

Mobility analyses for Guldborgsund Municipality

Mobility in rural areas; Guldborg, Horbelev and Sydfalster



Guldborgsund Municipality
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GULDBORGSUND

NIRAS &  **NABOGO**

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1 Introduction

Guldborgsund Municipality is project partner in the Interreg project Interconnect, financially supported by the South Baltic Programme.

The Interconnect project supports new and more efficient public transport services both in and between the coastal regions of the South Baltic area - to give the residents and tourists broader and more sustainable options for realising their mobility needs.

In accordance to the municipal political committee for Technical, Environment and Properties and their strategy objectives "a sustainable municipality" and "improved mobility and connections" Guldborgsund Municipality is working in this project with better mobility solutions between rural areas and Nykøbing Falster city.

The current report is contributing to the Interconnect project activity 4.5 *New PT/mobility solutions; Rural hinterland better connected to interchange points.*

This report has been prepared by NIRAS, for Guldborgsund Municipality. The report contains analyses of the current transport and traffic situation in the municipality, as well as an analysis of which actions could be done to improve mobility in Guldborgsund Municipality outside Nykøbing Falster. As an appendix to this report there is a catalogue containing a thematic review of some of the actions that are proposed as a result of the analysis. To get a picture of the mobility outside the "Capital" of Guldborgsund Municipality three areas have been chosen. The areas are; around the villages of Guldborg, Horbelev and the southern part of Falster around Gedser and Marienlyst.

In addition to analysing the current traffic situation, stakeholders and other citizens from the three local areas, have been involved to identify where the biggest need for mobility efforts lies. Involvement of the citizens is carried out at three different levels. Comments have been gathered on the Guldborgsund Municipality's Facebook website, and stakeholders and citizens have been invited to attend at a workshop, and finally a survey have been sent out to relevant citizens and stakeholders.

Based on the analysis of the current situation, as well as the wishes and needs of the citizens, a number of proposals for measures have been prepared. An important goal for the suggestions has been that the measures should be as concrete as possible. Another main focus has been that the measures must encourage citizens to use more sustainable modes of transport, which means getting drivers to change to public transport and/ or bicycle - at least occasionally.

1.1 Motivation

The idea behind the project is to promote sustainable mobility in the rural areas of Guldborgsund Municipality. At the same time, the project must send a signal to the citizens of the municipality that lives outside Nykøbing Falster, that the municipality cares about their mobility. It has been very important to involve citizens in the process as much as possible. This contributes to giving the citizens ownership of the measures that will be implemented as a result of the project.

The mobility solutions presented in the catalogue must be at a level of detail that ensures that the intentions and desired functions are passed forward to the final

design of the projects.

1.2 Goals and values

The project aims to motivate citizens in Guldborgsund Municipality to use sustainable modes of transport. Promote the use of public transport and to help bicycles to play a greater part of the transportation in the rural areas.

- It is important that the project is developed in close collaboration with the citizens, and that both challenges and solutions are considered common.
- The suggested solutions must - as far as it is possible - be flexible, so that they can be scaled with the development of the traffic in Guldborgsund Municipality.
- The majority of the solutions must be independent of each other.

1.3 Reading guide

A brief overview of the content and context of the report is outlined below.

Following this introduction in Chapter 1, Chapter 2 presents the main results of the initial analysis (0-punkts analyse in Danish), including the results from DTU's "Transport habits survey". Chapter 3 contains the results of the process and results of the involvement of stakeholders and citizen – this plays a huge part of this project. The results of the involvement is mainly from the workshop and of an online questionnaire. Chapter 4 describes the principles of the suggested solution. Chapter 5 consists an overall description of some of the solution projects from the involvement of stakeholders and citizen. Chapter 6 summarizes the project as a whole and.

Some of the information's on the figures and tables in the present report, are kept in Danish.

In those cases it is explained in the text above or below the picture.

1.4 Appendix

Besides this analysis report there is made a catalogue of mobility solutions witch is attached as an appendix. Besides that there is made two other minor reports, that has worked as a foundation to this report.

The two minor reports are not attached, and are not translated into English.

- "DTU's *Transportvaneundersøgelse*" (Transport habit survey - THS) for Guldborgsund Municipality 2019 (data period 2016-2018) (In Danish)
- "*Nulpunktsanalyse*" Initial analysis

The THS contains results of a number of surveys regarding transport habits, and traffic behaviour. The survey is made for the whole country. But the results can be divided into bits that suits the actual project. In this case its limited to the municipality of Guldborgsund.

The initial analysis reveals the current status regarding transport habits, traffic behaviour and infrastructure. The initial analysis is based on data from the THS, roadmaps and parts of the questionnaires.

Data from this, together with the results of involvement of the citizen, form a large part of the basis for identifying the chosen problems, as well as the solutions proposed.

The attached "*Catalogue of mobility solutions*" describes examples to solve the challenges outlined in this analysis. A large part of the examples are described in the main analysis on a general basis. The catalogue contains a more schematically review of the examples, and also some examples that aren't mentioned in this analysis.

Challenges that have been addressed in the analysis, but where the actions that is necessary to solve it, is considered as unrealistic, or actions that require investment to an extent that exceeds a level that is larger than what is realistic, have either been omitted from the catalogue or described in a very general level.

2 Preliminary analysis

In the initial phase of the project, a preliminary analysis was performed - a mapping of existing travel patterns and behaviour. The analysis has been used to point out areas where there was a potential to make improvements. More specific the preliminary investigation tried to gather information about:

- Who's traveling (age, gender, education)
- How much does they travel (kilometres / minutes per trip per vehicle)
- How many people go - by car / on bike / by public transportation / walking
- Reason for choosing X mode of transport (season, safety, security etc.)
- What could change that choice (better cycle paths, greater reliability, more bike racks, etc.)
- Why does some road users choose the bicycle (fastest, easiest, environmentally friendly etc.)

2.1 The present traffic situation

The traffic in Guldborgssund has a varying character. 16% of the citizens have less than 5 km between home and work. There is around 9% who have more than 50 km between home and work/education, this group is assumed that they mainly commute to Greater Copenhagen.

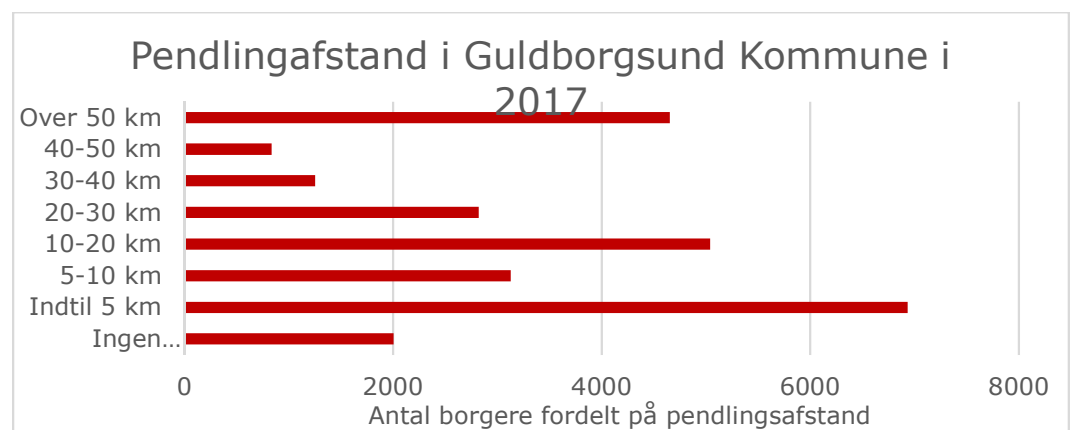


Figure 1: Commuting distances with residence in Guldborgssund Municipality from 2017 [Danmarks Statistik]. At the bottom I shown how many citizens that don't commute at all, and at the top is shown that more than 4.500 citizens commute more than 50 kilometres.

2.2 Transport habits survey ("Transportvaneundersøgelse")

The Transport Habits Survey is conducted by DTU Transport¹, and is a nationwide interview survey with the purpose to map the traffic habits and patterns of the population. THS provides an opportunity for municipalities to extract relevant data for specific area. That provides insight into the travel patterns and mix of different types of traffic.

¹ Danish Technical University

This section presents the most relevant results of the municipal report. The report covers the data period from 2016 - 2018.

2.2.1. Overall results

Close to 60% of all trips made by citizens in Guldborgsund Municipality begins and ends within the municipality – these trips are defined as internal traffic. Internal traffic can be partially controlled by implementing new policies and initiatives against it. Traffic that comes from other municipalities is more difficult to influence with policy changes and municipal regulations cause the road users are not exposed to the decisions in the same way.

