. If the school director receives complaints from local residents, she informs the parents about this and makes a request to adjust their behaviour. The school director has also been in contact with the school director of the other school so that both schools inform their parents about the incident. The contact between her and the school director of the other school is good.

The parents

The parents are very involved in the school and most parents have a good relationship with the school director and the teachers, including the traffic coordinator. Most parents approach the school director if they have complaints about traffic safety in the school zone. Some parents approach the area manager if they have complaints that they think are caused by public space. Most parents are not aware that the school has two traffic parents.

The local residents

Local residents approach the school director if they have a complaint. This happens incidentally. There is no real relationship between the stakeholders. Local residents also have contact with the area manager if they have complaints about the public space.

The community officer

The community officer maintains relationships with the enforcers and the area manager. They meet with a core team of various municipal authorities every month. During the core team meeting, not only police matters are discussed, but also other matters that occur in an area such as a building that needs to be renovated. The relationship between the community officer and the area manager is good. The community officer understands that the municipality does not want to realise many parking spaces at a school for a few peak moments per day. The community officer supports the area manager in his choices and considerations that are made for situations. The relationship with the enforcers is also good. There are short lines and they also have a WhatsApp group together. If there are problems, they can easily and quickly get in touch with each other and support each other in situations.

The enforcers

The enforcers have a good relationship with the community officer. The enforcers are very satisfied with the contact and they know how to reach each other in case of problems. The enforcers are also present at the core meeting where the community officer and the area manager are present. Beyond that, there is no real relationship between the enforcers and the area manager. When the trajectory started at primary school 't Ravelijn, there was some dissatisfaction among the former enforcers. They mainly had to enforce Corona measures and parking policy and the work pressure was high. As a result, they were less able to do the things that the enforcers themselves liked most. There was also dissatisfaction with the level of salaries. In the area where primary school 't Ravelijn is located, two enforcement officers have just started. They have a large area to supervise. When new enforcers are hired in the future, the two enforcers pass on a few neighbourhoods. It is therefore expected that the area of the two enforcers will be smaller in the future. The current two enforcers are satisfied with the municipality and their policy.

6.3 The strategies

Each stakeholder has a strategy based on its own role and insight in the process towards more road safety in the school zone. Most of the information for this section comes from the interviews. The strategies of the local residents and the parents were determined by the researcher on the basis of the output of the surveys. In addition, the resources available to primary school 't Ravelijn to improve road safety in the school zone are also discussed.

The traffic working group

The aim of the traffic parents and the traffic coordinator is to prevent accidents in the school zone. They want to achieve this goal by drawing attention to road safety and the traffic behaviour of parents that plays a role in this. The traffic working group do this by devising and perform playful traffic actions in which good traffic behaviour is rewarded and by organising traffic activities with children. In addition, traffic parents address other parents about their undesirable traffic behaviour. The traffic working group is also in contact with the area manager about improvements in the street in case they see improvements. The traffic parents like to work with parties and stakeholders who have more authority and experience than they do as a traffic parent. The traffic parents think it is therefore sensible to work together with the school director and a party such as Veilig Verkeer Nederland.

The school director

The school director uses the core values of the school as a basis. These core values are also central to the strategy to improve road safety in the school zone. The director believes that not only the school, but also the parents and the children are responsible for this. Thus, the director's strategy to tackle road safety is to do it together with the parents and children. The school director wants to involve parents and children, because working together is the strength of primary school 't Ravelijn.

The area manager

The municipality does not structurally monitor road safety in school zones. This is done on the basis of a so-called 'beep' system. This means that if the municipality receives many complaints or wishes about a school zone, it will be monitored. The area manager then collects information about complaints and wishes in a school zone and then makes a proper assessment of interests. When weighing up interests, the budget and the extent to which the adjustments can be made are also considered. Ultimately, a solution is realised that benefits as many people as possible. Projects with a technical necessity are given priority by the municipality. Thus, if someone only asks for adjustments to the public space above ground, then this is subordinate to projects that the municipality takes an integral approach i.e., projects that are tackled both above ground and below ground.

The community officer

The community officer regularly shows his face at school zones in his area. The community officer takes action in school zones if a school asks him for help if things are not going well in the school zone and parents repeatedly fail to comply with the agreements made. The next step for the community officer is to address parents in the school zone about their undesirable traffic behaviour. The community officer does this himself or asks enforcement, especially if it is aimed at illegal and incorrect parking. If it turns out that addressing parents about their undesirable traffic behaviour is not sufficient then the community officer will issue fines.

The enforcers

Enforcers mainly focus on the parking policy at locations where incorrect parking often occurs. The procedure with regard to schools is that the enforcers do not structurally check school zones, because

usually few reports of nuisance around schools are received by the enforcers. If a school explicitly asks the enforcers to help with problems surrounding the school, the enforcers will discuss this first with the school and decide together how they will tackle the problem. Together with the school, it is then decided whether fines will be handed out immediately or whether only addressing the parents is sufficient. Enforcers themselves often prefer a calm approach to draw the attention of the parents to their undesirable traffic behaviour.

Project manager of Veilig Verkeer Nederland

Veilig Verkeer Nederland focuses on behaviour. In projects related to road safety in the school environment, the organisation strives to influence traffic behaviour in such a way that as many children as possible eventually walk or cycle to school. This influencing of behaviour is stimulated by means of a positive approach. What works well is making a traffic film with children who indicate in certain places in their school zone what traffic behaviour they would like to see from others. This is an example how Veilig Verkeer Nederland tries to make parents aware of their own traffic behaviour, so that they know exactly what their own traffic behaviour means for others in the school environment. In order to achieve the goal, it is also customary for Veilig Verkeer Nederland to send parents a survey. The questions are designed in such a way that parents think about their traffic behaviour. In addition, the organisation supports traffic working groups at schools in devising creative actions to further influence the traffic behaviour of parents. It is also discussed with the municipality whether any adjustments are necessary in the public space. The traffic flow is also examined with the municipality and the traffic working group. The traffic situation may be adjusted and Veilig Verkeer Nederland ensures that the new traffic situation, including the desired traffic rules, is visualised on a postcard. Schools can then give this postcard to their current parents and to future parents. In the behavioural change approach of Veilig Verkeer Nederland, enforcers are asked as the very last option if nothing else works.

The local residents and parents

Most local residents try to drive quietly in the neighbourhood and avoid the peak times of the school. If they have complaints about traffic in the school zone, they express them at the municipality or at the school itself. Some local residents indicate that the school or the municipality is not doing anything about their complaints. In addition to the local residents, the parents indicated in the surveys that they try to go to school by foot or by bicycle.

Resource's primary school 't Ravelijn

The school has a limited budget to carry out traffic activities. Choices should be made in the reward actions that can be done with parents because of the costs. The postcards made in collaboration with Veilig Verkeer Nederland have been in the drawer of the traffic coordinator for months. There was no time yet to hand these out to the parents. The traffic coordinator cannot carry out traffic-related activities alone. The support of the traffic parents is very much appreciated.

An overview is given of the different strategies of the stakeholders in table 7.

Table 7: Overview of stakeholder strategies (own design, 2022)

Stakeholder	Strategy	Quote
The traffic working group (The traffic parents and traffic coordinator)	The traffic working group draw attention to road safety in the school zone among parents by rewarding good traffic behaviour and asking the other parents to show better traffic behaviour. The traffic working group also organises traffic activities with children. In addition, the traffic coordinator ensures that there are current and instructive traffic lessons at the school.	“In any case, we consult with the school director and we have that road safety label... for which you have to do a number of things every year. Well with Corona it has been a bit quiet, but in principle there are a number of projects that are organised every year... for example such a blind spot project or a crossing project.” (See supplementary information. Transcript 1, p. 25. Line: 776, 779 - 781).
The school director	Working together, because both the parents and the children are also responsible for road safety in the school zone. In doing so, the school director strives to empower her team and the parents.	“In everything I do, I always link it to the vision of the school and I involve the entire team. I really enjoy empowering people.” (See supplementary information. Transcript 4, p. 46. Line: 1564 - 1565, 1567 - 1568).
The area manager	The area manager looks into people's complaints and wishes with regard to the (re)design of an area. A solution is realised that ultimately benefits most people. Integrated projects are given priority.	“Look when we see or hear that there are still improvements possible and that these improvements can all be realised with not too much effort and financial resources, then we as a municipality are always positive about this and are willing to think along about it.” (See supplementary information. Transcript 5, p. 68. Line: 2330 - 2332).
The community officer	The community officer is easily approachable and is available if the school asks him for help. He forwards requests regarding parking policy to the enforcers.	“I have told the school that they can contact me if they need me.” “So, the enforcers are actually the first to be directed to see whether they should act, but it is always useful to show your face as a community officer, because yes you do work together and the police usually have a slightly different appearance than enforcers, I think.” (See supplementary information. Transcript 3, p. 43. Line: 1454 - 1455).

The enforcers	Enforcers only check school zones at the request of schools. In the first instance, the enforcers always opt for a calm approach towards the parents, because that usually works best.	“There is a school in the South district. There are many problems. We did hand out fines there once, because people stand in the driveways of residents. There had been several warnings there. That had no effect. That’s the only time I can remember we handed out fines at a school. “ (See supplementary information. Transcript 7, p. 112. Line: 3977 - 3981).
The Project manager of Veilig Verkeer Nederland	Veilig Verkeer Nederland focuses on influencing people's traffic behaviour in a positive way.	“Of course, we go for behavioural actions... for awareness. If that doesn't work at all, the enforcers come into the picture. “ “Hey, we’re not into handing out fines right away, because then you won't solve anything at all. You don't do anything with the behavioural side at all if you approach it that way.” (See supplementary information. Transcript 6, p. 86. Line: 3036 - 3037, 3046 - 3047).
The parents	Most parents indicate that they come by foot or by bicycle, but not everyone can or does this.	
The local residents	Most local residents drive calmly and avoid peak times around school. Some local residents would like to see the enforcers come more often.	

6.4 The performance of the collaborations

This section contains an elaboration of the performance of the collaborations between the stakeholders. The first part shows the mutual strategies between stakeholders. Then a distinction is made between successful collaborations and less successful collaborations.

