Development of the Sustainable Management Plan for the Mobility and Accessibility in the Kullaberg Nature Reserve

December 2017
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This plan is framed in the “Together We Can” project. This project includes the 5-year Action Plan for the “European Charter for Sustainable Tourism” (ECST). Through the ECST certification, Kullaberg Nature Reserve has committed to improve its sustainability based on international principles and guidelines, with participative management and through building cooperation and communication with stakeholders.

The Reserve has been carrying out and commissioning studies since 2015 in order to analyse the current situation and to improve sustainability whilst taking into account the performance of local businesses and the quality of life of the local population.

The Reserve has also installed people and car counters in strategic locations to analyse the current visitor flow. Moreover, other studies have been carried out in order to gain insight into natural heritage and the conditions and use of footpaths within the Reserve.

All this information is extremely useful in the development of this Sustainable Mobility Plan.

Within the ECST certification process, particularly through the diagnosis of the tourism situation and participative processes, some mobility-related problems and claims were identified and thus, the importance of a Sustainable Mobility Plan became clear.

During peak season, the large numbers of cars trying to access West Kullaberg cause different conflicts. Traffic and noise problems caused by cars travelling around and parking in Mölle are disturbing the neighbours of this town. The amount of cars hinders the cohabitation with pedestrians and bikes travelling along or crossing the street. Therefore, the citizens of Mölle are requesting better conditions in the village during the summer.

There are also conflicts with the preservation of nature like border effect, the occupation of large natural areas for parking and the effect of pollution over some organisms (Lars Salomon 2016).

The unbalanced distribution of visitors in some places of the Reserve also creates impacts (Perez & Sagra 2016) and affects the quality of the visit.

The quality of the visit loses value for everyone due to:

• Too many cars travelling around
• Too many cars in the parking areas
• Cars incorrectly parked outside authorized areas

Complying with ECST objectives in Kullaberg means reconsidering some elements of the current mobility system.

Overall, reducing the number of cars circulating and/or stationary within the Reserve is a condition to increase the perceived quality of the space and to improve visitor experience.

This reduction is necessary in order to move forward with a series of interrelated objectives whose compliance requires adopting measures regarding visitor flows:
• Changing transport modes
• Balancing destinations
• Increasing the range of experiences offered in Kullaberg

In order to achieve a more balanced geographical distribution of visits, the resources in the eastern area of the Reserve must be exploited.

The range of measures needed to succeed in these goals goes beyond the scope of the Sustainable Mobility Plan but the measures included in this are vital to begin the process:

• Give a qualified alternative to park outside the Reserve (Kullaberg Gate) and regulate the traffic inside
• Give an efficient public transport alternative to access the Reserve and connect with different points of interest
• Ensure easy ways for the visitors to walk safely along the Reserve
• Indicate easy cycling routes
• Extend the offer of promoted paths to Björkeröd

For the development of this plan, the community involvement has been very important and several meetings were organized throughout the process.

A dialogue meeting (July 1st 2017) and a presentation to Mölle Byförening (July 23rd 2017) were organized to properly inform local stakeholders about the general planning and the scope of the plan, and to collect their impressions.

Two workshops were held in September, voicing stakeholders’ opinions concerning the mobility’s organization and the proposed measures:

Workshop 1: “How do we get to Kullaberg?” was run on September 21st 2017. Twenty-one participants attended the workshop and evaluated how intense the traffic regulation should be in Kullaberg Nature Reserve.

Workshop 2: “How do we move and enjoy Kullaberg?” was run on September 26th 2017. Twenty-eight participants attended the workshop and spoke their mind regarding four topics proposed in the Mobility Plan: redesigning the road as a multiuse platform; redesigning and extending the bus services; expanding the paths’ offer through Björkeröd grassland; and suggesting routes for easy bikers.

This document is the result of the analysis of the collected data; the review of previous studies; and the joint assessment made with the Reserve managers and the stakeholders that were involved throughout the project.
1.- Regional position

The main factor which impacts visitor numbers in any natural area is the features of the regional area in which it is located, particularly in terms of the “demand threshold.”

Conventionally, a travel time of up to 1 hour is considered as a reasonable length for a day-trip. This figure reaches up to 2 hours for a weekend trip and increases further for medium-length and longer trips which usually take place around holiday periods. Occupancy peak days show an overlap in “demand thresholds,” working simultaneously. These tend to take place at weekends and during the summer holiday period.

The different isochrones during these periods can be charted and we can calculate the number of potential users of each of the sections which represent these “demand thresholds.” Thus, we have noted the areas from which visitors come as potential demand. In this study we consider isochrones for private vehicle travel time.
The location of Kullaberg NR at the end of a peninsula limits the scope of the demand area. However, this drawback is compensated for by geographical uniqueness.

The following data demonstrates that the “demand threshold” for those living within two hours travel time to/from Mölle is 2,820,121 (2017). Of this figure, 373,716 are within the area defined by the 60’ isochrone.