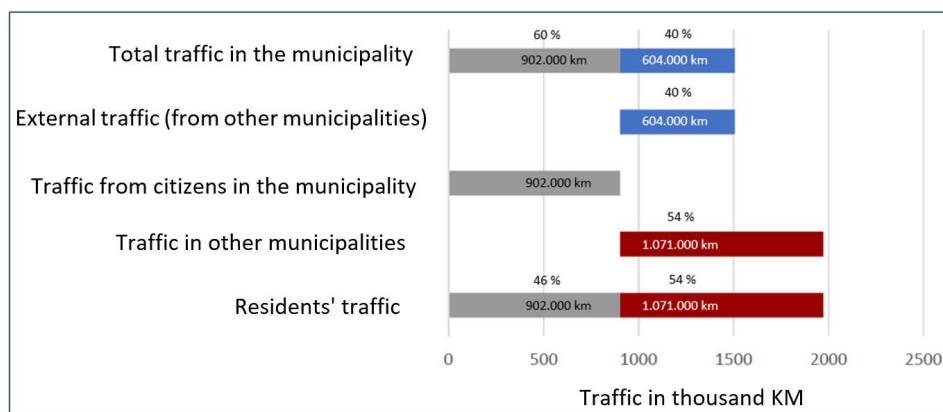


Figure 2 shows that the citizens of Guldborgsund Municipality travel many kilometres outside the municipality. It is both trips to and from nearby municipalities and long trips to the municipalities around Copenhagen. This is illustrated with the grey as well as the red bar corresponding to approx. 1,970,000 km. (Residents' traffic)

In addition to that, the figure shows that the number of kilometres driven exclusively in the Municipality of Guldborgsund from locals plus guests entering the municipality sums up to approx. 1,500,000 km. (Total traffic in the municipality)

This means that the citizens of Guldborgsund Municipality travel more km in other municipalities than they do in their own municipality. The size of the single contribution in other municipalities is unknown.

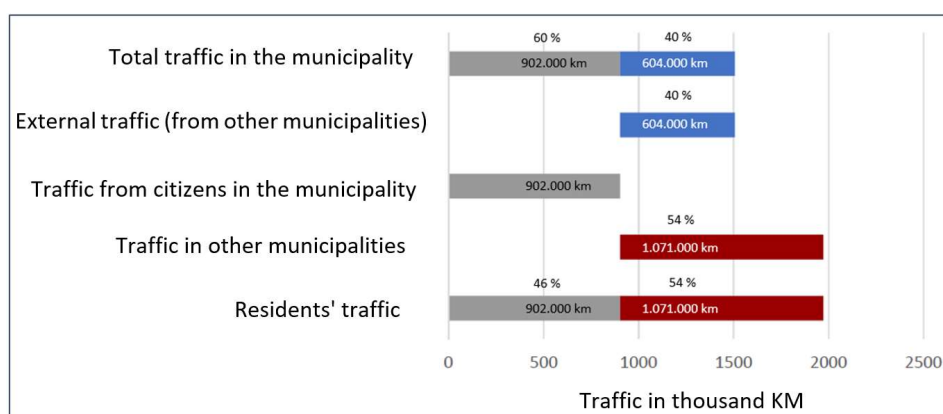


Figure 2: Accounting for the traffic in Guldborgsund Municipality [DTU]. The grey bar indicates the traffic generated by the municipality's own citizens. The blue bar shows the contribution from other municipalities around Guldborgsund Municipality (40%) and the red bar shows Guldborgsund Municipality's contribution.

The overall key figures from the THS for the transport made by the citizens in Guldborgsund Municipality are shown in Table 1. In the table the data for Guldborgsund Municipality are compared with the average values for all of Denmark.

The data show that the total average number of trips per day, per person is 3.6 for the municipality of Guldborgsund and 3.2 in average for the whole country. This amount of trips includes commercial trips, which amount to 0.8 trips per weekday in Guldborgsund Municipality.

There is a great deal of commercial traffic in Guldborgsund Municipality compared to the rest of Denmark. The average trip length without commercial transport is 17.9 km per trip. On a national level, the average length is 13.0 km per trip.

74% of the citizens in Guldborgsund Municipality owns a bicycle, that is 2% more than all of Denmark. The number of kilometres per day travelled on a bicycle is 0.5 kilometres less than the rest of Denmark, despite the greater bike ownership. That contribute to the idea of that there is a potential for getting more citizens to use the bicycle for everyday transportation.

Table 1: Key figures from the THS [DTU] The column "Guldborgsund Kommune" shows the data for Guldborgsund Municipality, and "Hele Danmark" shows the same data on a national level. The first two figures are number of trips with and without commercial transport. The third shows the percentage of persons that don't go on a trip, on an average day. The fourth row is traveling time, in minutes per person per day. The next four rows (5-8) shows the travelled distance in kilometres per day, row 5th average of all, 6th motorized transportation, 7th bi-cycles and 8th without commercial transport. Beneath that in row 9, the average length is shown per Trip instead of per person, without commercial transport. Finally the percentage of the population that owns a bicycle.

	Guldborgsund Kommune	Hele Danmark	
Samlet, gennemsnitligt antal ture	3.6	3.2	ture pr person pr dag
- excl. erhvervstransport	2.8	2.9	ture pr person pr dag
Andel personer uden ture	21%	17%	(andel på gns. dag)
	Guldborgsund Kommune	Hele Danmark	
Samlet, gennemsnitlig rejsetid	59	58	minutter pr person pr dag
	Guldborgsund Kommune	Hele Danmark	
Samlet, gennemsnitlig rejselængde	53	40	kilometer pr pers. pr dag
- heraf motoriserede transportmidler	51	38	kilometer pr pers. pr dag
- heraf cykel	1.0	1.5	kilometer pr pers. pr dag
- samlet, excl. erhvervstransport	49	38	kilometer pr pers. pr dag
	Guldborgsund Kommune	Hele Danmark	
Gns. turlængde, excl. erhvervstransport	17.9	13.0	kilometer pr tur
	Guldborgsund Kommune	Hele Danmark	
Cykelejserskab	74%	72%	(andel af befolkningen)

The figures in Table 2 shows that 85% of the transport kilometres are done by car. Next, the share kilometres taken by train is 9% of the total number of transport kilometres for the citizens og Guldborgsund Municipality.

Time travelled can be considered as a more reasonable parameter than kilometres, when traveling shorter distances. In average the citizens are walking 7.6 minutes

per day (walk as a form of transportation, not walk in generally), which in average is around 0.6 kilometre. The bike is used 3.5 minutes per person per day that makes 1 km per day per person (according to Table 1).

Table 2: Distribution by means of transport for citizens in Guldborgsund Municipality. "Others" are omitted as they represent less than 1% in both cases.

Transport form	Km/pers/day	share of person-km	Min/pers/day	share of travel time
Walk	0,6	1 %	7,6	14 %
Bicycle	1,0	2 %	3,5	6 %
Car	41,8	85 %	39,4	70 %
Bus	1,3	3 %	1,5	3 %
Train	4,6	9 %	3,7	7 %

1.5 Bus routes

The bus routes in Guldborgsund Municipality are planned by the bus company MOVIA together with the municipality. Bus routes must be planed so the buses come through the areas where analyses shows that there is the greatest need. Usually the greatest need of bus-service is between areas with schools and residential areas. The map shown in Figure 1.3 shows that Nykøbing Falster, is well covered with bus routes. After that the rural areas must be have connection to areas the industrial areas. That is primarily connections from Horbelev, Gedser/Marienlyst and Guldborg to Nykøbing Falster. There is also a need for well functioned public transport to Vordingborg, Næstved, Ringsted and Copenhagen.

There are several types of bus routes in Guldborgsund Municipality. MOVIA manages the majority of the routes. In addition, there is a Ring route - which is a free bus driven by the municipality - in the north of Falster. Finally there are two school buses line 600 and 601.

The most important issue to address when planning public transport is to ensure that as many areas with housing are connected to points of interest such as work, education, shopping and culture. In Guldborg there is a passing bus (760) that ends in Sakskøbing, where there is a regional train between Nakskov and Nykøbing Falster. Trough Horbelev comes a bus (737) that goes between Stubbekøbing and Nykøbing Falster St. From Gedser/Marienlyst there are three buses in the area (740, 741, 742), but only one bus (740) from Gedser harbour (at the ferry).