Table 8: Overview collaborations between stakeholders (Own design, 2022)

Stakeholder	Collaborations with
Project manager Veilig Verkeer Nederland	<u>Temporary collaboration:</u> Traffic coordinator, Area manager and Traffic parents
Area manager	<u>Structural collaboration:</u> Community officer <u>Ad-hoc collaboration:</u> Traffic coordinator, (Traffic-)Parents, Local residents. <u>Temporary collaboration:</u> Project manager Veilig Verkeer Nederland
Traffic coordinator	<u>Structural collaboration:</u> Traffic parents, School director <u>Ad-hoc collaboration:</u> Parents, Area manager <u>Temporary collaboration:</u> Project manager Veilig Verkeer Nederland
Traffic parents	<u>Structural collaboration:</u> Traffic coordinator <u>Ad-hoc collaboration:</u> Local residents, Area manager, enforcers <u>Temporary collaboration:</u> Project manager Veilig Verkeer Nederland
School director	<u>Structural collaboration:</u> Traffic coordinator and Parents <u>Ad-hoc collaboration:</u> Local residents
Parents	<u>Ad-hoc collaboration:</u> School director, Traffic coordinator, Traffic parents and Area manager
Local residents	<u>Ad-hoc collaboration:</u> School director and Area manager
Community officer	<u>Structural collaboration:</u> Area Manager and Enforcers
Enforcers	<u>Structural collaboration:</u> Community officer

So far, we have discussed the different stakeholders, their contribution and the relations and dynamics between them. In addition, the strategies of the stakeholders have become clear. Figure 8 provides an overview of the collaborations between the various stakeholders described earlier in chapter 6.2. The overview also shows whether these collaborations are temporary, ad-hoc or structural.

In chapter 3.6 it became clear that there are three different dimensions for a successful collaboration (Newig et al., 2017). The first dimension for successful collaboration according to Newig et al. (2017), is the breadth of involvement in the process. All stakeholders involved must have the ability to participate in the process. At primary school 't Ravelijn, many different stakeholders are involved in improving road safety. Even the project manager of Veilig Verkeer Nederland is involved, who supports the school and the municipality in this process. The second dimension relates to communication and collaboration. This concerns the intention, manner and direction of information flows. In section 6.4.2 it becomes clear that good communication and keeping each other informed is very important for a successful collaboration. The third and final dimension for successful collaboration relates to power delegation to participants. This refers to the degree of influence that participants have on the decisions to be made. Section 6.4.3 lists the less successful collaborations between the stakeholders. It emerges from this section that if stakeholders cannot influence the situation and the decisions are made for them, it is more difficult for them to accept these decisions than if they could influence the decision.

6.4.1 Mutual strategies

From the current collaboration, various stakeholders indicate independently that the school is the most important player in the approach to more road safety in the school zone. In the first instance, the school can best tackle road safety with the children and the parents. In addition, several stakeholders indicate that the school could ask for the help of an organisation such as Veilig Verkeer Nederland. These stakeholders also share the same strategy and these have proven to be successful. The degree of success is described in 6.4.2.

“Yes, I think the school is of course number one anyway, because of course they know what the situation is. The school knows those people and you name it all. The school controls it all. And yes, I think that, for example, just like a project like this, for example from Veilig Verkeer Nederland, let's say they support them because that is their expertise, they can look a bit at the situation and give tips about it. So, I think that especially Veilig Verkeer can support when it comes to the road safety situation and the school that carries out the assignment, because they must of course transfer it to the citizens, but also to me or to the enforcers. If they need something, it also comes from the school. So, I think it's best for these two parties to do that initially.” – Community officer (See supplementary information. Transcript 3, p. 44-45. Line: 1495, 1497-1500, 1502-1506).

“Well especially, because it really concerns the behaviour of parents... and children. You can't blame children too much, but especially parents. Yes, I would say that certainly for the behaviour at school with picking up and dropping off that it really is Veilig Verkeer Nederland together with schools ... yes, they can educate those parents in this. The design of the street is not always or yes... I dare say that the design is almost never the cause, I think.” – Area manager (See supplementary information. Transcript 5, p. 78. Line: 2719-2722, 2724).

“We really are the party they ask for. They know us and we are independent. Of course, we have the education line. We simply have more and more experience. And yes, they just like that a 3rd party that has no interests helps them with road safety... they like that. We are independent. The only thing that matters to us is safety. That's what we're dealing with. And we do not concern ourselves with political interests and situations. There is a lot of acceptance of what we just say. For example, if we indicate reasons why it is more sensible not to set a threshold, then residents will accept it better than if a municipality says so.” - Project manager Veilig Verkeer Nederland (See supplementary information. Transcript 6, p. 97. Line: 3456, 3458-3463, 3466-3468).

“Yes, it's going to be a bit of an open door, but I think that we can best tackle road safety together. I really think if we feel involved in this together and feel responsible for it. Yeah, I really think that's the point. And in practice this just works, because how else can you all make sure things go well? Yes, then you have to feel involved and responsible, otherwise you don't care. And we are really a triangle unity in that. We as school, the parents and the children.” – School director (See supplementary information. Transcript 4, p. 58. Line: 1987-1988, 1992-1994, 1997-1999).

6.4.2 Successful collaborations

The research has shown that there are three successful collaborations. These three are:

1. Collaboration between the project manager of Veilig Verkeer Nederland and the traffic coordinator

The communication and collaboration between the project manager and the traffic coordinator went very smooth. They took the time to listen to each other and they were both enthusiastic. The project manager supported the traffic coordinator and gave her advice. The traffic coordinator felt supported by this and it gave her the feeling that she was doing a good job. Both felt that it was inappropriate to distribute the survey to parents during the lockdown, as it was unrealistic to immediately draw up an action plan afterwards. It can be said that this cooperation has been successful, because both spoke positively about each other and about the way of working together.

In concrete terms, this collaboration has resulted in the following: a fact sheet with insights into the opinions of the parents, an action plan, insights and tips and a postcard. The postcard is shown in appendix E.

2. Collaboration between the school, the parents and the children

It emerged from the interview with the school director that the school forms a strong three-unit together with the parents and children. The school considers the involvement of parents and children very important, as well as doing business together. In addition, the school tries to emphasise the responsibility of the parents, the children and the school and the contribution that everyone makes. The school director believes that the school has a good relationship with each other and that things work well together. At the beginning of every week there is a week opening where the school team opens the week together with the children and the parents. The school tries to involve the parents as much as possible in the school and the development and activities that the children do there. The school director also wants to do more together in the field of traffic. The traffic parents have been informed by the traffic coordinator that the school director is enthusiastic about tackling road safety in the school zone and also considers it important. The school director prefers to leave the execution and devising of the traffic activities mainly to the traffic coordinator and the traffic parents. The traffic parents hope that the school director will use her position in the future to advocate for road safety. For example, by addressing parents about their traffic behaviour if this is necessary.

3. Collaboration between the community officer and the enforcers

The community officer indicated in the interview that he has met the two new enforcers and discussed their preferences and how they want to handle things. He is now aware of what they will do and how they will proceed. In addition, they have a WhatsApp group together and they can easily reach each other if necessary. The contact lines are short. The enforcers also indicated that the relationship between them and the community officer is good.

A number of similarities are visible from the successful collaborations. The similarities are: good communication, involvement, informing each other, structural contact, positivity, investing in each other, enthusiasm and having the same interests.

6.4.3 Less successful collaborations

In addition to the successful collaborations, the research also revealed less successful collaborations. There are three less successful collaborations:

1. Collaboration between project manager of Veilig Verkeer Nederland and the area manager

It emerged from the interview with both the project manager from Veilig Verkeer Nederland and the area manager that the collaboration did not always run smoothly. Veilig Verkeer Nederland communicated little at the start of the process, according to the area manager. The area manager was under the assumption that an infrastructure specialist would look at the layout of the street. The area manager had expected more and was disappointed that Veilig Verkeer Nederland did not contribute to this. In addition, the area manager believes that he was not properly included during the process. And he found that it took a long time before the results of the parents' survey were presented. The project manager and the area manager had never worked together before, so they didn't know each other beforehand. They also hadn't discussed a precise schedule or made arrangements for when they would be in touch again. The project manager felt that the area manager showed little understanding during the lockdown, which is why she sometimes found contact with the area manager difficult. According to the project manager of Veilig Verkeer Nederland, a project is successful if parents themselves think about issues related to road safety and implement these themselves together. It is therefore not successful if she carries out the matters herself as project manager. The process is also successful if the feeling of road safety is increased among the parents, children and the school. The project manager could not force the school to distribute the survey to parents and is therefore dependent on the school. She had no influence on the situation.

2. Collaboration between the traffic working group and the area manager

It emerged from the interview with the traffic parent that the traffic working group had no say in the design of the new street. The traffic working group find certain things strangely conceived and they do not understand the logic of it. First of all, the name of the kiss & right strip. This name is not in English, but in Dutch on the signage. The traffic parent believes that "zoen & zoef" suggests speed and that is something you don't want in a school zone. In addition, the times on the signs are also very confusing to explain to the other parents, according to the traffic parent. The traffic parents were under the assumption that it was not allowed to park in the afternoon on the kiss & right strip, because there is a traffic sign indicating that a parking ban applies. According to the area manager, parking is allowed in the afternoon, which is very unclear according to the traffic parents.

Another complaint about the street is the fact that many parents park their car on the roadside despite the parking ban. The traffic parent would have liked to see posts in the roadside that would make it impossible for motorists to park there. However, the area manager believes that this is an

additional collision hazard and that it is less efficient for maintaining, for example, mowing the roadside.

A final complaint that a traffic parent has concerns the height of the kiss & ride strip. This strip is on the same level as the sidewalk where children walk. The traffic parent finds this very unsafe, because a car often comes across the pavement with its front. The traffic parent would have preferred to see a difference in height between the sidewalk and the kiss & ride strip. The area manager believes that a difference in height can cause a tripping hazard, causing a child to break his ankle in the worst case. In addition, the area manager believes that motorists themselves also have a responsibility.

The researcher's observations also show that several parents park their cars on the roadside. This is visible in figure 6. The parking ban is visible in the same figure. The red sign indicates the kiss & ride strip with the times for which the kiss & ride strip applies. There is plenty of parking a little further away, but parents prefer to park their car closer to school.



Figure 6: Incorrect parking (Own pictures, 2022)

In figure 7, the picture on the left shows the equality of the sidewalk and the kiss & ride strip. One of the entrances towards the schoolyard is located between the sections of the kiss & ride strip. If the kiss & ride strip is full of cars, children have less overview. However, most children who come by bicycle use the entrance behind the kiss & ride strip. The picture also shows that parents place their family bike right next to the entrance.



Figure 7: Visibility and height of the kiss & ride strip (Own pictures, 2022)

3. Collaboration with the enforcers

Various stakeholders, including the traffic parents, the traffic coordinator and the area manager, believe that the enforcers could do more for road safety at primary school 't Ravelijn. There was a lot of dissatisfaction among enforcers around that time. The municipality thought that enforcers should mainly focus on violations of the Corona rules and the parking policy in busy locations. This also generates income for the municipality. The previous enforcers have left and there are now two new ones in the area where primary school 't Ravelijn is located. The enforcers have a large area, so they cannot be everywhere at once. The current enforcers have not had any contact with the school yet. Enforcers often only take action at schools if schools themselves request it. However, this was not the case with 't Ravelijn.