<table>
<thead>
<tr>
<th>Population within the 120’ isochrone (from Mölle)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SWEDEN</strong></td>
</tr>
<tr>
<td>Skåne</td>
</tr>
<tr>
<td>Hallands (40%) *</td>
</tr>
<tr>
<td>Kronoberg (40%) *</td>
</tr>
<tr>
<td>Blekinge (70%) *</td>
</tr>
<tr>
<td><strong>DANMARK</strong></td>
</tr>
<tr>
<td>Köpenhamn</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

* Estimated

**Chart 1. Population within 120’ isochrone**

<table>
<thead>
<tr>
<th>Population within the 60’ isochrone (from Mölle)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skåne Lan</strong></td>
</tr>
<tr>
<td>Höganäs</td>
</tr>
<tr>
<td>Helsingborg</td>
</tr>
<tr>
<td>Astorp</td>
</tr>
<tr>
<td>Angelholm</td>
</tr>
<tr>
<td>Bastad</td>
</tr>
<tr>
<td>Örskällunga</td>
</tr>
<tr>
<td>Persbo</td>
</tr>
<tr>
<td>Klippan</td>
</tr>
<tr>
<td>Bjurvatan</td>
</tr>
<tr>
<td>Svalövs</td>
</tr>
<tr>
<td>Landskrona</td>
</tr>
<tr>
<td><strong>Hallands Lan</strong></td>
</tr>
<tr>
<td>Loholm</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

**Chart 2. Population within 60’ isochrone**
REGIONAL POSITION

CONCLUSIONS: DIAGNOSIS SUMMARY

1.- Despite the location at the end of the Kullen peninsula, the “demand threshold” in Kullaberg NR is sufficient to guarantee an adequate flow of visitors.

2.- There is a notable decrease between the population from the threshold defined by the 60’ isochrone Mölle (373,716 inhabitants, 2017) and that defined by the ring between the 60’ and 120’ isochrones (2,446,405 inhabitants, 2017). This difference explains the prevalence of weekend trips at all times of the year, including during the summer holiday period.

3.- The population distribution and cultural preferences explain the predominance of the use of private vehicles in accessing Kullaberg NR. It is unlikely that an improvement in the public transport system will result in a significant change in this trend.

4.- With this quantity of analysis, it can be concluded that the potential usage demand in Kullaberg NR is higher than the capacity it has in welcoming visitors. This means that management of visitor flows can and should be qualitative.
2.- Local Area Composition

Kullaberg’s immediate surroundings are clearly influenced by the Natural Reserve itself, the connection through road networks with surrounding areas and those used to enter Kulaberg Nature Reserve, as well as the situation in the two neighbouring areas; Mölle and Arild.

Kullaberg is an 8km long granite mountain range which has an average width of 1km at the western point and 1.8km in the eastern point. The entirety of the western part forms a peninsula which ends in the sea with very steep coastal slopes and a much flatter central area. In the east, the cross-section shows the existence of two sedimentary steps to the south of the main mountainous area. The first of these lies within Kullaberg whilst the second is formed south of the sedimentary plain, outwith Kullaberg.
Road 111 (Helsingborg-Mölle) provides the main access road to the Reserve and channels all traffic coming from the South-East. In Höganäs Road 112 offers access from the north and east. A local network connects these two roads and provides access from coastal areas between Arild and Jonstorp as well as access to the agricultural areas of the Reserve in the eastern area.
Two urban centres lie within Kullaberg’s boundaries: Arild far to the east, and Mölle, to the south and located much more centrally. The key in understanding the different situations in these two centres is that Arild is located outwith the regional access road, Road 111, whilst Mölle’s urban road network is used to gain motorised access to Kullaberg NR. The transition between Road 111 and Italienska Vägen which runs lengthwise along the whole Western section of the Reserve is done within Mölle’s urban area.
LOCAL AREA COMPOSITION

CONCLUSIONS: DIAGNOSIS SUMMARY

1.- These circumstances reveal the clear asymmetry between the two areas in Kullaberg NR.

2.- This mismatch is physical but, above all, it is functional due to the fact that the majority of trips made to the Reserve from outside the Reserve are made via Mölle.

3.- The current mobility pattern shows that the flow of visitors to the west is higher.
The internal morphology of the area is determined by the road network (all types; from main vehicle thoroughfares to pedestrian pathways), the location of the main natural and historic heritage attractions and visitor services (visitors centre, parking, recreational areas, trails).
The road network is organised into 3 different categories:

- Motorised road network, comprised of Italienska Vägen, from Mölle to Kullens Fyr, with a connection to Ransvik, and access roads for Björkeröd and Himmelstorp.

- A network of forest and rural roads provides access to agricultural land, mainly located in the east. The Hjorthagen Road in the West is also included in this category.

- The roads are connected to a wide network of trails and rural and forest roads that covers the whole Reserve.
In an area as large as Kullaberg there are always a number of different attractions. The map shows those which are most popular. Travelling from the west to east these are:

- Kullens Fyr Lighthouse
- naturum Kullaberg
- Ablahamn beach
- Mölle Golf Club
- Ransvik beach
- Josefinelust beach
- Håkull mountain
- Björkeröd
- Himmelstorp (and Domarringar)
Finally, existing visitor welcome centres and facilities are part of the baseline conditions of this space and significantly influence the mobility model.

The distribution of parking spaces coincides with the most popular attractions.
The Kullaleden trail goes around Kullabygden, and it is a section of the regional trail, Skåneleden, that goes through the region of Skåne. This is a certified quality trail with points of interest along the way specially designed for nature walkers.

The blue trail goes along the north of the Reserve and climbs up some mountains in the east.

The red trail goes along the south of the Reserve and combine a more demanding trail in the west and an easier path in the east.

The yellow trails connect the blue and red trails making it possible to do different round trips.

Map 10.- Marked Trails

The Kullaleden is an important trail and connect with the rest of the network. Nevertheless, the blue and red trails do not offer much real information, the red trail is supposed to be easier, but that is true only in some parts.
The internal organisation also reflects the asymmetry between both the eastern and western parts of the Reserve.