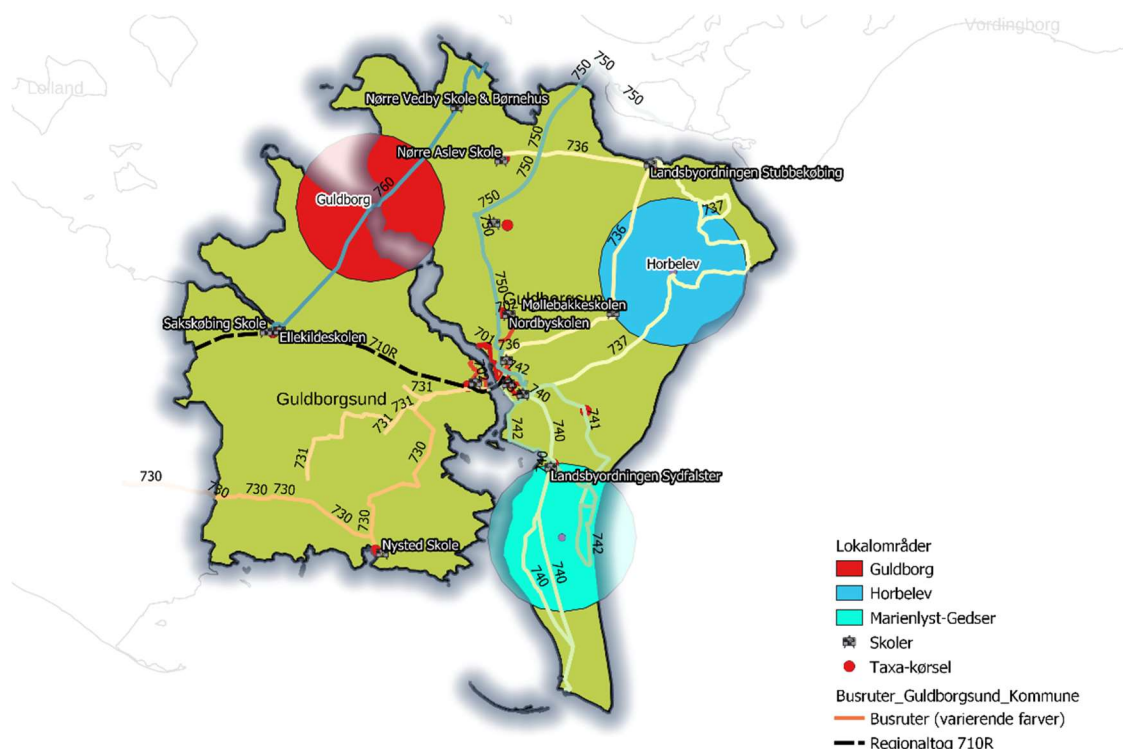


Figure 1.3 The map shows an overview of bus routes in Guldborgsund municipality. The route number is only illustrated in the municipality. 710R is a regional train that runs between Nakskov and Nykøbing Falster. The colored circles shows the tree areas. Besides that the public schools are marked, and the small red dots marks where the local Taxi-companies are placed.

When choosing the mode of transportation it is of great importance the range of buses and frequency is of crucial importance. In the following sheet are data from all relevant bus lines in Guldborgsund Municipality shown. The starting point and final destinations of the bus lines are noted, as well as the time of the first and last departure. The beginning and ending time are divided into categories of days (Monday to Friday, Saturday and Sunday and public holidays) and the frequency is divided into intervals.

Table 1.3: Overview of running times for buses in Guldborgsund Municipality. Some of the buses are getting new times schedule by medio December 2019. All the time-slots presented are form the departure. The relevant bus routes for the three cities are marked with grey. Guldborg: 760 + 710R; Horbelev: 737; Gedser/Marienlyst: 740 + 741 + 742.

Bus nr.:	From/to:	Departure: First + last	Frequency during daytime
701	Pandebjergvej - Nykøbing F. St. - Lindholmcentret	Mon-Fri: 05:56, 20:56 Sat: 07:26-20:26 Sun: 09:26-20:26	30 min 60 min 60 min
702	Sundby - Nykøbing F. St. - Nordbyskolen	Mon-Fri: 05:59, 20:59 Sat: 07:29-20:29 Sun: 09:29-20:29	30 min 60 min 60 min
703	Nykøbing F. st. - CELF, Kringelborg Allé	Mon-Fri: 07:45, 15:17	6 times a day

710R	Nakskov - Nykøbing F. Tur/retur. After 9. pm i weekdays the frequencies is 60 min	Mon-Fri: 04:04, 23:12 Sat: 06:05-00:21 Sun: 06:05-23:21	30 min 60 min 60 min
730	Holeby - Nysted Rtb.	Mon-Fri: 05:45, 23:20 Sat: 08:18-23:18 Sun: 08:38-21:38	30-120 min 60-120 min 60-120 min
731	Nykøbing F St. - Toreby - Døllefjelde - Brydebjerg	Mon-Fri: 07:39, 14:20, 16:20	Three times a day
736	Nykøbing F St. - Stubbekøbing - Nørre Alslev St.	Mon-Fri: 05:40, 23:20 Sat: 08:20-23:20 Sun: 08:20-20:20	30-60 min 60-120 min 120 min
737	Nykøbing F St. - Horbelev - Stubbekøbing Havn	Mon-Fri: 05:36, 19:20 Sat: 09:20-17:20 Sun: 09:20-17:20	30-60 min 120 min 120 min
740	Nykøbing F St. - Væggerløse - Skelby - Gedser	Mon-Fri: 04:30, 22:04 Sat: 06:04-22:04 Sun: 06:04-22:04	60-120 min 120 min 120 min
741	Nykøbing F.St. - Idestrup - Marienlyst	Mon-Fri: 05:20, 23:10 Sat: 07:05-23:10 Sun: 07:05-21:05	60-80 min 120 min 120 min
742	Nykøbing F St. - Hasselø - Væggerløse - Marienlyst Busrute i sommerperioden	Mon-Fri: 06:16-19:16 Sat: 06:20-15:20 Søn: 06:20-15:20	120-180 min 120-180 min 120-180 min
750	Stege - Damme - Farø - Nykøbing F. St.	Mon-Fri: 08:05, 13:35, 15:42	Three times a day
760	Vordingborg - Guldborg - Sakskøbing	Mon-Fri: 07:50, 14:00, 15:40	Three times a day

- **Guldborg** is served by bus 760, which only runs three times a day that means that there is very little flexibility for potential passengers.
- **Horbelev** has bus 737, which runs early in the morning and in frequency 30-60 min. That is relatively high frequency between Nykøbing Falster and Horbelev.
- **Gedser/Marienlyst** is served by bus 740, 741 and 742. Only the 740 and 741 are running all year. The average frequency is one bus per hour. There is relatively good bus service. There is no longer any train connection.
- **School Bus**

On the map shown on Figure 1.3 , the school buses are not illustrated, as they only pick up schoolchildren. School buses service the majority of schools in Guldborgsund

Municipality. The only exceptions is three of the schools inside Nykøbing Falster; Nordby Skolen, Lindeskovskolen and Østre Skole².

2 Involving stakeholders and other citizen

This chapter describes the involvement of stakeholders and citizen in Guldborgsund Municipality. I present a part of the processes and the outcome of it.

The citizens have had the opportunity to make their opinion regarding mobility heard on three occasions.

1. They had the opportunity to comment on a post on the Guldborgsund Municipality's Facebook website.
2. They could attend at a workshop held at Guldborgsund Municipality's Town hall.
3. A questionnaire was announced to the target group, among others via the Facebook websites of three local merchants.

2.1 Comments posted on Facebook

To draw attention to the project and to invite as many stakeholders and other interested citizens as possible to the workshop, Guldborgsund Municipality placed a post on their Facebook website. The purpose of the post was to promote the project in general, and as an invitation to the workshop in particular.

Figure 2. 1 shows the post from Guldborgsund Municipality's Facebook website.

²According to bus company John's Bus, which conducts driving with school pupils. <https://johnsbus.dk/>



Figure 2. 1: Screenshot off the post on Guldborgsund Municipality's Facebook website (The right picture shows the full text that appears when it is "folded out") The text explains that the municipality are working on a project to map and improve mobility outside Nykøbing Falster, and that they are having a workshop where everyone is invited.

The municipality of Guldborgsund showed the citizens that they were interested in hearing their opinion regarding mobility in all of the municipality. A few citizens took the opportunity to comment directly on the Facebook post.