A number of similarities can also be identified from these less successful collaborations. The similarities are: Different expectations, poor communication, no agreements, little involvement, not knowing each other (well), little trust, confusion, focus on the negative.

7. Conclusion and recommendations

7.1 Conclusion and recommendations

This research was conducted to answer the question: *“How do stakeholders successfully, collaboratively improve active mobility and road safety in the Dutch primary school zones?”*.

To answer this research question, four sub-questions were formulated, which were examined during the research. The Dutch primary school 't Ravelijn in the municipality of Oss was the case study for this research. The data was collected through interviews, observations and surveys. Below are the conclusions of the research results for each sub-question, in which the conclusions of sub-questions 1 and 3 have been combined.

Sub-question 1 maps out the various stakeholders and their roles and positions. **Sub-question 3** relates to the strategies of the stakeholders.

This research has shown that the number of stakeholders involved in the Dutch primary school zones is diverse. The different stakeholders within this research are: the school director, the traffic coordinator, the (traffic-)parents, the primary school pupils, the area manager, the community officer, the enforcers, the local residents and the project manager of Veilig Verkeer Nederland. The role, position and strategy of each stakeholder is explained below.

The school director is highly respected by the teachers, the parents and the children. The school director empowers people and therefore largely gives the responsibility for improving road safety in the school zone to the traffic coordinator. Furthermore, the school director keeps the school team and the parents aware of the agreements in the school zone regarding the pick-up and drop-off of the children and the parking policy. The school director's strategy is aimed at improving road safety in the school zone by working together as a school with the parents and the children.

The project manager of Veilig Verkeer Nederland acts as an intermediary between the school and the municipality. The project manager ensures that the wishes of the school and those of the municipality with regard to the design of the school zone come together. In addition, the project manager supports the school in drawing up a plan with creative actions to improve road safety in the school zone. The associated strategy is to make parents aware of their traffic behaviour through positive and creative actions that are devised together with children and carried out by them.

The area manager works from the municipality and ensures that the design of the school zone is clean and safe. The area manager is the contact person for schools and other stakeholders regarding the design of the school zone. He makes the final decision for the design and is also responsible for its maintenance. The strategy that the area manager uses is to make an inventory of the complaints and wishes of the stakeholders and then choose a solution that is supported by most stakeholders.

The traffic coordinator is a teacher who has been appointed at primary school 't Ravelijn and is responsible for most of the traffic-related matters. The traffic coordinator selects the traffic education packages that are given in each class by their own teachers. In addition, the traffic coordinator organises a number of traffic activities in order to maintain the traffic label that the school has. The strategy of the traffic coordinator is to include theoretical and practical traffic education and activities in school policy and to pay structural attention to this.

Traffic parents are parents who support the traffic coordinator. Primary school 't Ravelijn has two traffic parents who, together with the traffic coordinator, form a so-called traffic working group. Together they draw up a traffic annual plan with traffic activities and actions and realise most of these activities and actions together. The strategy of the traffic parents is to keep their eyes and ears open for undesirable and dangerous traffic situations in the school zone and to discuss these with the traffic coordinator or the area manager.

The community officer acts as an intermediary for the school, parents, local residents (the citizens) and the police. The community officer is the easily approachable contact person for the citizens and its strategy is to forward complaints related to the parking policy to the enforcers.

The enforcers mainly focus on keeping order in public areas, including the school zone. Two enforcers are responsible for supervising compliance with the traffic rules in the school zone of primary school 't Ravelijn. On a daily basis, these enforcers are mainly concerned with solving incoming reports. In addition, they mainly deal with hotspots (places with many reports). The strategy of the enforcers can be regarded as reactive, because they only act in the school zone if the school or the community officer asks for it.

The local residents are those who live in the vicinity of the school zone. The research shows that 68% of the local residents around primary school 't Ravelijn indicate that they can contribute to road safety. Many of these local residents contribute to road safety by driving calmly and avoiding busy school hours. If the local residents have a traffic-related complaint, they mainly report these complaints to the school or the municipality.

Most parents bring their child(ren) to primary school 't Ravelijn by foot or by bicycle. A small number of parents at primary school 't Ravelijn (15.2%) take their child(ren) to school by car every day. In addition to this group, the research shows that 26.1% of parents sometimes take their child(ren) to school by car. Parents who come to school by car play an important role in improving road safety, because their behaviour can create dangerous situations. In addition to the parents, there are also primary school pupils who play a role in road safety in the school zone. These children cannot be blamed if the parents decide that they are taken to school by car. At primary school 't Ravelijn the children learn traffic skills and they receive traffic education. The survey shows that 57,8% of the parents think that the school pays sufficient attention to traffic education and a safe school zone. In addition, 88,6% of the parents indicate that they themselves contribute to road safety in the school zone. Furthermore, 86.7% of the parents think that traffic parents are useful in making the school zone more traffic safe. However, 55% of the parents indicate that they are not aware of the fact that there are two traffic parents at primary school 't Ravelijn. Both the parents and the local residents rate the safety in the school zone with a score of 5.1.

The survey shows that 15.2% regularly comes to school by car. The literature gives 12% as an indication. In addition to that 15.2%, 26.1% of the parents occasionally come by car. So, at primary school 't Ravelijn the number of motorists in the school zone is relatively high, which could also explain the feeling of unsafety. Based on the results, it can be concluded that parents and local residents regard the school zone as unsafe, despite the fact that the street has been redesigned. This leads to the conclusion that the design of the school zone has not improved the road safety in the school zone. The school could contribute more to road safety, as only 57.8% of the parents think that the school contributes sufficiently to this. This percentage may be partly explained because less attention was

paid to it during the Corona time. It may help if the traffic working group does (visibly) more in the school zone. For example, the traffic parents could be more visible in the school zone, so that the parents can get a greater sense of safety.

Sub-question 2 relates to the relations and dynamics between the various stakeholders.

The school director works together with the (traffic-)parents, primary school pupils and the school team, including the traffic coordinator, on road safety. The school team, the parents and the children together form a trinity. These three stakeholders have regular personal contact with each other and can hold each other accountable for points for improvement. The school team is easily accessible for parents and children. The school director is satisfied with the open and positive contact between the school team, the parents and the children.

In 2020, at the request of the municipality of Oss, the project manager of Veilig Verkeer Nederland entered into a partnership with primary school 't Ravelijn to improve road safety in the school zone. During this collaboration, the project manager was in close contact with the school's traffic coordinator. The relationship was good and they regularly informed each other about the developments in the process. They understood each other and they had the same goals in mind, the communication was constructive. In addition to the physical appointments, they also had contact via email and telephone. The project manager informed the area manager about the developments within the project. They had little contact and most of the contact was via email.

During the trajectory that started in 2020, the area manager had contact with the project manager of Veilig Verkeer Nederland, the traffic coordinator and the traffic parents. Due to miscommunication with the project manager, the area manager did not include the ideas and wishes of the school and parents in the new street design. After the street had been redesigned, the project manager of Veilig Verkeer Nederland, together with the traffic coordinator, mainly focused on tackling undesirable traffic behaviour in the school zone. In the beginning the relationship between the area manager and the project manager was bad, but after the area manager got more clarity and expectations were adjusted, the relationship improved. In addition to this incident, the entire process towards more road safety in the school zone has also been delayed by Corona. The area manager felt that he was insufficiently informed by Veilig Verkeer Nederland about the delays, because he often did not hear anything from the project manager for a long time. After the parents had completed the surveys, an action list could be made for further improvements aimed at behaviour. When drawing up the action list, a physical meeting was organised between the project manager, the traffic working group and the area manager to exchange ideas. These stakeholders all contributed during the meeting and a constructive plan was drawn up. In addition to these stakeholders, the area manager has monthly consultations with various municipal authorities, in which the community officer also participates.

The traffic coordinator draws up a traffic plan together with the traffic parents at the beginning of the year. In addition, they meet about twice a year to discuss the progress of the traffic plan. The traffic coordinator informs the school director about this progress. If the traffic coordinator receives complaints from parents, these are discussed with the school director and a solution is then considered together. As discussed earlier, the traffic coordinator had good and regular contact with the project manager of Veilig Verkeer Nederland during the process.

In addition to the regular contact that the traffic parents have with the traffic coordinator, they also inform the local residents about agreements made with parents to make the school environment

liveable and safe. The traffic parents occasionally report complaints to the area manager. The traffic parents are not satisfied with the new design of the street, because unsafe traffic situations still occur. They also believe that their complaints are not being addressed. As a result, the contact between the traffic parents and the area manager does not run smoothly. Finally, the traffic parents are not satisfied with the enforcers, because they are not visible enough in the school zone at relevant times.

The community officer has monthly contact with the area manager during consultations with various municipal authorities in which they inform each other about developments in the municipality. The community officer is also in regular contact with the two enforcers who are responsible for the area that includes primary school 't Ravelijn. Together they have a Whatsapp group in which they keep each other informed of developments in the area and give each other advice.

The two enforcers maintain monthly contact with the community officer. There is no direct contact with the other stakeholders.

The local residents have no structural contact with the other stakeholders. They report complaints to the area manager or the school director. The last two stakeholders mentioned ensure that the complaints are resolved as good as possible.

Parents report complaints about road safety in the school zone to the school director, the traffic coordinator, the traffic parents or the area manager. The contact with each other about this is short and is handled quickly.

Finally, **sub-question 4** examined to what extent the collaboration between the stakeholders leads to mutual strategies and the success of these strategies.

Several stakeholders believe that the school has the most important position when it comes to tackling road safety. By organising actions, the school can make parents aware of their traffic behaviour. In addition, the school knows when it needs the help of other stakeholders, for example from an organisation such as Veilig Verkeer Nederland. This mutual strategy has proven successful, because the research shows that there are successful and less successful collaborations. There are three successful collaborations.

The first successful collaboration is between the project manager and the traffic coordinator. Both stakeholders have the same goal and have no different interests to take into account. In addition, they had regular contact with each other and there was mutual understanding for the slow progress of the process. They trusted each other and also trusted that the process would eventually succeed. These stakeholders share the same strategy aimed at making parents and children aware of their traffic behaviour to ultimately make the school zone safer.

The second successful collaboration is between the school (school director and teachers), the parents and the children. These stakeholders can approach each other quickly and easily, because they have a meeting every week. Together they share the responsibility for improving road safety in the school zone.

The third successful collaboration is between the community officer and the enforcers. Their collaboration is successful because they know what to expect from each other. Their mutual strategy is to approach the parents calmly and positively and this has proven to be a successful approach.