Kullaberg West is a granite inlet in the sea with Italienska Vägen as the backbone and two perimeter trails. The motorised access leading to Ransvik begins from Italienska Vägen. The main use is forestry, whilst a golf course now occupies areas which were previously used for farming. The main attractions are located in the far west (this “end of the Earth” feature is an attraction in itself) and this determines the mobility model throughout the area, with heavy traffic and large parking areas for use during peak season.

Kullaberg East is a continuation of the mountain range reaching the areas surrounding Arild which used to be used for forestry. However, to the south there is a sedimentary step with a number of lakes, most likely of glacial origin, where we find most of Kullaberg’s agricultural land. The mobility scheme is the opposite of the western area. Several motorised access routes through rural roads depart from the perimeter of the Reserve. There is no motorised continuity along Kullaberg East. The trail network leaves the coastline behind and forms a grid between the line of mountains’ tops and the rural roads of the sedimentary step.

**INTERNAL MORPHOLOGY**

**CONCLUSIONS: DIAGNOSIS SUMMARY**

1.- The internal location of the different elements affecting mobility behaviour result in clear asymmetry between the eastern and western areas of the Reserve.

2.- There are a large number of alternative attractions which could be used so as to rebalance the different areas.

3.- The location of naturum Kullaberg in the far west of the Reserve strengthens visitor flows and does not contribute to the necessary rebalancing.

4.- The parking areas and their seasonal enlargement have a considerable impact which compromises the perceived quality of the area.

5.- The trail network is topologically adequate in relation to space availability. However, many of the stretches are very physically demanding, thus meaning that it is used primarily by fit nature walkers. There is a need for more recreational walking spaces.

6.- Kullaberg has an important interpretive value that should be exploited.
Kullaberg Nature Reserve is visited by 600,000 people every year. Visitors mainly come from the areas located within the 120’ isochrones. Nevertheless, people from further afield also visit the Reserve.

Most people access the Reserve by car. Only a few towns have good public transport connected to Mölle or Arild. Furthermore, the bus service from Mölle to the Reserve operates only during peak season and with a low frequency.
Over the course of the last year 220,547 cars accessed the Reserve via 3 different roads, leaving their cars in the P areas shown on this map. Most of the cars travelled through Mölle to the west part of Kullaberg (65%).
Most of the visits are concentrated in a few days over a few months, particularly those months with good weather. The following table summarises the estimated number of visitors each month by transport mode:

<table>
<thead>
<tr>
<th>Month</th>
<th>Oct-16</th>
<th>Nov-16</th>
<th>Dec-16</th>
<th>Jan-17</th>
<th>Feb-17</th>
<th>Mar-17</th>
<th>Apr-17</th>
<th>May-17</th>
<th>Jun-17</th>
<th>Jul-17</th>
<th>Aug-17</th>
<th>Sep-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Car Counter</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Entrance</td>
<td>7,640</td>
<td>4,128</td>
<td>3,143</td>
<td>3,449</td>
<td>3,343</td>
<td>5,338</td>
<td>9,948</td>
<td>15,340</td>
<td>16,242</td>
<td>35,877</td>
<td>25,959</td>
<td>11,938</td>
<td>142,345</td>
</tr>
<tr>
<td>Himmelstorp</td>
<td>2,838</td>
<td>1,533</td>
<td>1,167</td>
<td>1,281</td>
<td>1,242</td>
<td>1,983</td>
<td>3,695</td>
<td>5,698</td>
<td>6,033</td>
<td>13,643</td>
<td>9,523</td>
<td>4,235</td>
<td>52,870</td>
</tr>
<tr>
<td>Björkeröd</td>
<td>1,360</td>
<td>735</td>
<td>559</td>
<td>614</td>
<td>595</td>
<td>950</td>
<td>1,770</td>
<td>2,730</td>
<td>2,890</td>
<td>4,832</td>
<td>4,356</td>
<td>3,941</td>
<td>25,332</td>
</tr>
<tr>
<td><strong>Total cars</strong></td>
<td>11,837</td>
<td>6,396</td>
<td>4,870</td>
<td>5,344</td>
<td>5,180</td>
<td>8,271</td>
<td>15,413</td>
<td>23,767</td>
<td>25,165</td>
<td><strong>54,352</strong></td>
<td><strong>39,838</strong></td>
<td><strong>20,114</strong></td>
<td><strong>220,547</strong></td>
</tr>
<tr>
<td><strong>People acceding by</strong></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td>23,675</td>
<td>12,792</td>
<td>9,739</td>
<td>10,688</td>
<td>10,359</td>
<td>16,541</td>
<td>30,826</td>
<td>47,535</td>
<td>62,913</td>
<td>163,056</td>
<td>119,514</td>
<td>50,285</td>
<td>557,923</td>
</tr>
<tr>
<td>Public Bus (2016)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>74,2</td>
<td>33,04</td>
<td>1,080,52</td>
<td>379,12</td>
<td></td>
<td></td>
<td>1,567</td>
</tr>
<tr>
<td>Com Bus + walk (2016)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>116,6</td>
<td>51,92</td>
<td>1,697,96</td>
<td>595,76</td>
<td></td>
<td></td>
<td>2,462</td>
</tr>
<tr>
<td>Private Bus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,579</td>
</tr>
<tr>
<td>Bike</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14,068</td>
</tr>
<tr>
<td>Walk (Total)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>54,739</td>
</tr>
</tbody>
</table>

**TOTAL VISITORS** | 636,338

Source: Compilation based in NR counters and surveys data
1. Counters NR 2016-2017
2. Surveys SMP July-August 2017
3. naturum Kullaberg Statistik 2013-2015
4. Data from Skånetrafiken
   a. Car counters:
      i. In bold: real counters data.
      ii. Regular type Estimation using counters data.
   b. People acceding by car: Estimation using 1 and 2.
   c. People acceding by bus and walk: Estimation using 2 and 4.
   d. People acceding by Private bus, bike and walk: Estimation using 1 and 3.
5.1. Conflicts

Natural spaces are increasingly attractive to a large number of people. In the coming years, it is most likely that the demand to visit Kullaberg will increase. The location of Kullaberg, at the extremity of a peninsula, makes it difficult to provide a satisfactory public transport system to visitors. This is why private vehicles are the most used mode of transport.