There were some of the users of Facebook who expressed their wonder/dissatisfaction on the fact that the workshop was held in Nykøbing Falster, and not in the local areas, while there were some people living in other rural areas were unhappy with the fact that their local area has not been included and only Guldborg, Horbelev and the south of Falster.

In addition to the unhappy Facebook users, there was also some of the users that came up with more constructive comments:

"Let the school buses take on paying passengers along with the school children"

"Make a transportation APP . .. so the bus driver can see where public transport is needed, it is not very clever to let a bus run to Gedser if there is no one going to Nykøbing Falster or vice versa."

"... Bus is too expensive and too inconvenient/too few departures, neither bus or Train can be used due to my working hours and the bus routes"

" We just want to have the bus back to Nagelsti again... "

2.2 Workshop

A workshop was held with the theme *Mobility in Guldborgsund municipality, outside the "capital" Nykøbing Falster*. The workshop was held on the 4th of November 2019, at the townhall in Nykøbing Falster. At the workshop, sixteen stakeholders and other citizens showed up. The participants were mainly from Guldborg, Horbelev and southern Falster.

One joint workshop was held for the three communities. This was decided in order to allow participants from the three areas to be inspired by each other's ideas.

In addition to being ordinary citizens in Guldborgsund Municipality, the participants were also representatives of several stakeholders. All together the participants represented: *High School students, the association for a future in Northern Falster, the tourist association, the Cyclist Federation, the Senior council, local politicians, as well as mobility staff from Guldborgsund Municipality.*

The programme for the workshop was:

Kl. 17.00	Welcome, background, presentations of discussion topics.
Kl. 17.20	Group debate 1 st round (problems)
Kl. 18.00	Presentation of the result of the debate – Plenary discussion
Kl. 18.45	Sandwich and inspiration
Kl. 19.00	2 nd group debate (solutions)
Kl. 20.50	Summing up on the debate
Kl. 21.00	Thank you for coming

The participants at the workshop discussed in groups, with the overall theme: Mobility. They had some maps of the individual areas placed around the tables. The initial debate were ment to point out problem areas. Following the initial debate at the tables, the topics that has been discussed was presented, so that the groups could inspire each other before the debate was resumed. The second part of the debate were a more solution-oriented discussion where the participants came up with ideas and suggestions to solutions.

Between the first and second round of group discussion, a small treat was served and a presentation was held about various mobility solutions, which have been seen elsewhere which should provide inspiration for the debate of solutions.



Figure 2.2: Group debate, in two rounds. Photo: NIRAS

Many suggestions were made at the workshop. There were very loose ideas and also some concrete proposals for solutions. The problems and ideas for solutions can be divided into the following categories:

1. Public transportation
2. Improving conditions for cyclists
3. Carpooling/ Driving together (organized and spontaneous)
4. Campaigns/information etc.
5. Combination

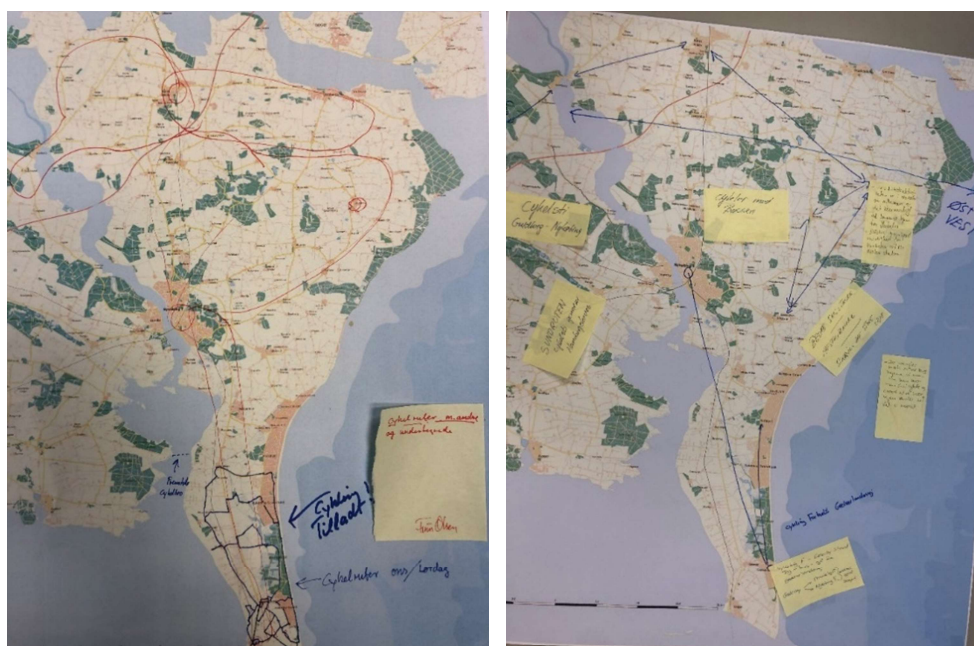


Figure 2.3: There was a lot of drawing and writing on maps. Photo NIRAS.

2.2.1 Public transportation

In general, there was a clear perception that public transport in the rural areas is too expensive and inadequate. That was seen as the main reasons why the preferred means of transport is the car. There is too much waiting, because of poor connections. In addition, there is a lack of coherence in the public transport in the northern part of Falster. In the outermost parts of the municipality the supply of public transport is decreasing as the small schools are being closed, and school buses are not driving when the schools are closed for holidays.

One of the initiatives that is implemented to solve the problems that arise as a result of cutting in bus operation, is the Flex tours³. Many people don't know about the Flex tours. Some of the participants that have used it, have experienced that it is too expensive, because of the geography of the municipality. From many addresses in the municipality there are more than 22 km to Nykøbing Falster, which means that a journey with the Flex bus costs more than 100,- DKK. (around 13,50 €).

It is difficult for young people living outside Nykøbing Falster, to take part in leisure activities or to maintain a spare time jobs in Nykøbing Falster, as there are poor bus connections after 5 pm. (if any). It is also a desire from adult citizens that there is an alternative to the car in the evening, if they want a glass of wine. A suggestion was made of a bus in driving in the late hours two evenings a week.

2.2.2 **Improving conditions for cyclists**

According to the participants at the workshop, the main obstacle to getting more children and adults to use the bicycle in rural areas, is that it feels uncomfortable to cycle along most of the roads outside the city. It was pointed out that there are missing bicycle paths and illumination along the roads.

It is important to convince people, that bicycling is not at all that dangerous that they think. By presenting real facts, attention must be drawn to the fact that if bicyclists take simple precautions, such as lights on the bicycle and using a helmet bicycling in the countryside can be safe.

When people are convinced of the fact that it is not dangerous to cycle along the majority of roads, there will be more bicycles along the roads, which increases the road safety, as more cyclists lead to greater attention from motorists (safety by numbers).

As electric bicycles (e-bikes) get better and cheaper, it is possible for people who are not "super-athletes" to transport themselves at relatively large distances on a bicycle. This opens up for commuting further on a bicycle, even for those who do not have the opportunity or wish to take a bath when they reach their workplace.

2.2.3 **Carpooling (organized and spontaneous)**

The car-ownership in Guldborgsund Municipality is high. According to Denmark's statistics 67% of the families in Guldborgsund Municipality have access to a car, compared to 61% of the families at a national level. Figure 2.4 shows that there are several families with access to a car in Guldborgsund Municipality than at national level and that the proportion of families that owns a cars increases faster in Guldborgsund Municipality than in the rest of DK.

³ <https://www.guldborgsund.dk/flextur>

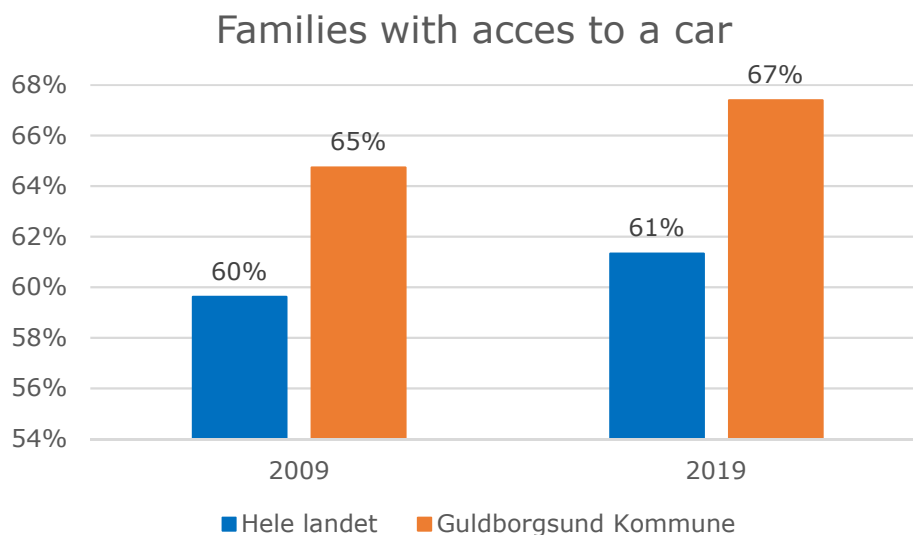


Figure 2.4: Share of families with access to a car in 2009 and 2019, Blue is all families in Denmark and orange is families in Guldborgsund Municipality[Statistikbanken.dk]

Several families have access to a car, and several families have access to more than one car.