In addition to these successful collaborations, there are three less successful collaborations.

The first less successful collaboration is between the project manager of Veilig Verkeer Nederland and the area manager. Veilig Verkeer Nederland did not comply with the agreement made with the area manager due to miscommunication and this has caused confusion. In addition, the area manager was little informed and involved in the process.

The second less successful collaboration is between the traffic working group and the area manager. Their ideas were not included in the design for the new street. The traffic working group does not understand certain choices made by the area manager. Therefore, they ask the area manager for further adjustments.

The last less successful collaboration is between all stakeholders (except the community officer) and the two enforcers. The municipality has mainly instructed the enforcers to focus on the hotspots and the parking policy. The enforcers are not visible enough in the school zone. This leads to dissatisfaction among the other stakeholders.

These four sub-questions now provide sufficient insight to answer the main question. The **main question** is: *“How do stakeholders successfully, collaboratively improve active mobility and road safety in the Dutch primary school zones?”*.

The most important players in improving road safety are the school, the parents and the children. The school can make parents and children aware of their traffic behaviour and can ask other stakeholders such as the area manager, the community officer or Veilig Verkeer Nederland for help if necessary.

The research shows that each stakeholder has its own role and responsibility. Furthermore, not every stakeholder has the same amount of decision-making power and authority. In order to be able to work together successfully, a number of things are important.

First of all, communication is important. The research shows that clear and personal communication between stakeholders is important for success. Short lines between the stakeholders help with this. If stakeholders get to know each other and express expectations to each other, this is even more successful. Therefore, the second important point that makes the collaboration between the stakeholders more successful is when they listen to each other. This can be done at various levels, ranging from involving each other in developments to taking joint decisions. The research shows that if all stakeholders are involved in decisions, they value the collaboration and the end result more. In these cases, it can also be seen that these stakeholders have the same strategies and goals and express them to each other.

In summary, the following aspects are important for a successful collaboration to improve road safety in the school zone. These are:

- The number of stakeholders (make good and clear agreements);
- Different roles and positions (get to know and trust each other and create mutual strategies);
- Way of communication (provide short lines of communication between the stakeholders);
- Influence on decisions (involve each other in decision-making);
- Enthusiasm (ensure permanent support through shared enthusiasm).

Primary school 't Ravelijn is aware that, together with the parents and the children, they share a joint responsibility with regard to road safety in the school zone. The advice for primary school 't Ravelijn is to continue organising traffic activities and actions to make parents and children aware of their traffic

behaviour again and again. The advice is to always come up with new actions together with the parents and children and to let the children play a role in this. In addition, the advice for the area manager is to discuss the confusions that exist in the traffic working group about the choices made in the school zone and to listen to their ideas.

The advice for Dutch primary schools is to appoint a traffic coordinator who will form a traffic working group with a few parents involved. The traffic working group can draw up a traffic annual plan together, so that traffic activities become a structural part of the policy at school. This plan should not only include traffic activities for children, but also actions that make parents aware of their traffic behaviour. It is important to come up with actions in which parents are approached in a positive way. This can be done, for example, in the form of a reward. For more success, it is necessary that the school director supports the actions and makes their importance clear to the whole school team. In addition, it is wise for the school director to meet the community officer. If the school needs support in the process towards more road safety in the school zone, the help of an organisation such as Veilig Verkeer Nederland can be called in.

In addition to the planning of (practical) traffic activities and actions, traffic education will have to be provided in every class. If physical adjustments are necessary in the school zone, this will have to be discussed with the area manager of the municipality. In that case, it is sensible if the wishes of the local residents, the parents and the school are included in the new design. If the physical adjustments and multiple actions do not have the desired effect, the school can request the support of the community officer or the enforcers. Together they can determine how they want to tackle the problem further. An action list for Dutch primary schools to improve road safety in their school zone can be found in appendix F.

7.2 Recommendations for further research

The results of the research show how the various stakeholders involved can work together in a successful way on more traffic-safe school zones. The recommendations on how those involved can best work together and who can best be involved in the process when are based on the opinions of those involved themselves, the researcher's observations and on the experience and expertise of Veilig Verkeer Nederland. In this study, a number of things were also indicated that have a positive influence on the collaboration between those involved. However, this research is based on one case study. It is therefore recommended first to conduct a study that examines the collaboration between the various parties involved in several primary schools. These studies can then be compared and eventually a more complete picture can be established of the collaborations between those involved in the process towards safer school zones.

What now mainly appears from other studies that make school zones safer is that these issues are often tackled too technically. In studies into increased road safety, the main focus is on reducing the speed of cars. The physical design of the school zones plays a prominent role in these studies. The results of this study show that it is not the design, but the traffic behaviour of those involved that cause the dangerous situations. It therefore concerns the various parties that have to work together to create real improvements in the field of road safety, because only adjustments to the public space without making agreements with stakeholders will not work. Therefore, the second recommendation is to focus more on the aspect of communication and dialogue between stakeholders in further studies in the field of road safety in school zones.

7.3 Reflection

The research was conducted over a period of five months. The preparation, planning and conducting of the interviews took a lot of time, which made it impossible to study several primary schools. The limitation of the study is therefore that the results are based on a single case study and that these results could not be compared with other primary schools. Besides, a strong point of the research is that there was collaboration with a professional organisation, namely Veilig Verkeer Nederland, which has experience at several primary schools and therefore has a broader view of traffic situations in school zones. The collaboration with Veilig Verkeer Nederland has ensured that the recommendations still can be used for several primary schools. Another limitation within this study is the underexposure of certain stakeholders. The children and 'older' local residents are less exposed in the study. The children were not interviewed and did not fill out a survey. Nevertheless, they are an important group in the approach to more safety in the school zones. In addition, some elderly residents were unable to scan the QR code for the survey, which meant that they could not be included in the survey. In the future, a paper survey could be a solution for this.

What is strong about the research is the fact that multiple methods have been used to describe the results as objectively as possible. The researcher observed the issues that emerged in the interviews. More observations could have been made to increase the reliability of the results. Also, the observations were almost all done on days when the sun was shining, while the literature states that the weather influences the mode of transport. The solution for this is to observe a longer period in the future on days with varying weather forecasts. The researcher increased the reliability of the research by not including the participants who had not fully completed the survey in the result.

The sub-questions in the survey were now mainly formulated analytically and flowed into each other. The sub-questions could also have been formulated in a different way, focusing more on active mobility. Questions would then, for example, be more related to distances from home to school, as distance affects active mobility. The current approach was chosen, because the research was partly aimed at reflecting the approach and collaboration in the past between the school and Veilig Verkeer Nederland.

The results of the study indicate that both parents and local residents find the school zone unsafe. A small majority believes that the school contributes to road safety. However, with these results and conclusions it is important to be aware of the influence of external factors on this research, such as Corona in this case. The school has functioned differently due to Corona than in the normal situation. This partially influenced the results and conclusions of the study.

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Appendix A: Surveys

Survey local residents

Beste buurtbewoner,

Bedankt dat u deel wilt nemen aan deze korte enquête. De vragen zijn voornamelijk gericht op de dagelijkse verkeerssituatie rondom de schoolzone. De enquête is geheel anoniem. Het invullen duurt ongeveer 5 minuten.

Met vriendelijke groet,

Ilse Krikken
Master Spatial Planning student - Radboud Universiteit

----- Page Break -----

Vraag 1

Tot welke leeftijdscategorie behoort u?

- 25 jaar of jonger
- 26 - 35 jaar
- 36 - 45 jaar
- 46 - 55 jaar
- 56 - 65 jaar
- 65+

Vraag 2

Hoe veilig vindt u de verkeerssituatie in de omgeving rondom basisschool 't Ravelijn?

Extreem onveilig											Extreem veilig
0	1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

+ Add page break

Vraag 3

Geef aan in hoeverre u het met onderstaande vijf stellingen eens bent.

	Helemaal mee oneens	Mee oneens	Neutraal	Mee eens	Helemaal mee eens
Een veilige schoolomgeving vind ik als buurtbewoner belangrijk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik vind dat de school zich voldoende inzet om de schoolomgeving verkeersveilig te maken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
's ochtends is het druk met auto's rondom basisschool 't Ravelijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
De schoolzone is duidelijk zichtbaar door o.a. waarschuwingsborden / wegmarkeringen / kleurgebruik	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ik zie politie regelmatig controles doen rondom basisschool 't Ravelijn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vraag 4

▼  Skip to

End of Block if Nee Is Selected

Bent u van mening dat u, als buurtbewoner, een bijdrage kunt leveren aan een veiligere verkeersomgeving rondom basisschool 't Ravelijn?

- Ja
 Nee

Vraag 5

Wat doet u zelf (of wat kunt u doen), als buurtbewoner, om een bijdrage te leveren aan een veiligere schoolomgeving rondom basisschool 't Ravelijn?

Block 1

Vraag 6

Mocht u één of meerdere klachten hebben over de verkeerssituatie rondom basisschool 't Ravelijn, waar zou u deze klacht(en) dan kenbaar maken?

Vraag 7

▼  Skip to

End of Block if Nee Is Selected

Vindt u dat er door de school/ verkeersouders zichtbaar in de schoolzone gewerkt wordt aan een veilige schoolomgeving? (Bijvoorbeeld: beloningsacties, fiets controle, verkeersbrigadiers, campagne spandoeken, verkeersstickers)

- Ja
 Nee

Vraag 8

Wat wordt er door de school/ verkeersouders zichtbaar gedaan om de schoolzone veiliger te maken?

- Beloningsacties
- Verkeersactiviteiten: fietscontroles, dode hoeklessen.
- Aanwezigheid van verkeersbrigadiers
- Campagne spandoeken
- Verkeersstickers
- Anders, namelijk:

Vraag 9

Mocht de school afspraken willen maken met de buurtbewoners om de schoolzone 's ochtends en 's middags zo veel mogelijk te ontlasten van gemotoriseerde voertuigen. Bent u in dat geval bereid om deze afspraken zo veel mogelijk na te leven?

- Ja
- Nee (graag toelichten waarom niet)

Vraag 10

Heeft u mogelijk nog ideeën of tips om de veiligheid rondom basisschool 't Ravelijn te vergroten? (Optioneel)

Survey parents

Beste ouder/ verzorger,

Bedankt dat u deel wilt nemen aan deze korte enquête. De vragen zijn voornamelijk gericht op de dagelijkse verkeerssituatie(s) in de schoolzone. De enquête is geheel anoniem. Het invullen duurt ongeveer 5-7 minuten.

U kunt kans maken op een bioscoopbon. Er worden onder de deelnemende ouders 2 bioscoopbonnen verloot.

Met vriendelijke groet,

Ilse Krikken
Master Spatial Planning student - Radboud Universiteit

Vraag 1

In welke groep(en) zit(ten) uw kind(eren)?