During peak season, the large numbers of cars trying to access West Kullaberg cause different conflicts:

**With residents in Mölle:**

- Noise. Caused by the number of cars travelling along the road.
- Traffic problems due to too many cars travelling around and parking in Mölle.
- Pedestrians and bikes travelling along or crossing the street.

The citizens of Mölle are requesting better conditions in the village during the summer.

**With the preservation of nature:**

Kullaberg Nature Reserve have been commissioning scientific studies to help them take management decisions.

- Impacts on lichens: (Lars Salomon_2016).
- Impacts on paths. Ecological carrying capacity of the trails in Kullaberg nature Reserve (Sweden) (Perez & Sagra 2016).

**The quality of the visit** loses value for everyone due to:

- Too many cars travelling around
- Too many cars in the parking areas.
- Cars incorrectly parked outside authorized areas.

5. How to access Kullaberg
5.2. Problem approach

Kullaberg is a main attraction for visitors, especially during the peak season.

Most visitors access the west part of Kullaberg by car and this has to be done via Mölle. This large number of cars is resulting in a number of different conflicts:

• With the preservation of nature within the Reserve.

• With the urban quality of Mölle.

• With the visit quality.

The demand for access to west Kullaberg will continue or even increase over the coming years and the majority of people will continue to arrive in Mölle by car. Consequently, the key question is: **is it necessary to access by car during peak season?**

The answer is very clear: there are other options, such as accessing by bus, on foot, or with a bike, which would ensure a more satisfactory visit for the majority of visitors. This is not only from a technical point of view. Visitors are also requesting change. However, to develop these options it is necessary:

• To have a convenient place to leave the car.

• To provide a good bus shuttle service.

• To inform the visitors quickly and clearly about the options to leave the car and access using alternative modes.

All these measures must be implemented and improved upon without disrupting citizens of Mölle.
5.3. Detailed analysis of how to access West Kullaberg

Most of the visitors want to go to the western edge of the Reserve, where the lighthouse and the naturum Kullaberg are located, and there is view point over the sea. But there are other points of interest and activities like Ransvik, Josefinelust and the Golf course. It is possible to arrive by car, by bus or walking to this part of the reserve.

**Access by car**

It is very easy to access the Reserve by car. Entry is unregulated and parking is available near the lighthouse. The concentration of a large number of cars throughout Mölle and in some parts of the Reserve is causing significant problems in high season both in the city and the Reserve and is having a negative impact on the quality of the visit. The situation is unsustainable for the environment, neighbours and visitors and it is widely accepted that there is a needed to change this situation.

This is the distribution of the number of cars per day in the main entrance.
The flow of cars during peak season

These graphs have been developed with the data provided by car counters. They display the number of cars accessing Kullaberg each hour. The number of cars leaving and entering the Reserve is shown. This graph dates from 15 July 2017. During a 4-hour timeframe there are more than 200 cars circulating in each direction on an hourly basis and there are nearly 500 cars per hour inside the Reserve.
Roads and Parking places in West Kullaberg

This map shows the roads and parking in the area. Generally, there are 350 spaces on offer. During peak season some additional seasonal parking is available. On the peak day, cars occupy all 350 spaces and there are 150 more cars in the seasonal parking offered at the lighthouse.
This photograph corresponds to this peak day.

This is what the visitors see.
Access by bus

There is a bus service (line 202) from Mölle to Kullens Fyr operating during the summer. From 10 am to 6 pm. The working schedule in 2017 is:

• 1st May to 31th August: All Saturdays, Sundays and holidays. 8 services/day in each direction (1 service per hour)

• 11th July to 12th August: in addition to the above, during the working days, 13 services/day in each direction.

The bus service (line 202) accounted for 5,596 journeys in 2016. From the result of the surveys it can be estimated that those journeys are:

• 44% (2,462) are passengers who combined a journey by bus (usually to go up, to the lighthouse) and another journey on foot.

• 56% (3,134 journeys) are passengers who made both journeys by bus (1,567 visitors x 2 journeys)

Accessing Kullaberg West by bus is a viable option for people living or staying in Mölle during the peak season, when the frequency is higher. However, only a few people use this, mostly due to:

• Low frequency of the bus routes

• The majority of people visiting Kullaberg come to Mölle by car and it is easier to park in the Reserve than near the bus stop.
Access on foot

Distances from Mölle to the different points of interest inside the Reserve are relatively short. However, only a few people access on foot. The reasons for this are that:

• Most of the visitors arrive to Mölle by car and it is easier to park in the Reserve than in the village.

• There is not a clear message communicated to visitors regarding the advantages offered by walking. When they arrive in Mölle (many of them for the first time) they see (even on road signs) that there is an easy way to access Kullaberg by car and they are not aware of the alternatives.