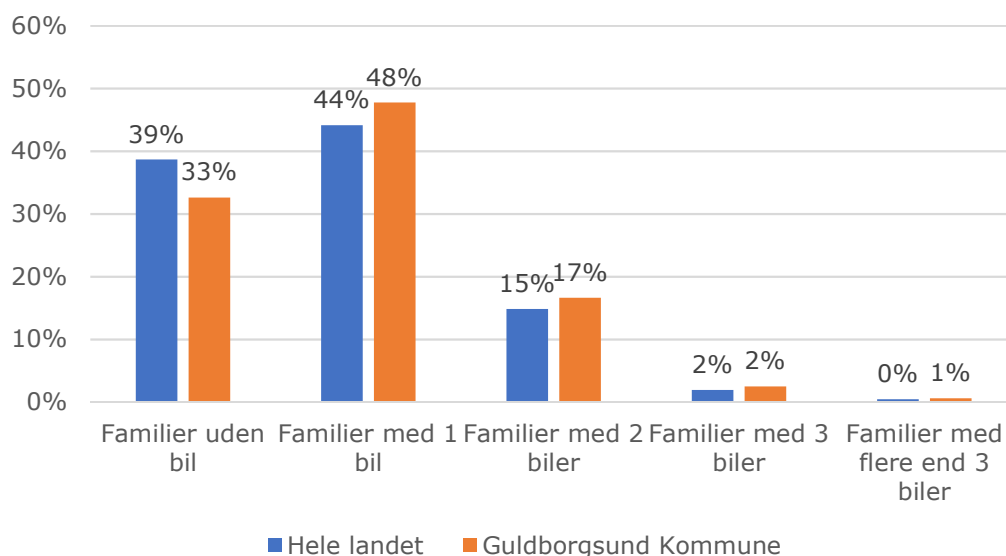


Figure 1: From the left: Families without a car, Families with one car, families with two cars, families with three cars and families with more than three cars. Blue: All of Denmark, Orange: Guldborgsund Municipality.

Only about a third of the families in Guldborgsund Municipality, does not have at least one car. The proportion of families with access to a car indicates that there are many cars on the roads in Guldborgsund Municipality. Thus, there is a great potential of empty seats, which drive around the roads in the municipal. That means that there is a great potential for driving together.

The workshop participants discussed two main types of driving together. An organised form of driving together, and a more spontaneous way of driving together.

2.2.3.1 *Organized driving together - carpooling*

There was a desire to have a common platform for offering- and to request a lift. The platform would make it easy and convenient, both for those who provide the opportunity and for those who needs a lift. If there is a common perception of what it costs to ride along, it will eliminate one of the biggest barriers to ask someone for a lift. One mentioned that years ago, it was widely known that to buy a cigarette from someone costed 5,- DKK (0,66 euros), so it was easy to ask if you could buy a cigarette - even if you did not know the other person. If the price of a lift becomes generally known in the same way, it is easier to arrange a lift, for example through social medias like Facebook.

Of other forms of organized driving together, there are various providers of carpooling, that operates through some kind of platform. One of these is the company Gomore, this service works well for occasional carpooling, where the users of the system promote a lift at the platform (app and online), and then those in need of a lift can respond to it, after which the practical conditions of the time and place for the pickup can be agreed via the messaging system in the app. The app suggests a price for the trip and payment is made via the app, where the provider (gomore) takes a percentage of the amount to make the service available.

Another platform-based solution that was mentioned is from the company NABOGO. NABOGO's service is more suitable for the everyday carpooling. Those who have one or more available seats in their car puts their route in the system via an app. Within the system there is some predefined stops (virtual stops defined in the app), and lift-takers can put in a request for a lift from one of the stops along the route. The systems works best along routes where there is a great volume of trips between two destinations, that provides a form of security for the lift takes, that there is a lift on a regular basis. The payment for the trip is also done via the app. Unlike Gomore, the full amount paid for the lift goes to the driver, and the operation and development of the system is paid through contributions from the municipality.

2.2.3.2 *Spontaneous driving together*

In addition to the organized carpooling, there was a desire to achieve a higher level of spontaneous driving together. The primary barrier to the spontaneous form of driving together is the attitude of the population. There is a need of a change in attitudes in the population. The general perception of road users – not only in Guldborgsund Municipality – that it is associated with a high risk of driving with a stranger.

At the workshop it was mentioned that in the small towns, most of the drivers that comes by are known in the community. It could benefit the mobility if motorists considered people at a bus-stop as someone who could use a lift, and it was accepted among people to offer a lift spontaneously.

Other communities have succeeded in putting up a bench, that is defined as a place where people who want a lift sits down, and use a sign to indicate that they want a lift to a specific destination. As shown in the first picture on Figure 2.5 people can specify their desired destination by the colour of the seat.



Figure 2.5: Three examples of Mitfahrbank/ta-mæ' bæk – Ride-along-bench, from Germany and from Als (Southern jutland). [ze.tt, lysabild-sydals.dk, bobenop.de]

The ultimate form of spontaneous driving together is hitchhiking. Several places in Denmark there are being made so-called hitchhiking-stops, as an experiment.



Figure 2.6: Official place where it is legitimate for hitchhiking, a so-called hitchhiking-stop [blaffernationen.dk]

A simple study of the users of hitchhiking-stops shows that there are not significantly more people gathering at these stops, but that the signs make it more legitimate for the hitchhikers to get a lift, and that the signs also help to promote hitchhiking, and on carpooling in general.

2.2.4 Campaigns/information etc.

Another one of the many proposals from the workshop, that can make awareness of mobility solutions in less populated areas, was to organize days with different events with the theme mobility. This is based on the fact that many residents in the small towns need more information about the opportunities that actually exist. A greater knowledge of existing solutions, and more talk about these, is considered to be able to solve a part of the problems experienced.

When the municipality wants to introduce new types of mobility, there should be organized a thematic day with focus on the new and existing mobility. A theme day

also has the potential to strengthen the community in rural areas, which is seen as a further step towards better mobility.

2.2.5 **Combination**

In addition to more asphalt dedicated to cyclists, participants is seeking the opportunity to combine bicycling and public transport.

The citizens of Guldborgsund Municipality are commuting at long distances. There are many commuters without the opportunity to go all the way between home and work/education on their bicycle due to the distance. To get these commuters into more sustainable modes than the car, it is important to do something about the possibility of combining the bicycle with a well-functioning public transportation. This wish have resulted in a series of bicycle measures around the station.

Many bicyclists wishes to bring the bike on the bus, in an easy and not least inexpensive way. There was a an opinion that there are to few bicycle parking at the bus stops.

In the rural areas there are very few of the passengers that lives next to a bus-stop. Therefor most of the passengers have to transport themselves to the bus-stop. Most of them transport themselves on a bicycle, therefore it is important that they have a safe and secure route. At the stop there must be the possibility to park the bicykle safely and securely. Also a shelter and the possibility to sit down would make waiting for the bus a better experience.

Another very important thing is that the buses are reliable and comes at a reasonable frequency.

For many, it is just as important that it is possibel to get from the final bus-stop, in many cases that is at Nykøbing Falster station, to the final destination. For some users the city bus is sufficient, while others have a desire for shared bikes, electric scooters or another kind of "micro-mobility".

2.2.6 **Other**

A suggestion, of a more curious nature, is to organize a place where young people can stay overnight, after a pleasant evening in Nykøbing Falster, to take the bus home in the morning. A "Crash-hotel", for free – or very low cost, to make sure the young people uses it.

2.3 **Questionnaire**

In order to obtain a quantitative picture of mobility in the three rural areas; Guldborg, Horbelev and Southern Falster (and thereby an overview of the entire municipality), a questionnaire about mobility was send out.