- Combinatiegroep 1-2 (A/B)
- Groep 3
- Groep 4
- Groep 5
- Groep 6
- Groep 7
- Groep 8
- Anders, namelijk:

[+ Add page break](#)

Vraag 2

Hoe gaat/ gaan uw kind(eren) gemiddeld 2 dagen of meer naar basisschool 't Ravelijn? (Meerkeuze mogelijk in het geval dat u meerdere kinderen heeft die op verschillende manieren naar school gaan)

- Lopend met ouder
- Lopend zelfstandig
- Fietsend zelfstandig of met vriendje(s)
- Fietsend zelfstandig met ouder
- Achter- of voorop bij ouder op de fiets
- Met de auto

Vraag 3

Vindt u de schoolzone verkeersveilig voor uw kind(eren)?

- Ja
- Nee (Graag toelichten)

- Anders, namelijk:

Vraag 4

Hoe verkeersveilig vindt u de schoolzone voor uw kind(eren)?

Extreem onveilig

0

1

2

3

4

5

6

7

8

Extreem veilig

9

10

Vraag 5

Stimuleert u uw kind(eren) om zo veel mogelijk lopend of fietsend naar school te gaan?

- Ja
- Soms
- Nee

Vraag 6


 Skip to

End of Block if Nee (Graag toelichten waar... Is Selected

Bent u van mening dat u, als ouder/verzorger, een bijdrage kunt leveren aan een veiligere schoolomgeving rondom basisschool 't Ravelijn?

- Ja
- Nee (Graag toelichten waarom niet)

Vraag 7

 Skip to

End of Block if Nee Is Selected

Vindt u dat u zelf, als ouder/verzorger, een bijdrage levert aan een veiligere schoolomgeving rondom basisschool 't Ravelijn?

- Ja
- Soms
- Nee

Vraag 8

Hoe levert u een bijdrage aan een veiligere schoolomgeving rondom basisschool 't Ravelijn?


End of Block

Vraag 9


Geef aan in hoeverre u het met onderstaande vier stellingen eens bent.

	Helemaal mee oneens	Mee oneens	Neutraal	Mee eens	Helemaal mee eens
1. De meeste kinderen komen lopend of met de fiets naar school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Ik vind het prima als de school structureel (1x per maand) aandacht vraagt voor verkeersveiligheid in de schoolzone via SchouderCom (ouderportaal).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Ik vind het goed dat er ouders zijn, die zich inzetten voor de verkeersveiligheid van kinderen op school (verkeersouders).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. De schoolzone vind ik duidelijk zichtbaar voor automobilisten o.a. door waarschuwborden, wegmarkeringen en kleurgebruik.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Vraag 10

 Skip to

End of Block if Nee Is Selected

 Skip to

End of Block if Niet dat ik weet Is Selected

Heeft de school verkeersafspraken gemaakt met de ouders/ verzorgers over het halen en brengen van de kinderen?

- Ja
- Nee
- Niet dat ik weet


Vraag 11

Worden deze verkeersafspraken door de meeste ouders/ verzorgers nageleefd volgens u?

- Ja
- Nee (graag toelichten)

End of Block.

Vraag 12

 Skip to

Wat zou de school anders/ beter kunne... if Nee Is Selected

Bent u van mening dat de school voldoende aandacht besteedt aan verkeersonderwijs en een veilige schoolomgeving?

- Ja
- Nee
- Anders, namelijk:

[Add page b...](#)

Vraag 13

Wat vindt u dat de school goed doet op het gebied van verkeersonderwijs en verkeersveiligheid?

Vraag 14

 Skip destination

Wat zou de school anders/ beter kunnen doen op het gebied van verkeersonderwijs en/of verkeersveiligheid? (Optioneel)

Vraag 15

Krijgt u voldoende de gelegenheid, indien u dat zou willen, om mee te mogen werken aan (en mee te denken over) verkeersactiviteiten en de verkeersveiligheid in de schoolzone.

- Ja
- Nee (Graag toelichten)

Vraag 16

Mocht u een klacht hebben over een onveilige verkeerssituatie in de schoolzone waar zou u deze klacht dan melden?

- Gemeente
- Schooldirecteur
- Leraar
- Verkeersouder(s)
- Wijkagent
- Anders, namelijk:

Er zijn op OBS 't Ravelijn 2 verkeersouders actief. Verkeersouders maken zich sterk voor goed verkeersonderwijs en een veilige schoolomgeving.

Vraag 17

Was u ervan op de hoogte dat er op de school verkeersouders actief zijn?

- Ja, ik heb deze ouder(s) ook wel is gesproken.
- Ja, ik heb ze niet gesproken, maar weet wel wie het zijn.
- Ja, ik weet dat er verkeersouders actief zijn, maar niet precies wie.
- Nee, ik was hier niet van op de hoogte.
- Anders, namelijk:

Stel u parkeert uw auto foutief of u zet uw fiets op slot dichtbij de schoolingang waardoor er een opstopping ontstaat.

Vraag 18

Wie heeft u dan het liefst dat u op uw verkeersgedrag aanspreekt?

- De schooldirecteur
- Een leraar
- De wijkagent
- Een BOA
- Een verkeersouder
- Andere ouder(s)
- Een buurtbewoner
- Anders, namelijk

Vraag 19

Hoe zou u het vinden als u aangesproken zou worden op uw verkeersgedrag?

- Prima, iedereen mag mij aanspreken op een normale manier.
- Prima, maar het ligt er wel aan wie en de manier waarop.
- Vervelend, ik word liever niet aangesproken op mijn verkeersgedrag.
- Anders, namelijk:

Vraag 20

Tot welke leeftijdscategorie behoort u?

- 25 jaar of jonger
- 26 - 35 jaar
- 36 - 45 jaar
- 46 - 55 jaar
- 56 - 65 jaar
- 65+

Appendix B: Observations

In the school zone, the researcher observed the different phenomena five times. Table 4 gives an overview of all observed phenomena. The observed phenomena 4 to 11 have been determined once, because these phenomena are fairly fixed and therefore do not change quickly.

Table 4: Operationalisation observed phenomena (Own design, 2022)

Observed phenomena	Operationalisation
1. Most primary school pupils walk or cycle to school.	There are proportionately more parents and children who actively come to school than children who are dropped off by car. In addition, there is no visible congestion of cars in the street.
2. The school zone is safe.	Cars do not drive too fast, but about the maximum speed of 30 km/h. Parents and children are cheerful and do not seem stressed. There are no discussions between parents on the street. It is dangerous for children when cars reverse or have to turn. According to Veilig Verkeer Nederland, the rule of thumb is: there are no cars 25 meters before or after the exit.
3. There is a safe and visible pedestrian crossing.	The children have a good overview of the approaching traffic. Conversely, motorists are also well aware of the children who want to cross the road. There are no parked cars near the pedestrian crossing.
4. There is a safe school exit.	The exit leads to a quiet street. The school has multiple exits and uses them.
5. Motorised and slow traffic is separated as much as possible.	There are several school entrances separating children who come in an active way and children who are dropped off by car.
6. There is enough space for the parents to wait.	There is sufficient waiting space for parents on the sidewalk and/or in the schoolyard. In addition, there is a possibility for the parents to shelter when it rains.
7. There are bicycle racks for the parents.	There are plenty of well-placed bicycle racks for parents who come to pick up or bring their child(ren) by bike.
8. For the children there is a good bicycle shed with sufficient bicycle racks.	For all children who come by bicycle there is a bicycle rack to place their bicycle.
9. There are parking facilities for cars and a Kiss & Ride.	The parking spaces should not be located directly next to the school, but a little further from the school. Parents and children who come by car can park there and walk the last few meters to school. If parents want to stop to drop off their child(ren), a Kiss & Ride strip is a good option. The distance between the Kiss & Ride Strip and the schoolyard should be short and safe.
10. The school has traffic parent(s) and a traffic working group.	The school has at least one traffic parent. The traffic parent(s) can receive support from Veilig Verkeer Nederland if they register themselves. In addition, Veilig Verkeer Nederland encourages the creation of a traffic working group in schools with traffic parents and a traffic coordinator.

11. The indication of the school zone is sufficiently visible in the street.	The school zone is clearly marked with road markings, signs and colourful posts.
12. The cars in the school zone are parked correctly.	The cars in the school zone are parked within the marked spaces.
13. The Kiss & Ride is used correctly by motorists.	Motorists use the Kiss & Ride as indicated by the signage. For example, between 8:00 and 08:45 in the morning, the Kiss & Ride strip is used by motorists as it should be (short and fast). In the afternoon, cars are allowed to park on the Kiss & Ride strip.
14. The traffic parents are visible and ask other parents to adjust their traffic behaviour if necessary.	The traffic parents are clearly visible in the school zone, wearing a brightly coloured vest and using a stop sign. The traffic parents are active in communication and gestures towards other road users.