• The footpaths advertised for accessing Kullaberg are suitable for hikers and sportspeople but are more difficult for recreational walking. The only appropriate way to access is the main road and there is usually too much traffic. Furthermore, some sections are of a gradient over 10%.
5.4. Is it necessary to access by car? Visitors’ point of view

During the 2017 peak season (July and August) a survey was conducted among the people who accessed West Kullaberg by car. The detailed analysis of this survey is attached to this plan as a separate document. In this survey, drivers were asked:

[Image: Chart 4.- Scenario 50% 2017 Survey]
They gave these answers:

We asked the same question with higher price points, and with the option of prohibiting cars entering the area and these were the responses:

Source: Surveys SMP July-August 2017
And the preferred alternatives modes were:

- 35% Walking
- 87% Free bus
- 66% Combining
- 20% Own Bike
- 29% Rent bike

Source: Surveys SMP July-August 2017

**Graphic 7. Preferred alternatives**

According to these results it can be concluded that visitors perceive a conflict between the quality of the visit and the great number of cars and 2 of every 3 of them are demanding a change towards a significant reduction of cars inside the Reserve.

We also asked them about possible scenarios for Kullaberg:

Based on these results it can be concluded that visitors see a conflict between the quality of the visit and the large numbers of cars. 2 of every 3 are looking to see a change and a significant reduction of cars within the Reserve.

5.5. The opinions of the Nature Reserve staff

- **It is necessary to regulate car access.** In order to preserve the Reserve and to offer a higher quality visit, it is necessary to control and, preferably, reduce the numbers of cars in Kullaberg West during peak season.

- **The managers want to ensure the public use of the Reserve through providing alternative modes.**

- All adopted measures must be developed so as not to cause problems and, in some instances, in order to improve the urban quality in Mölle.
CONCLUSIONS: DIAGNOSIS SUMMARY

1.- The primary goal is to facilitate access to the Reserve and ensure an enjoyable visit.

2.- The conservation of the area and the quality of the visit are jeopardized with the overflow of cars during the peak season.

3.- It is necessary to regulate vehicle intensity. This can be approached based on democratic and transparent principles by using the information provided by the traffic counters.
6. What to do at Kullaberg Nature Reserve?

Visit model

The visit to the Reserve is closely linked with the way in which accessibility is planned and has the following features:

• The visit is short in length.

• Access is almost always in car until a given point. This is followed by a short walk and a return to the car.

• The most visited area is to the far west of the peninsula where the lighthouse and naturum Kullaberg are the main attractions. Kullens Fyr parking which is very close to naturum Kullaberg is crowded during peak season. From this area, visitors can take the red and blue trails, however, this requires the visitor to be physically fit. The other option is to walk along Italienska Vägen where there is excessive traffic. These difficulties for visitors opting to walk, encourage the short duration of the visit and negatively impact the visit quality. This can be done by widening and adapting the trail along Italienska Vägen or redesigning the road to promote the compatibility and the shared use of different modes.

• The eastern part of the Reserve is much less popular. Even though it has a more extensive and diverse network of pathways and trails for walkers, cyclists and horse riders.

These features of the visit which were recognised by the management of the Reserve, have been documented and defined using data from traffic and person counters installed at various points across the Reserve and as a result of user surveys on parking and the bus service during July and August 2017.

The following table is based on data from vehicle counters located at the entrances to Kullaberg West, Himmelstorp and Björkeröd.

<table>
<thead>
<tr>
<th>Car counters in Kullaberg Nature Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month (2017)</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>West Entrance</td>
</tr>
<tr>
<td>Himmelstorp</td>
</tr>
<tr>
<td>Björkeröd</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

(*) Himmelstorp and Björkeröd data for one year (October 2016 - September 2017) are estimated.

Chart 5: Car counters, Kullaberg Nature Reserve
As detailed in the previous section, the majority of visitors accessing the Reserve do so in a private vehicle (91% of visitors). This table shows that 64% of counted cars at the entrances did so through Mölle, 24% via Himmelstorp and 12% through Björkeröd.

Taking into account the readings from people counters, the data on visitors from naturum Kullaberg and considering the number of passengers per vehicle obtained through surveys, the following estimation of visitor numbers in different parts of the Reserve has been made:

In order to analyse the length of visit made to the Reserve, two data sources have been analysed. Firstly, the entry and exit numbers of vehicles provides an average stay of slightly over 2 hours. On the other hand, all data declared by car-users in the surveys has been analysed and these are the results:

![Duration of visit by car](image)

**Visits to points of interest**

<table>
<thead>
<tr>
<th>Visitors/day</th>
<th>Bjökeröd Red trail</th>
<th>Himmelstorp Blue trail</th>
<th>Djupadal Blue trail</th>
<th>Solvik Orange trail</th>
<th>Naturum</th>
<th>Lighthouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>500</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2500</td>
<td>3000</td>
</tr>
</tbody>
</table>

**Source**: People counters. Summer 2017

**Graphic 8**: Visits to points of interest

**Graphic 10**: Duration of visit by car

**KULLABERG NATURE RESERVE**

Source: surveys SMP July-August 2017
The following data shows how the visitors spent their visit. The survey allowed for multiple options. Therefore, the data of those who did multiple activities is already integrated. Once again, there is a difference between users who arrive by car and those who arrive by bus. There is an 8-point drop in the walk/bath group among public transport users whilst the proportion hiking is higher.
VISIT MODEL

CONCLUSIONS: DIAGNOSIS SUMMARY

1.- A change in the way of travelling will also, in turn, affect space usage patterns.

2.- Increasing the length of stay will add value to lesser appreciated resources.

3.- Offering and promoting a more comprehensive visit to the Reserve (in terms of length and motive) would require enhancing the eastern area.