In order to get as many replies as possible, an agreement was made with a merchant in each of the three local areas. These merchants helped to promote the questionnaire via their Facebook website, and they provided a price that was given to one of the local respondents. Along with the announcement on the Merchants website, some of the local associations were asked to advertise the questionnaire.

The questions in the questionnaire concerned traffic behaviour and traffic patterns. Questions about: Primary means of transport, age, transport time, work, public transport, bicycle infrastructure, interest in carpooling, etc.

There are several general comments which are common to the towns and rural areas in Guldborgsund Municipality:

- There are too few buses connecting the smaller towns, especially in the outer hours.
- It is expensive to use the public transport.
- In general, the smaller towns are poorly served by buses and the frequency does not match working hours.

The following are the main conclusions for the entire municipality of Guldborgsund, and results divided in respondents from the small towns where a questionnaire survey has been carried out. The focus of the conclusion is on Guldborg, Horbelev and Gedser/Marienlyst. In addition to these key-towns, there are citizens from other smaller urban communities in the municipality who have replied to the questionnaire, these answers are also included in the analysis. Finally the most important information from the three cities including comments are shown.

Guldborgsund Municipality: 337 replies.

The overall picture for the entire Guldborgsund Municipality is that 68% use the car as a primary means of transport. 18% are satisfied with the supply of public transport. 30% would use the bicycle more if the conditions were better.

Guldborg: 62 Answers

76% use the car as a primary mean of transport. 80% sees it as the only option to use the means of transport that they use today. Only 7% are satisfied with the supply of public transport. 31% would use the bike more if there are more cycle paths. There is a desire for several bike paths separated from the road / separate trace.

Comments:

"provide a bus connection between Guldborg and Nykøbing F. and between Guldborg and Saksøbing for more than school children"

"Re-launch bus route nr. 733 again, higher frequency on bus route 760, also during the holiday time"

"...would like to have the opportunity of carpooling, to get free bus services, where it is local citizens who are drivers, to have the opportunity to use public transport to the doctor and dentist, as health has often a higher priority than afternoon coffee..."

"Buses in rural areas 1-2 departures daily. Possibility for anyone to use the school bus which runs to and from the city all weekdays. "

Horbelev: 53 Responses.

76% use the car as a primary means of transport. 61% have no other options. 31% would use the bike more if there were more cycle paths. There is a desire for several bike paths separated from the road /separate trace.

Comments:

"Bus to Horbelev in the evening"

"There is no bus service in the evening and weekends-night. Would like it if you don't have to have a car to go to the cinema and so there are alternatives if I want to drink spirits."

"More departures of bus 737"

"The municipality could lend out electric bikes as it is tried in Roskilde Municipality. Here you could borrow one for 3 months. To see if it could make people bicycling instead of driving their car "

Gedser: 73 responses.

56% use the car as the primary means of transport. 49% have no other options. 22% would take the bike more often if conditions were better.

Comments:

"Pave the path on the dyke. Prohibit cycling on Gedser Landevej. "

"more frequent buses and make sure it fits with departures/arivals of the train"

" more frequent public buses"

For the remaining towns, only the conclusions from the questionnaires have been collected to give an indication of how the conditions are in comparable towns in the remaining part of the municipality.

Sakskøbing: 22 Responses

87% of the respondents in Sakskøbing drive by car every day. None of them are satisfied with the supply of public transport.

Nykøbing Falster: 96 Replies

30% use the bike as the primary means of transport. 50% is satisfied with the infrastructure for cyclists. No bus in the early morning, and late in the evening the number of departures is limited. More focus on Flex tours and promotion of it.

Stubbekøbing: 8 Answers

71% use the car as a primary means of transport. Less than 15% would use the bicycle more if the bicycle infrastructure were improved. There is a desire for the bus to run in the outer times.

Nysted: 24 Responses.

84% use the car as a primary means of transport. 63% does not other options. 70% would take the bike more often if conditions were better.

In Figure 2.7 the most central responses are calculated for each society.

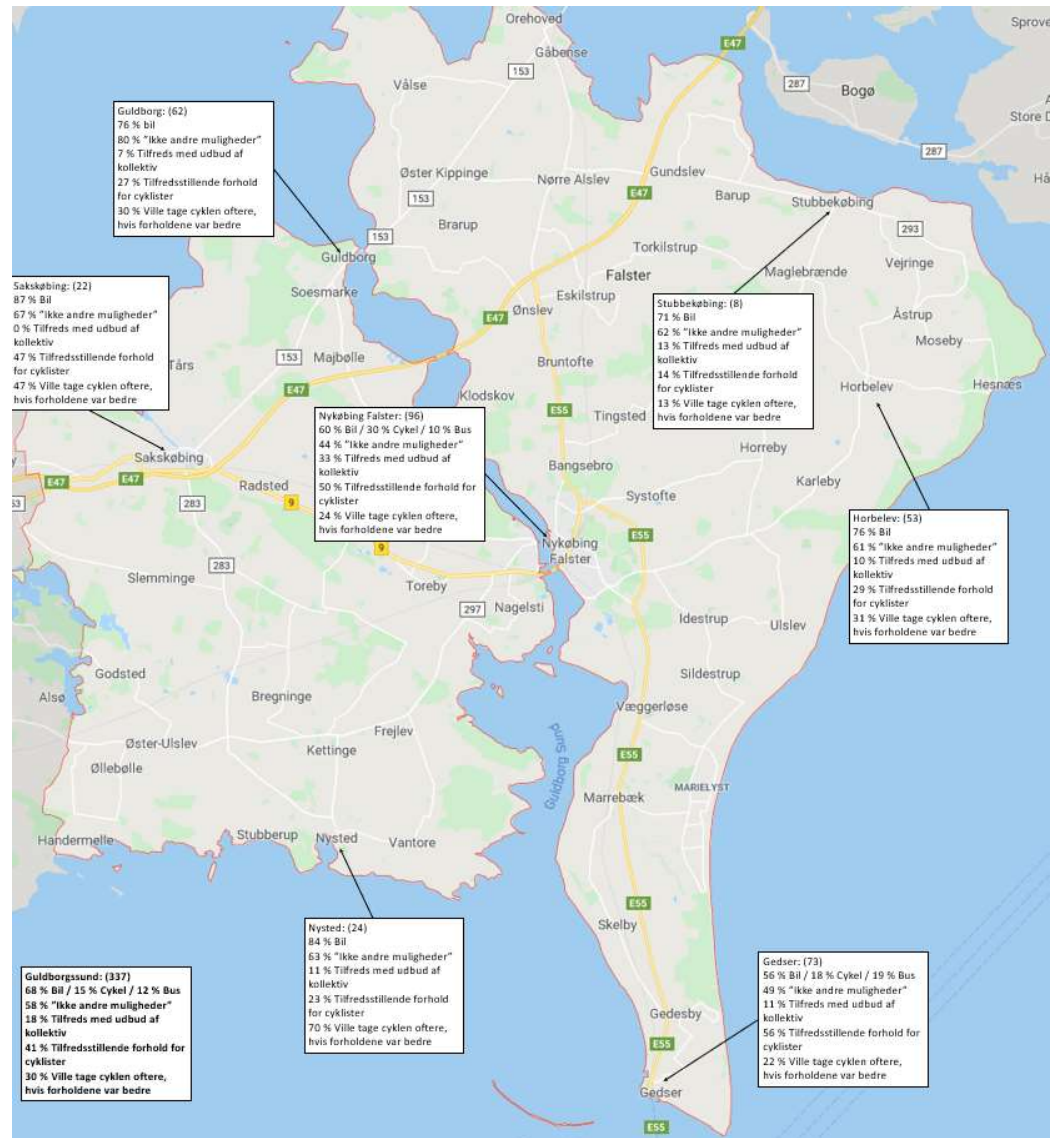


Figure 2.7: Overview of answering from each city. The questionnaires contain more questions than shown for each city. The following questions are illustrated: primary means of transport; Why is this transportation – Most selected answer option is "no other options; Satisfaction with collective procurement; Satisfaction with the situation of cyclists; You will take the bike more often if conditions were better. (the map displays what is explained on the previous pages)

2.4 summation on Citizen Involvement

In general, both for the participants in the workshop and the respondents to the questionnaire, there is agreement that there has been a deterioration in public transport through the years. In the survey, 58% answered that the supply of public transport is not satisfactory. Young people find it difficult to get a bus into the city, but also transport between the different villages is lacking and make it difficult to go to another town for leisure activities.