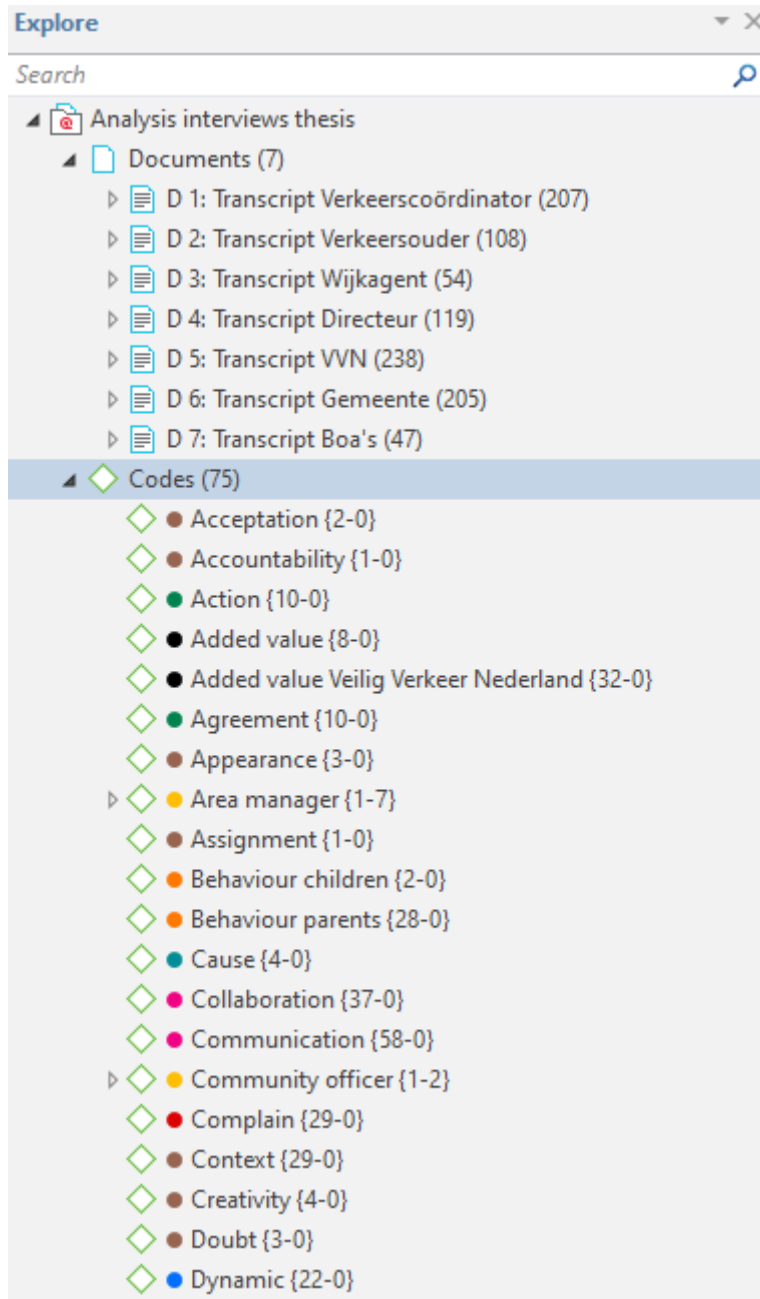
On day 1, the researcher noted the following regarding phenomena 4 to 11: The school has three different entrances to the school yard. There is one entrance for pedestrians, one entrance for cyclists and one entrance for children who are dropped off by car. On the other side of the school there is also an entrance for children who are dropped off by car. Children then enter through the main entrance of the building, but most children enter the school through the schoolyard on the other side. There is sufficient waiting space for the parents in the schoolyard, but there are no bicycle racks available for the parents. The children do have sufficient bicycle racks, but the bicycle shed for the children is open and not covered. Motorists can park 25 meters from the school and there is also a kiss & ride strip located next to the school. Finally, primary school 't Ravelijn has a traffic working group consisting of two traffic parents and a traffic coordinator. Table 9 presents the findings of the five observation sessions.

Table 9: Findings observations (Own design, 2022).

Date and time of observation session	Researcher's findings	Observed phenomena
Day 1 01-06-2022 2:00-2:30 PM	2:05 PM First car stops on the Kiss & Ride. 2:06 PM Second car is stationary on the Kiss & Ride. 2:09 PM One car parked in the verge. 2:11 PM Many parents on their bicycles or on foot. 2:14 PM most parents wait on the sidewalk outside the school yard. 2:18 PM One more car in the verge. Total 2. 2:21 PM Four cars on the Kiss & Ride. Lots of bikes parked around it.	1 to 14.
Day 2 09-06-2022 8:00-8:45 AM	8:11 AM First car on the Kiss & Ride. Parent stays in car with child. 8:16 AM Second car on Kiss & Ride. Child walks to school on his own. Both cars drive away. 8:22 AM One car on the Kiss & Ride. Parent walks with child into the schoolyard. 8:26 AM Five cars on the Kiss & Ride, which is now full. One car is parked in the verge. Lots of cyclists and walking people.	1 and 12 to 14.

	<p>8:28 AM Parents place their bicycles right next to the cars and schoolyard entrance.</p> <p>8:32 AM Two cars on the Kiss & Ride.</p> <p>8:45 AM Last parent leaves.</p>	
<p>Day 3 17-06-2022 8:00-8:45 AM</p>	<p>8:17 AM First car on the Kiss & Ride. Parent drives straight on.</p> <p>8:22 AM Three cars in total on the Kiss & Ride. Parents dwell on the Kiss & Ride for a long time.</p> <p>8:25 AM Lots of cyclists and walking children.</p> <p>8:27 AM One motorist park in the verge.</p> <p>8:32 AM Parents continue to talk to each other in front of the bicycle shed next to the entrance.</p> <p>8:43 AM Last parent leaves.</p>	1 and 12 to 14.
<p>Day 4 20-06-2022 8:00-9:00 AM</p>	<p>The researcher observed this morning that most cars drive quietly. There are no cars parked near the crossing.</p> <p>8:09 AM First car parked on the Kiss & Ride. Parents and children walk into the schoolyard together.</p> <p>8:11 AM Second car on the Kiss & Ride. Parent drives immediately after child gets out of car.</p> <p>8:17 AM Very quiet in the school zone.</p> <p>8:20 AM Second car that parks on the Kiss & Ride and walks with the child to the entrance of the school.</p> <p>8:24 AM Five cars on the Kiss & Ride. The Kiss & Ride is now full.</p> <p>8:25 AM One car is parked in the verge.</p> <p>8:31 AM Four spots available on the Kiss & Ride. One car parked on the Kiss & Ride and one car in the verge. Several parents' bicycles are parked next to the entrance of the schoolyard.</p> <p>8:55 AM Last parent cycles away.</p>	1 to 3 & 12 to 14.
<p>Day 5 23-06-22 2:00-2:30 PM</p>	<p>2:07 PM First two cars arrive on Kiss & Ride.</p> <p>2:12 PM Lots of parents in the school yard. Total 4 cars on the Kiss & Ride.</p> <p>2:13 PM One car park in the verge.</p> <p>2:15 PM Total of 5 cars on the Kiss & Ride. A total of 2 cars parked in the verge.</p> <p>2:17 PM A lot of children at the bike shed. The cycling children and cars pass each other.</p> <p>2:34 PM Last parent leaves.</p>	1 and 12 to 14.