Photo 11.- Cyclist and walkers. Italienska vägen
Complying with ECST objectives in Kullaberg means reconsidering some elements of the current mobility system.

Overall, reducing the number of cars circulating and/or stationary within the Reserve is a condition to increase the perceived quality of the space and to improve visitor experience.

This reduction is necessary in order to move forward with a series of interrelated objectives whose compliance requires adopting measures regarding visitor flows:

- Changing transport modes
- Balancing destinations
- Changing motives behind visits
- Increasing the range of experience offered in Kullaberg

In order to achieve a more balanced geographical distribution of visits, the resources in the eastern area of the Reserve must be exploited. Correct management of this could help in achieving the goal of reducing seasonality.

The range of measures needed to succeed in these goals goes beyond the scope of the Sustainable Mobility Plan but the measures included in this are vital to begin the process:

- Open a parking and service area prior to visitors’ arrival in Mölle

- Manage fares and alternative transportation modes to reduce vehicle numbers passing though Mölle and in the Reserve

- Give priority to travel on foot and by bike along Italienska Vägen. Widen and adapt the trail along the road and/or redesign it to promote the compatibility and the shared use of different modes.

- Establish an easily accessible central footpath between Kullens Fyr and Arild

Other initiatives linked with these objectives which should be developed in parallel with mobility measures:

- Improve connectivity of trail network to include the opportunity for recreational walks

- Provide seasonal reception and information services near parking areas in Björkeröd and Himmelstorp

- Develop thematic offers for use in the Reserve, including new topics

- Adapt the contents of naturum Kullaberg to the new communication systems in Kullaberg

- Design experiences packages and manage these through active tourist agencies

- Include the visit to Mölle and Arild
II. SCENARIO BUILDING.
PARTICIPATION PROCESS

Throughout the diagnosis of this plan it has become clear that the main problems relating to mobility in the Reserve are a consequence of the excess numbers of cars travelling through Mölle to reach Kullens Fyr. The current situation is unsuitable for the preservation of the area and for local communities. A possible increase in demand over coming years would aggravate the problems and decision makers may be forced to improvise solutions. For this reason, it is important to analyse the different lines of action, selecting the most appropriate and defining advantageous scenarios for the future of Kullaberg.

Assuming this, there is a need to regulate car access to the west of Kullaberg. In order to successfully develop the intervention programme proposed in this plan, it is necessary to reduce the number of vehicles circulating through Italienska Vägren and the number of cars parked in sensitive areas of the Reserve.

This approach is favoured by the management of the Reserve and it is also a request made by most of visitors and the inhabitants of Mölle.

The regulatory measures should be carefully defined, thus avoid creating conflicts in Mölle. The reduction of cars entering the Reserve is a clear advantage for the local population. However, this must be carried out carefully and in a coordinated fashion as drivers could try to park in the streets of the town, consequently generating conflict.

Therefore, the definition of regulatory measures should be carefully designed to avoid detrimental effects. Access regulation to Italienska Vägen is the responsibility of the Road Authority and Reserve managers. However, it has major implications in Mölle. Therefore, all measures must be coordinated with the mobility department of the municipality. There must be an agreement regarding intervention criteria, the measures to be applied and the scheduling. Access regulation to Kullaberg may also regulate access or parking to some areas of Mölle.

The regulation can be carried out through two alternative courses of action which are described in sections 10 and 11.
9. Option 1: isolated approach
(Access regulation)

Nature Reserve managers regulate access in order to preserve the environment and improve the quality of the visit.

The following measures could be adopted:

- Improving pedestrian footpaths
- Regulating car access. Alternative measures could be adopted to reduce car numbers: reducing the number of parking places, introducing a fee for parking in the Reserve or applying seasonal and hourly parking restrictions.
- Improving bus services. Frequency. Fares.
- Cycling may help.

Access by bike must be facilitated. The actions above could result in problems in the village as the visitors who are unable to access should try to park in Mölle and the surroundings. In order to avoid conflicts, the City Council could take regulatory measures concerning access and parking in the urban centre of Mölle.

This type of independent measure carried out in a coordinated way could work for the majority of the year without major conflicts. However, during peak season when there are around 1200 vehicles per day, the following risks would arise:

- Lack of alternatives for visitors arriving by car. They would have to park in Mölle or cancel their visit
- Excessive pressure from parked cars and traffic looking for parking spaces on the streets of Mölle

These risks must be taken into account in regulations. It would be very difficult to achieve a significant reduction in the number of vehicles. It is unlikely that it could be reduced by more than 25% on current peak days.
This course of action is more complex and requires coordination between several administrations. For this to work, the city council and regional environmental authorities will have to develop and promote a Service and Parking area which we will call "Kullaberg Gate".

Kullaberg Gate, is designed to be the first stop in a visit to the nature Reserve. Given that many visitors (37.66%) arrive at the Reserve for the first time, traffic signs directing visitors to “Kullaberg” will be used to guide them to this first access point and invite them to stop here and begin their visit to the Reserve. Currently, visitors are directed by signs for Kullens Fyr. When arriving there at peak times, the visitor has to park in crowded areas which recent surveys have demonstrated creates a negative first impression.

What should the visitor expect when they arrive at Kullaberg Gate?

It is designed to be a place in which the visitor will find information such as how to access the Reserve and fully enjoy their visit.

Kullaberg Gate must include areas for rest and recreation. There should also be a service area including:

- Bus stop
- Tourist services
- Information
- Toilets
- Purchase of entrance tickets (for visitors not having previously booked them)
- Coffee shop (optional)

In addition to these services, the visitor will find a place to park their car for free and to continue their visit using alternative means:

- Walking. (Only 55 minutes to Kullens Fyr or 40 minutes to Björkeröd)
- Free bus
- Combining walking and bus
- Cycling
In any case, the visitors have to be properly informed about the limited parking capacity inside the Reserve.