The main issues according to the survey are:

- The price of the collective transport
- Missing bus routes (especially east-west)

- too few departures at early and late hours
- Poor infrastructure for cyclists

Public transportation through rural areas takes too much time, and this is mainly due to waiting times, bad connections between the lines and a lack of east-west public transport on northern Falster. Poor conditions at bus-stops is a problem that discourages people from using public transport. It can also be a problem to have your bike on the bus due to lack of space.

"The routes make no sense in terms of getting to the surrounding towns. If I'm going to Sakskøbing - 12 min by car - but by public transport I have to take a bus to Nykøbing to take the train to Sakskøbing"

The price of the public transport is experienced as very high compared to car, which makes people use their cars instead. Flextur is also considered too expensive, due to the relatively long distances.

"There are no bike paths out here in the countryside. It is not safe to let one's children cycle to playmates, nor to school. It is not safe to use the bike even if you are an adult. We would use the bike more often if there were more bike paths."

Suggestions were made to have buses across North Falster, linked to the existing bus routes. This combined with more attractive stops and perhaps even free public transport, could lure more from the cars into the buses.

Carpooling was also suggested as a possible solution, perhaps combined with commuter stops around Føtex or other local shopping options. Then the drivers don't have to drive a detour to pick someone up.

If the price of a lift adjusted so that it will be the same for everyone, one of the barriers of carpooling will be removed. About 60% of respondents to the questionnaire indicate that they could imagine the driving together/carpooling as part of the solution.

Better opportunities for taking bicycles along in the buses. Then you can bring your own bike and increase the radius of action on arrival. And there is a desire for better signage for cyclists.

A large number of respondents to the questionnaire wanted more cycle paths separated from the road on several routes.

"There are certainly not enough bike paths... I do not feel comfortable cycling with my little boy, as the cars often run very fast and I am forced to cycle where they drive."

3 Principles of Solution

This chapter describes the different solution principles that are put into play in the solutions in Chapter 0.

The solutions that are included are for the vast majority, of such a character, so it can be scaled up and down depending on the context in which it is to be implemented. Therefore, this chapter does not focus on the cost of implementing.

In Table 3.1 are listed the solutions contained in the catalogue. The majority of these solutions are generally described in chapter 5.

The selected solutions are either directly desired by some of the citizens involved or assessed by the project group as being a workable solution, to some of the problems that have been identified by the participants.

Table 3.1: List of proposed actions, which are included in the solution catalogue.

id	Action	Purpose	Category
1	Illumination for bicyclist in villages	Cyclists feel safer	Cyclist conditions
2	Upgrading of bus-stops	Make it nicer by waiting for the bus	Publictrans.
3	Bicycle parking Bus-stops	More attractive to cycle to the bus	Kombi.
4	Drive-along-bench "Midtfahrbank"	Easier carpooling	Driving together
5	Shared town-car	Reduce the need for the 2 nd car	Campaign ect.
6	Mobility Package	Publicity for sustainable mobility	Campaign ect.
7	Improving guiding (signs)	Guide Cycling guests Around	Cyclist conditions
8	Try a e-bike	Get more to commute on bike	Campaign ect.
9	Extra bus services during the summer period	Make more use of public transport	Publictrans.
10	Establish more cycle paths	Get more cycling	Cyclist conditions
11	Safe-cycle campaign	Safer bicyclists	Campaign ect.
12	Bicycle-library	Independence of the car	Campaign ect.
13	Mobility-check at schools	The next generation must choose sustainable mobility	Campaign ect.
14	Free public transportation	Make more use of public transport	Publictrans.
15	Organised carpooling	Fewer driving alone in the car	Driving together
16	Parking for commuters	Better framework for co-driving	Driving together
17	Guldborgsund Municipality's bicycle identity	Focus on bicycling	Cyclist conditions / Campaign
18	Buses at events	Get people to "try" the bus	Publictrans.

In the catalogue of solution in appendix 2, prices are further described for many of the solutions included there.

4 Solutions

The solutions described here and in the catalogue of solution have been selected on the understanding that it is these challenges and these actions that there have been expressed a need/desire to be addressed by the citizens involved in the processes that have been carried out. Guldborgsund Municipality wishes to send a signal that the solutions are picked by the citizens as solutions to their particular problems.

4.1 Public transport

Public transport in the classical sense is train and coach. In the area That now a days are known as Guldborgsund Municipality, the very first public coach in Denmark was implemented starting in 1903. It drove between the towns of Nysted and Nykøbing Falster.

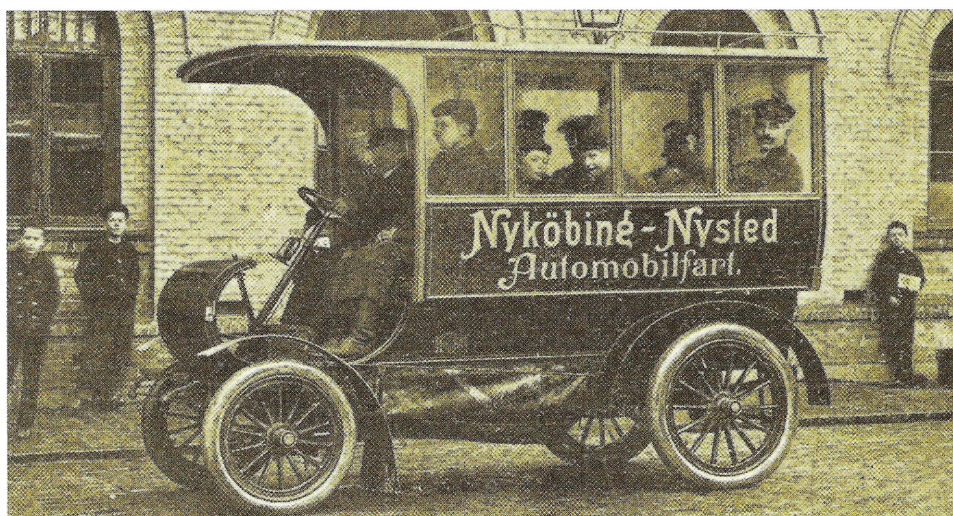


Figure 4.1: Denmark's first coach car from 1903 [Nysted Lokalhitoriske Arkiv]

Public transport in general and buses in particular are thus given a natural role, in the discussion about mobility for all, in rural areas.

4.1.1.1 Upgrading of bus-stops

In order to make it attractive to take the bus, for citizens of rural areas, there is a great desire that something should be done with the bus-stops. Waiting passengers should have the opportunity to seek shelter while waiting for the bus. At the same time, there is a great signal value to road users – both those who use the bus and those who drive by in their car – that a little extraordinary is being done for bus passengers. At the bus stops where there is a relatively larger amount of passengers on and off the bus, the stop can be supplemented with facilities such as departure displays and bicycle parking.

Something that can put extra focus on bus stops in rural areas, is adding outdoor fitness tools. In this way, the municipality signals a focus on health, and pending bus passengers get something to do while waiting for the bus. At the same time, it can increase the feeling of security at the bus stop, if the fitness tools contribute to more life around the bus-stop especially in the evening.

It is important that the equipment is placed so that it is possible to keep an eye on the bus arriving while working out.



Figure 4.2: Outdoor fitness equipment, with instruction[Foto: VisitAarhus]

4.1.2 Buses during the summer periods

During summer periods, when school buses out of service, there is a need, especially among the younger people without a driving licence, to be able to get around. During the holiday period, young people have more time for leisure activities and/or sparetime jobs. These activities are typically located in the city, which is why it is also necessary for young people to be able to transport themselves without relying on their parents to run them, when the school is closed.

Although there is a need among some young people to get around the municipality during the school holiday period, it is hardly enough to form a passenger base for the insertion of a bus. In order to make sense, to insert a bus during the summer holiday period, there must be created a "hype" around the bus. Also the route should be arranged in such a way, that it also makes sense for tourists in the municipality to use the bus. This can help to brand Guldborgsund Municipality as an obvious holiday destination – also for families without a car, for example from greater Copenhagen. They can get from their apartment to a summerhouse with train from Copenhagen, and bus from Nykøbing Falster – That would make great publicity.

4.1.3 Free public transport

In many municipalities, which can be categorised as rural municipality, there is a chance that the expense of administrating the pavement of the tickets for the bus is larger than the income from the tickets. Therefore, there are municipalities which have attempted to introduce free bus services in the municipality. Both to save the cost of administrating tickets and cash, but also as an attempt to make more citizens use public transport.