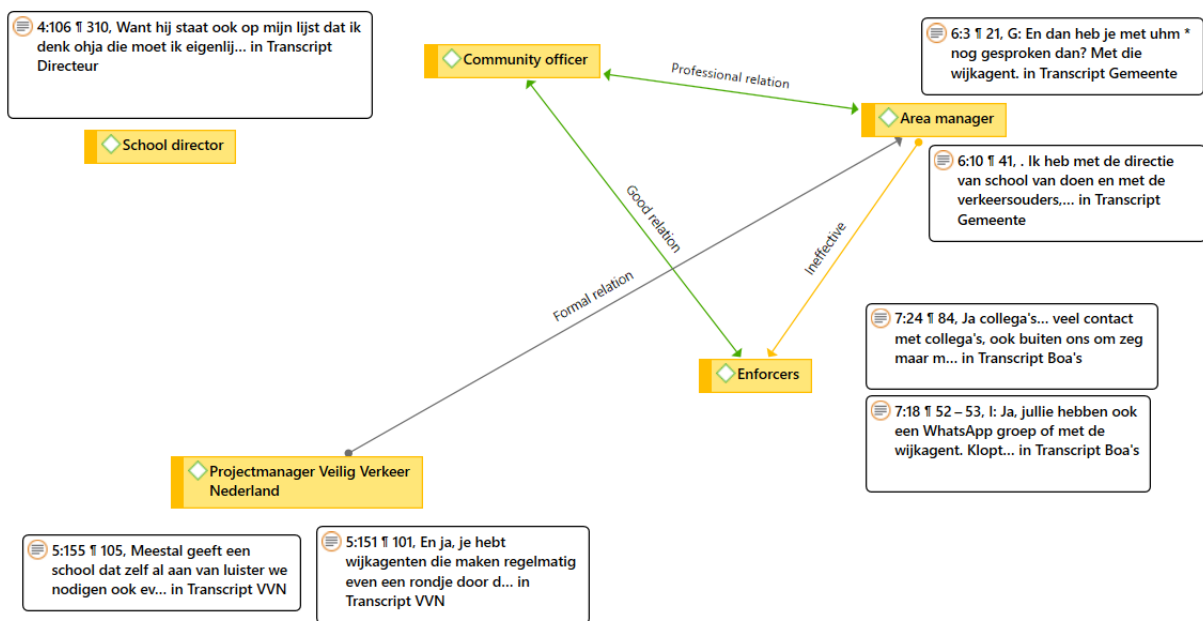
Appendix C: Analysis ATLAS.ti



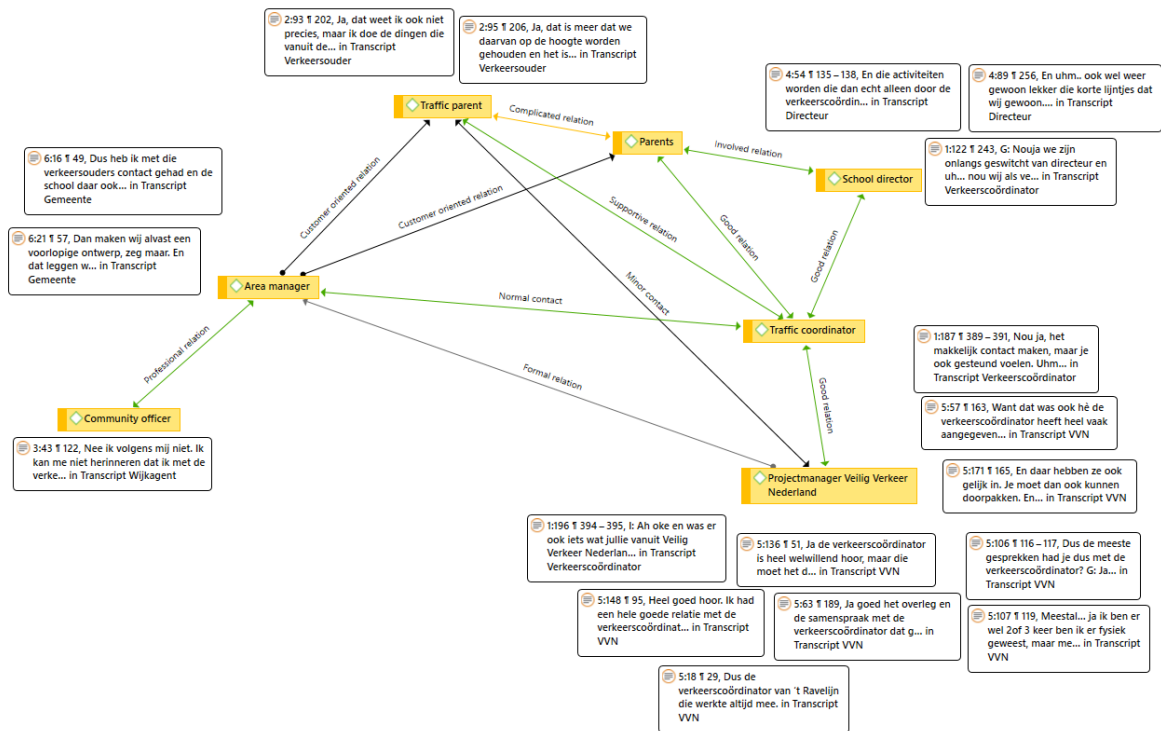
Search Codes

Name	Grounded	Density	Groups	Created by
Not feasible	1	0	[Improvements]	Ilse Krikken
Not structural	6	0	[Improvements]	Ilse Krikken
Not succesfull	22	0	[Improvements]	Ilse Krikken
Parents	1	0	[Stakeholders]	Ilse Krikken
Participation	28	0		Ilse Krikken
People	1	0	[Stakeholders]	Ilse Krikken
Point of improv...	104	0	[Improvements]	Ilse Krikken
Positive	20	0	[Succes]	Ilse Krikken
Positive example	5	0		Ilse Krikken
Procedure	60	0	[Procedures]	Ilse Krikken
Project manager...	1	0	[Stakeholders]	Ilse Krikken
Relation Enforcers	22	0	[Relations and dynamics]	Ilse Krikken
Relation traffic c...	14	0	[Relations and dynamics]	Ilse Krikken
Relation Veilig V...	22	0	[Relations and dynamics]	Ilse Krikken
Relation with are...	26	0	[Relations and dynamics]	Ilse Krikken
Relation with co...	7	0	[Relations and dynamics]	Ilse Krikken
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Relation with sc...	6	0	[Relations and dynamics]	Ilse Krikken
Relation with tea...	3	0	[Relations and dynamics]	Ilse Krikken
Relation with tra...	19	0	[Relations and dynamics]	Ilse Krikken
Relation with tra...	4	0	[Relations and dynamics]	Ilse Krikken
Resources	17	0		Ilse Krikken
Road safety cont...	60	0		Ilse Krikken
Role and function	21	0		Ilse Krikken
School contribut...	12	0		Ilse Krikken
School director	1	0	[Stakeholders]	Ilse Krikken
School identity	11	0		Ilse Krikken
Stimulation	8	0	[Procedures]	Ilse Krikken
Structural	9	0	[Succes]	Ilse Krikken
Succes	144	0	[Succes]	Ilse Krikken
Time	3	0		Ilse Krikken

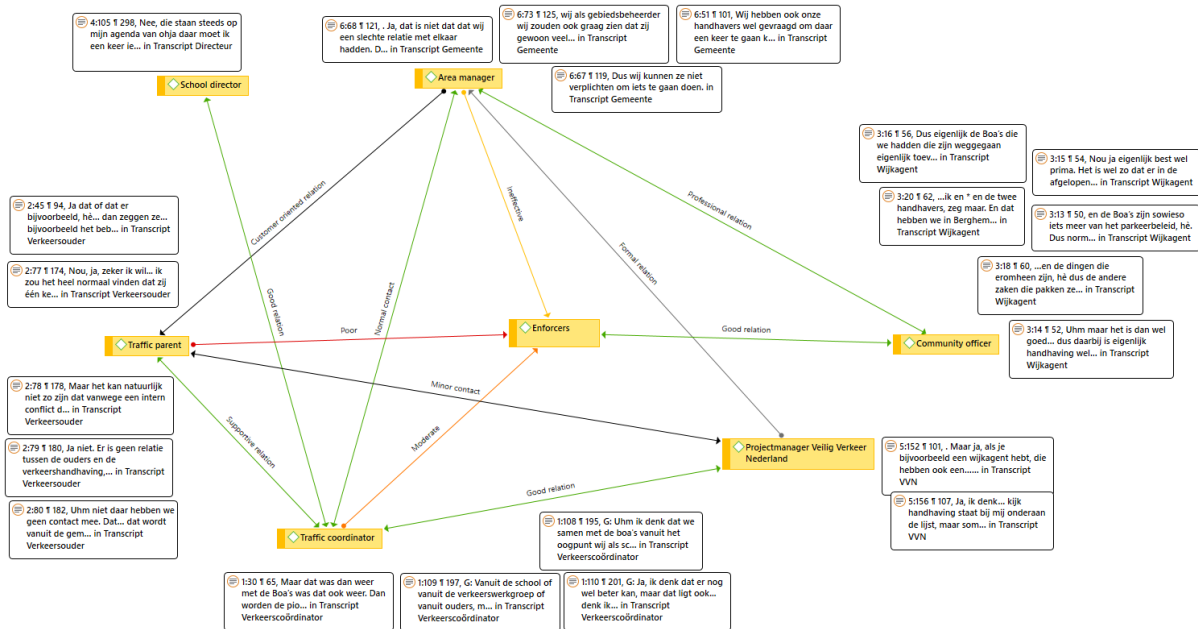
- ▲ Networks (12)
 - ▷ Netwerk traffic parent (24)
 - ▷ Network local residents (21)
 - ▷ Network parents (42)
 - ▷ Network VVN (27)
 - ▷ New Network (1)
 - ▷ Relaties van VVN (27)
 - ▷ Relation with community officer (12)
 - ▷ Relation with school director (10)
 - ▷ Relations Area Manager (32)
 - ▷ Relations with Enforcers (29)
 - ▷ Relations with Traffic coordinator (25)
 - ▷ Spin relations (9)
- Document Groups (0)
- ▲ Code Groups (5)
 - ▷ Improvements (12)
 - ▷ Procedures (2)
 - ▷ Relations and dynamics (18)
 - ▷ Stakeholders (10)
 - ▷ Succes (10)