There is the option of setting up digital signs to inform the visitors when the parking is full.

Another option (which could be combined) is to charge fee (possibly 50 SEK) to get permission to park within the Reserve. In this case, visitors would need previous registration, which could be made online or at a place set up for this purpose at Kullaberg Gate (which could be an automatic machine).

The Parking Area of Kullaberg Gate should be designed and dimensioned as a convenient and accessible alternative for the majority of vehicles which opt to use it during peak season. It is vital to design this carefully. It must not be an esplanade full of cars. It is important to introduce separating hedges and to avoid the feeling in the service area of it being a car park full of cars.

Kullaberg Gate can be also used to increase the urban quality of Mölle. Visitors to Mölle could also be encouraged to use this area and walk from here.

Pricing policy

Access regulation can be implemented in various ways. One possibility is to introduce a fee to enter or park within the Reserve. We propose this system because it is straightforward to apply and balanced. However, alternatively or complimentarily, regulation can be carried out.

The main objective of the proposed system is for the visitor to see leaving the car at Kullaberg Gate and continuing the visit with alternative means of transportation as the most convenient option for the preservation of the environment, the community of Mölle and for the quality of the visit. This concept must be made clear in the pricing policy. There is no intention to profit from this. The proposal includes unifying the management of the transport system. This means that either the full cost, or the majority of it, is covered by those persons who decide to access the Reserve by car. The economic study of the system will be carried out in detail in the proposal development phase. However, a preliminary estimation based upon the assumption that half of all visitors opt to enter Kullens Fyr by car and pay 50 SEK per vehicle, shows that the revenue would be sufficient to cover the full cost of the bus service with a 15-minute frequency throughout peak season (see chart 10, page 59). This service could be offered free of charge to the other half of visitors who leave their cars at Kullaberg Gate.

The access fee to enter the Reserve by car and the bus fares can vary over time in order to adapt to the objectives and depending on the change in demand for each mode. If the demand for bus access increases and car access is reduced, it may be necessary to establish a fare for the bus. However, in this case the buses will be full and the fare would be relatively low.
11- The intensity of measures: scenarios

Through the access regulation strategies (prices and schedules), the number of vehicles accessing can be reduced to a more adequate level. Put simply, three different scenarios have been defined to be evaluated in the participatory process. In terms of the intensity of the measures, the number of cars accessing Kullaberg can be reduced.

• Scenario 1: minimum reduction in cars (20%). In this scenario the objectives of the regulation are minimal. The goal is to ensure that internal parking areas of the Reserve are redesigned through reducing the area allocated to seasonal parking. This objective could be achieved with either of the two alternative courses of action.

• Scenario 2: significant reduction in cars (50%). In this scenario the intensity of vehicles is reduced by approximately 50%. With this reduction the Italienska Vägen area can be redesigned to establish pedestrian priority and most of the seasonal parking areas could be removed. This would radically improve conditions in Mölle. In order to develop this scenario in a risk-free manner, Kullaberg Gate must be available.

• Scenario 3: Kullaberg without cars (only special groups 90%). Medium or long term scenario, if the wishes of the local community are that there are no vehicles inside the Reserve then car traffic would be limited to: public transportation, maintenance, special activities and groups.
12- Results of the participation process

Throughout the Mobility Plan development process, Kullaberg Nature Reserve managers have maintained constant communication with local communities, represented by the Kullaberg Forum, established within the European Charter for Sustainable Tourism process, providing detailed information regarding the process and receiving suggestions from participants. The following presentations have been made:

June 1st. Presentation of a preliminary Progress Report to the Forum.

July 26th. Presentation to Mölle Neighbourhood Association

Surveys carried out in July and August took into consideration the main concerns expressed by the citizens of Mölle during the Kullaberg Forum. This was not solely done in order to receive objective data. The purpose of the survey was to value the visitor’s point of view regarding access to Kullens Fyr, which is almost
exclusively done by car. It also aimed to measure feeling about potential access regulation. The survey results were analysed in Section 5, but it is important to emphasize that the information provided by visitors through the stated preference survey should be considered as a form of visitor participation in the elaboration of the Mobility Plan.

Once the results of the surveys were processed and all the "peak season" assessments for 2017 were analysed, the diagnosis was able to be made and the Forum organised a participation process with two workshops which took place in Höganäs Stadshus, organised around the following two themes:

• Workshop 1. How do we get to Kullaberg? Analysis of traffic, parking places and accessibility. September 21st
• Workshop 2. How do we move and enjoy in Kullaberg? Analysis of cycling, horseback riding and hiking. September 26th

The goal was to ensure that all members of the Forum were able to express their views on the key issues of the Plan, select alternatives and the scenarios which they see as most convenient, as well as, make suggestions regarding their application. A specific document has been prepared detailing the results of the workshops. Below you will find the main conclusions:

A. Workshop 1: how do we get to Kullaberg?

The participants were divided into two groups and were asked to analyse two different questions: one group had to evaluate the need to establish a parking lot and service area (Kullaberg Gate) outside Kullaberg; and the other group evaluated the intensity of regulations.

Question for the first group:

Question 1: what is the best way to apply the regulatory measures? Choose one alternative, give reasons.

• Option 1. Without Kullaberg Gate.
• Option 2. With Kullaberg Gate.

All members of the group prefer option 2, Regulation with Kullaberg Gate.