There is typically a perception among citizens that free public transport, leads to more users, and fewer cars on the roads. The introduction of free public transport can be introduced over a shorter experimental period, together with a number of other initiatives, to promote the use of public transport.

4.1.4 Event busses

Another thing that has been desired by citizens is event buses at bigger events in the municipality. One of the reasons why this has suggested, may be that Guldborgsund Municipality previous have experimented with event buses, for example at the fair in Døllefjelde-Musse.

That has inspired some people to wish for buses for similar events. These event buses should be used as part of a general promotion of public transportation. For

example, vouchers could be awarded for three bus tickets in the regular daily bus service.

4.2 Improved conditions for cyclists

One of the most used sustainable forms of mobility in Denmark is the bicycle. A essential issue for the bicycle to become the preferred mode of transport in rural areas is that roads and paths are safe and secure to use. Not least so that parents feel comfortable sending their children on their own. The citizens who have contributed to the project have therefore mentioned a number of measures regarding cyclist infrastructure in Guldborgsund Municipality. This chapter primarily describes the actions aimed at bicycling outside Nykøbing Falster. For actions aimed at cyclists in and just outside around Nykøbing Falster, please refer to the report: "Improving bicycling in Nykøbing Falster".

4.2.1 Illuminating in rural areas

Where cyclists and motorists travel, illumination of the road can benefit to road safety and security. In villages where there are some other light sources, for example from houses along the road, it can be difficult to see the small bicycle lights, with relatively poor illumination.

Between villages, along roads without a bike path where there is bicycle traffic illumination along the road will make it more safe to cycle the road. It's a cheaper option than establish a bike path along the way. (it must be pointed out that the safety effect of a cycle path is way greater than just lighting). In the small villages better lighting can also help to create a better urban environment.

4.2.2 Better signage for cyclists

Falster's location on the route for bicycle tourists between Berlin and Copenhagen, as well as Guldborgsund Municipality's efforts to promote bicycle tourism, results in a large number of bicycle tourists through the municipality, compared to a wide range of other municipalities.

There is a desire among citizens of the municipality to improve the signage of the routes. The national bicycle routes are marked with easily recognisable signs, with directions and route numbers. An increased focus on putting up signs to guide bicycles in the municipality should therefore primarily involve new routes, and existing routes that are not a part of a national bicycle routes.

As part of creating Guldborgsund Municipality's own "bicycle identity" it is suggested that the municipality develops its own "bike symbol". An example of such a bike symbol is shown in Figure 4.3



Figure 4.3: Example of how Guldborgsund Municipality's own bike symbol could look like

4.2.3 Establishment of new cycle paths

The best way to get more people to choose the bike as a means of transport is to establish a well-functioning network of patches and tracks dedicated to bicycling. This can be separate bike paths away from the existing roads, or cycle paths along existing roads. Even a cycle lane can have a beneficial effect safety/security, and thereby a positive effect on the number of cyclists.

In the context of citizen involvement, there has been a desire for the establishment of cycle paths along a number of defined roads. These roads are shown in [Figure 5.4](#) along with marking of suggested new bus routes.



Figure 4.4: There is a strong wish to have number of the villages connected with bicycle paths. In addition, several have mentioned a desire to bind North Falster together in the East-West direction, with public transport. The roads that is pointed out for new bicycle paths are marked with black dotted lines, and the buses that shall connect villages east-west are marked as blue lines.

4.3 Carpooling

A large number of studies have shown that in the Danish rush-hour traffic there are on average less than 1.5 people⁴ in each car. In order to promote more sustainable transport, and at the same time create more mobility, for those who do not have

⁴For example, a study by DTU (2014) shows that passenger car journeys, starting in Guldborgsund municipality, contain between 1.2 and 1.3 people per car.

the possibility of driving in their own car, there is a basis for increased driving together.

4.3.1 **Organized carpooling**

One way to promote driving together in the municipality is to implement organised carpooling. This can be done in many ways. Some of the ideas can be implemented at the same time and other are alternatives to one another.

4.3.1.1 *Carpooling platform*

By cooperating with the suppliers of a carpooling platform, Guldborgsund Municipality can provide citizens with a simple and safe way to organize carpooling. By using a service that is facilitated by the municipality, it is possible to eliminate some of the barriers that have been mentioned.

When the carpooling is of a more official nature, there is a requirement for some form of identification of both driver and passenger, and therefore less fear of driving with a stranger. Another concern in relation to carpooling is the uncertainty of the price. In a carpooling platform, there are typically systems integrated to make it transparent what the price is of a given trip, and the payment is made easily and securely through the system.

4.3.1.2 *Parking for carpooling/ commuters*

A parking area placed close to some of the main roads is an obvious place for meeting for carpooling. In Guldborgsund Municipality there are already a couple of parking areas for commuters. A well-functioning parking for carpooling/ commuters must contain a well-functioning bicycle parking, waiting facilities where there is shelter would also be appreciated. If it is placed in combination with public transport it will only add up the opportunities for the users.

4.3.2 **Spontaneous driving together**

Spontaneous driving together is occurring – as the name more than implies – spontaneously. Guldborgsund Municipality has the opportunity to encourage citizens to make spontaneous driving together a part of the mobility as a supplement to the public transportation. Partially by making campaigns, etc. which put focus on the benefits of driving together, but also through various physical measures.

4.3.2.1 *Hitchhiking-stop/ Ride-along-bench*

There have been done numerous attempts on promoting the benefits of driving together. For example, the "Hitchhiking nation" has in cooperation with the Danish Road Directorate and the police established a series of hitchhiking signs, to make it more legitimate to pick up hitchhikers, and to make it easy for hitchhikers to find an obvious spot for seeking a lift.

Several small towns in the South of Jutland, have made experiments with Ride-along-benches. These benches act as a hitchhiking stop. Persons who needs a lift, can sit on the bench, and mark the desired destination with some prefabricated sign placed at the bench. Drivers in the area can offer a lift if they are going in the desired direction. The idea is "stolen" from Germany where it is known as a "Midtfahrbank".

4.4 **Campaigns/information etc.**

The most important element in creating a transition to more sustainable mobility is a change of the behaviour of the road users. Road authorities and public transport providers can make an infinite range of offers available, but if road users are not

prepared to change their behaviour, changes will not happen. In order to achieve the desired behavioural change, and for the change of behaviour to be sustained, it is important that the changes are implemented in small steps.

4.4.1 **Test of electric bicycles**

At the workshop, there were citizens who imagined themselves doing a part of their everyday transport on a e-bike instead of the 2nd car. Despite the fact that e-bikes are getting cheaper, and can go further, it is still seen as big investment to potential e-bike to buy one if there is a chance that it will not be used.

By letting potential cyclists test an e-bike for their daily transport through a period of time, it is possible for people to get a real picture of how an e-bike can be used for transportation in their everyday lives.

4.4.2 **Campaign for improving bicycling**

Many comments have been given, that cycling alongside the roads in Guldborgsund Municipality is dangerous.

Elsewhere, a number of campaigns have been carried out to raise awareness that cycling in the countryside is not as dangerous as the rumours claims. Together with campaigns that encourage cyclists to make an effort to improve their personal safety by using light and helmet, as well as possible clothing in fluorescent colours.

A campaign aimed at cyclists, along with a campaign aimed at motorists, to make them comply with speed limits, has proven to have a good effect on the cyclists sense of security.

4.5 **Combination of solutions, etc.**

A number of the actions proposed at the workshop, or through questionnaires, are proposals of minor means which do not necessarily have a direct effect on the mobility in the rural areas. However, if some of these solutions are combined, there is a chance of a small change in the mobility.

4.5.1 **Bikes on the bus**

One of the challenges experienced as a major barrier to the use of public transport is the fact that there are long distances in both ends of the bus-ride. It is to far a distance to walk from home to the bus-stop, and from the station to work/education. It is possible, for those who owns a bicycle to ride it from their homes, and to the bus-stop. This only solves the transport needs in one end of the journey. In addition, not everyone feels comfortable eith leaving their bike at a bus-stop in the countryside.

One of the solutions, which has been pointed out a few times, is to make it possible to include bicycles in the buses.

If bicycles should go in the buses, the interior of the buses must be arranged in such a way that it is easy and safe to get your bike on and off the bus. Buses that run in the country sides are typically buses with high entry. If it takes to long to get the bike into the bus, it can make it difficult for the bus driver to arrive at the destination in time.

Inside the bus the bicycles must be placed so they du not tremble, or get in the way of the other passengers.