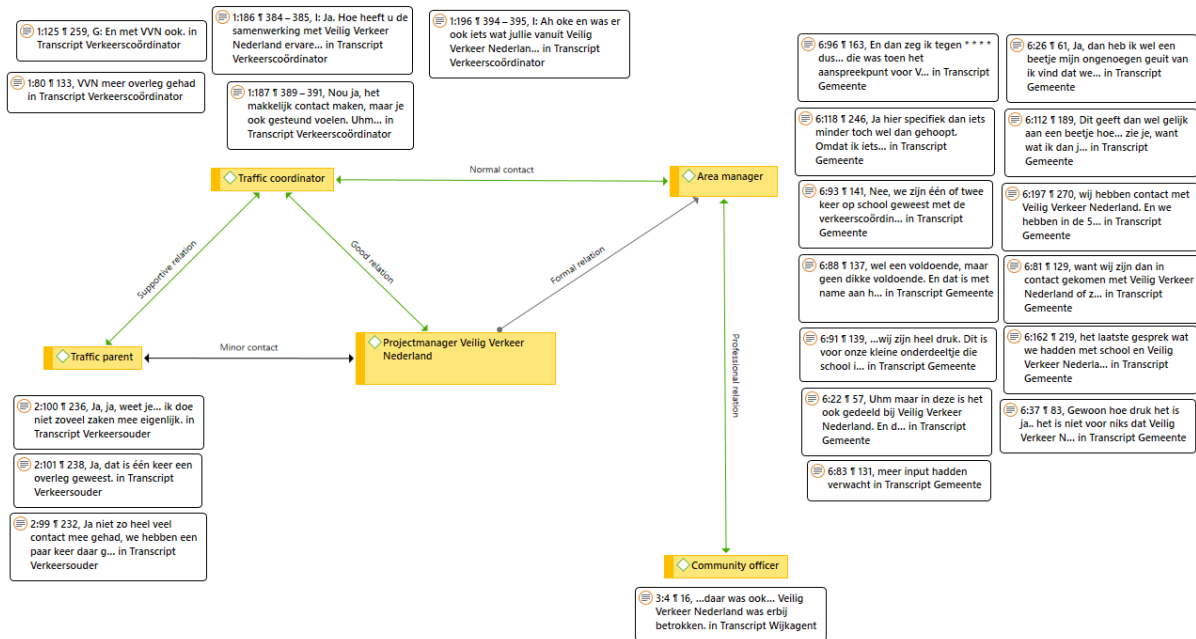
Community officer



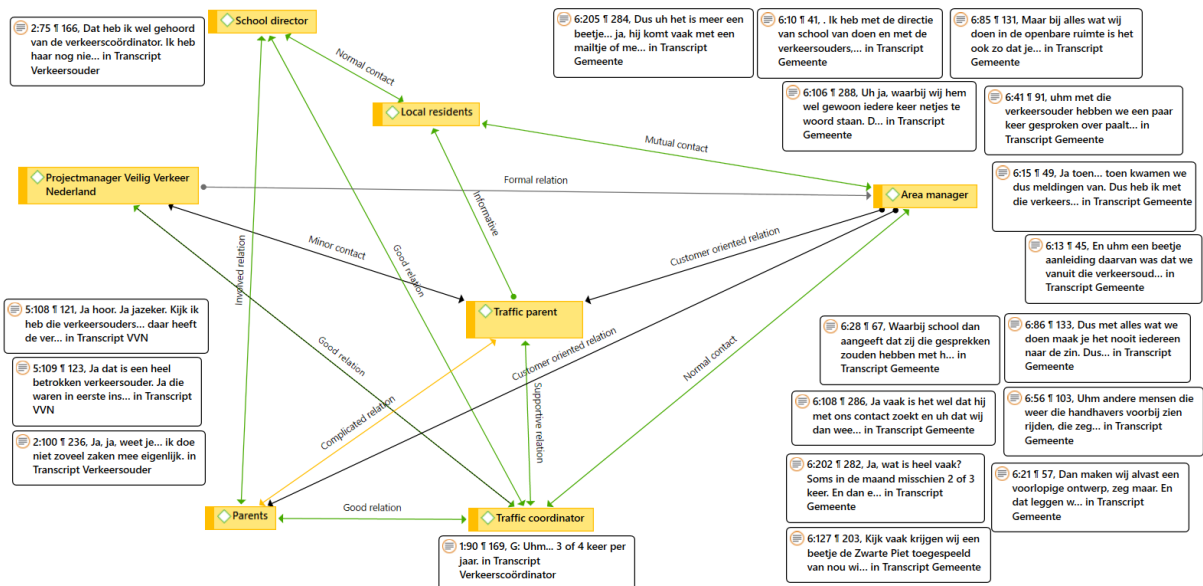
Traffic coordinator



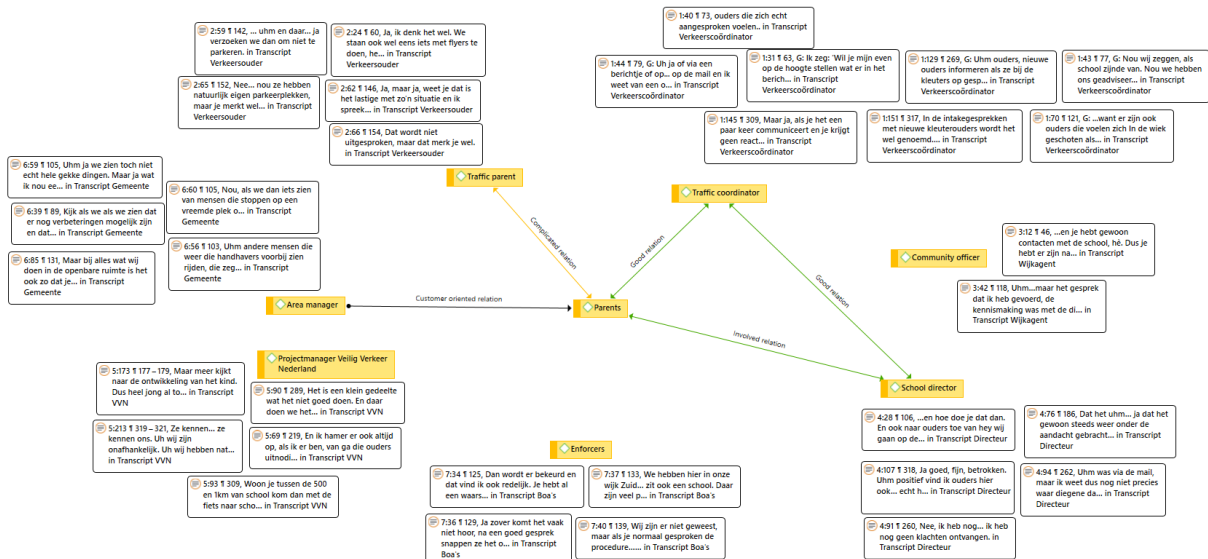
Enforcers



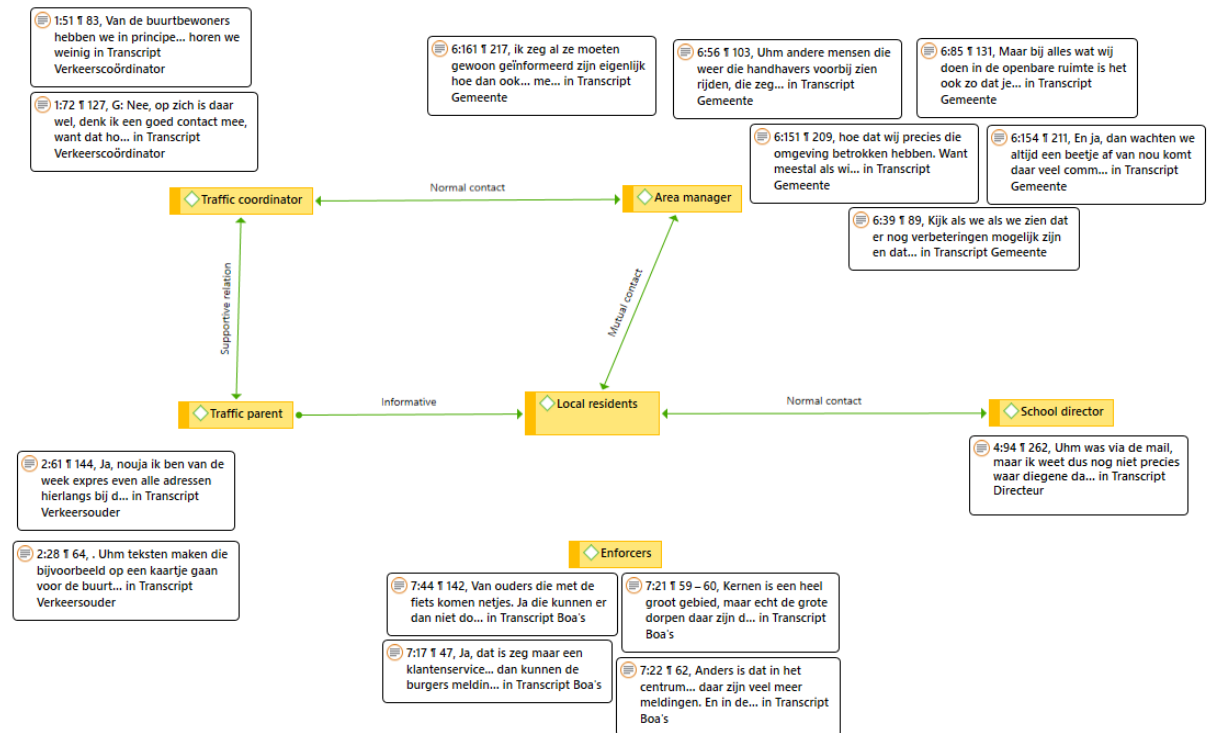
Projectmanager Veilig Verkeer Nederland



Traffic parent

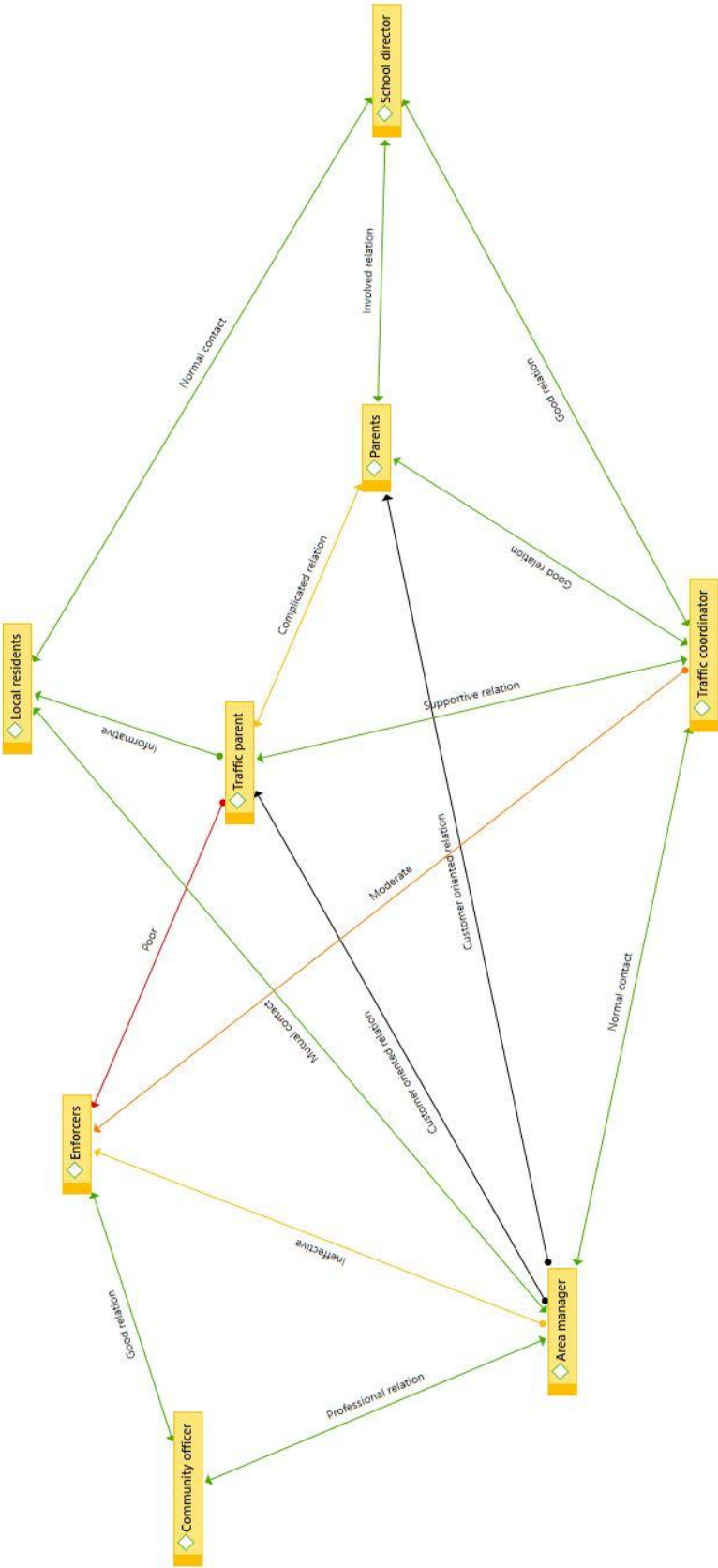


Parents



Local residents

Appendix D: Stakeholder relations



Veilige kindomgeving de Morgenster



Tips

- De Zoen & Zoef strook is bedoeld voor het kortstondig brengen van uw kind tussen 8.15 - 8.45 uur. Op deze strook mag binnen de aangegeven tijden niet geparkeerd worden.
- Kom zoveel mogelijk met de fiets of te voet naar school.
- Kom je toch met de auto? Parkeer daar waar het veilig kan en mag. En maak gebruik van de parkeerplaatsen/vakken.

Werk je mee? Dank je wel!

VEILIGVERKEER

Appendix F: Action list for primary schools

This is a supporting action list for primary schools in their approach to more road safety.

The school has a good approach if most of the actions can be answered with yes. If the school answers *no*, then it is good to address this action point and write down a date of action to improve it.

* Adaptations to the public space are not always required, so it is not necessary to address point 10 if *no* is stated there.

Point of action	Yes	No	Date of action
1. Has the school appointed a traffic coordinator?			
2. Does the school have a traffic working group consisting of the traffic coordinator with some parents involved?			
3. Have arrangements been made with the parents about picking up and dropping off the children?			
4. Is road safety included in school policy?			
5. Does the school director consider road safety around the school important?			
6. Does the school director involve the teachers in tackling road safety?			
7. Do the school director and the teachers set a good example when it comes to road safety?			
8. Has the school director/traffic coordinator ever met the community officer?			
9. Is traffic education provided in every class?			
10. Do the parents, local residents or the school think that (infrastructural) improvements are needed in the school zone? *			
10a. if so: have the improvements been passed on and discussed with the municipality?			
10b. If yes: has the municipality taken into account possible suggestions from the parents, local residents or the school?			
11. Has the traffic working group drawn up an annual plan with (practical) traffic activities for the children?			
12. Does the annual traffic plan also contain a number of actions that make parents aware of their own traffic behaviour in a positive way?			
13. Are parents and children involved in devising and executing these traffic and reward actions? <i>If the traffic working group is not creative enough to come up with traffic activities or has difficulty drawing up a traffic annual plan, they can receive support from an organisation such as Veilig Verkeer Nederland. The school can also apply for a road</i>			

<i>safety label. The school receives discounts, tips and creative traffic activities from the label. In this way the school can improve and maintain road safety.</i>			
If road safety in the school zone is still poor after performing various traffic activities with children and reward actions for parents, then it is necessary to call in the help of enforcement. 14. In case of persistent complaints: has the school contacted enforcement to determine together how they want to tackle road safety?			
15. Is the annual traffic plan kept up to date?			