They provided reasons to support their choice. In their opinion, the area is needed to improve traffic conditions in Kullaberg and Mölle. Regulation without Kullaberg Gate could result in more cars parking in Mölle.

They also gave some suggestions regarding facilities in the service area and described some problems that must be addressed regarding access regulation and the impact of bus traffic.

Question for the second group:

Question 2: thinking about long-term scenarios for Kullaberg access during peak season. How intense should the regulation be to reduce the number of cars driving into Kullaberg?:

Choose the best and the worst option. Give reasons.

• Scenario 1: minimum reduction of cars. 20%
• Scenario 2: a significant reduction of cars in Kullaberg. 50%
• Scenario 3: Kullaberg without cars (only special groups 90%)

All participants agreed that a significant reduction in the number of cars is desirable. They emphasized the risk of a soft regulation being insufficient in resolving the problems.

The reasons they gave related to the conservation of nature, the wellbeing of neighbours and the quality of the visitor’s experience.

Some of the participants suggested that the option of restricting the cars in Kullaberg was the best option in the long-term. However, some others were concerned that the access system has
to be well managed as it could result in a reduction in the number of visitors.

B. Workshop 2: how do we move and enjoy in Kullaberg?

The participants were divided into three groups to analyse four different questions:

• Q1. Redesign the road as a multiuse platform.

• Q2. Redesign an extension of bus services.
  – Higher frequency.
  – Extend bus services to the east.

• Q3. Extend alternative footpaths through Björkeröd grassland

• Q4. Suggest routes for cyclists.

All the groups had a piece of paper to write their opinions and observations, and a panel to organize the results and present the final analysis.

Q1. Redesign the road as a multiuse platform

The majority were in agreement. However, some concerns were raised:

- Safety for cyclists and walkers. They would like to have clearer division of space to ensure protection from cars.
- Not a solution that would work with the current use of the road.
- Do horseback riders count as vehicle traffic or can they use the multiuse track?

Q2. Extension of bus service

All members agreed. Suggestions to extend the connection to Himmelstorp and Arild.

Q3. Extend alternative footpaths through Björkeröd grassland

All members agreed. Concerns raised were:

- Safety in passing through fields with grazing animals.

Q4. Suggest suitable routes for cyclists

Most of the participants agreed that it is a good idea to mark the red trail in the east side as suitable for bikes, nevertheless they had many concerns regarding extending the routes and adapting other trails for cyclists.
13. Selecting alternative courses of action and scenarios

This section summarizes the conclusions from the public participation process and the scenario that has been selected to develop the Mobility Plan.

During the diagnosis preparation process, the correlation between traffic accessing the west of Kullaberg and conflicts in Mölle have been confirmed. The current situation is unsatisfactory for Mölle local communities, visitors and for the preservation of the nature Reserve. This course of action aims to improve the environmental conditions in the Reserve without harming neighbours or affecting the amount of visitors. These are the conclusions of the process:

• A regulation approved solely by the management of the Reserve will regulate access to the Reserve and reduce environmental problems as well as the flow of vehicles travelling through Mölle. However, it could generate new, or worsen existing, problems in the town, particularly due to an excess in vehicles parking on the streets. The Municipality will have to adopt measures to restrict parking. Visitors arriving in Mölle by car to visit the area
will have no alternative. Isolated regulatory measures (Option 1) will have limited scope and effectiveness.

- Option 2, Regulation with Kullaberg Gate, is more complex and requires a higher level of institutional commitment and a prior planning process. However, Kullaberg Gate is the only solution that can resolve the environmental problems without harming the local community. It could potentially even benefit the urban quality of Mölle. This will improve the quality of the visit without inhibiting access.

- The participants of the discussion group has unanimously voted in favour of the creation of Kullaberg Gate.

Regarding the intensity of the regulatory measures, the participants consider that scenario 2 is the best option. This requires the adoption of a regulation which significantly reduces the number of cars entering Kullaberg West during peak season. Traffic in Italienska Vägen would be halved.

Therefore, following the guidelines of the Reserve managers and in line with the results reached during the participation process, this Sustainable Mobility Plan defines the necessary measures to regulate access to the Reserve through Kullaberg Gate to halve traffic levels during peak season.

A main advantage of the creation of Kullaberg Gate is that, based on the rates determined by management, each visitor will be entitled to choose their access mode. The results of the surveys seem to indicate that a high percentage of visitors would leave the car due to their environmental beliefs, regardless of the rates. This system also allows a progressive, effective and smooth move towards an increased level of reduction of cars in the Reserve. This is a decision which could be made by the environmental authorities or as a result of visitor preference.

The Mobility Plan will define the measures based on a scenario where access by alternative modes of transport accounts for 50% of the total demand. However, when visitors see the benefit of leaving the car at Kullaberg Gate and take advantage of the possibility of a higher quality visit by walking or using the bus, it is likely that this percentage will increase. The pricing policies and dimensions of Kullaberg Gate would have to adapt to these new demands in order to operate without resulting in additional costs for management.
III. PROPOSAL DEVELOPMENT

A. HOW DO WE GET TO KULLABERG?

14- General Approach. Policy application period

The proposals in this plan are defined and determined based upon the results from the participation process for the selected Scenario:

- With Kullaberg Gate as the first access point
- Scenario 2: significant reduction of cars. 50%. (During peak season)

In the following four sections the main actions to be taken to meet the goals will be defined in detail. These are the following:

- Service centre. Reception. Kullaberg Gate Requirements, features and dimensions.
- Non-motorised access. Promotion of foot and bicycle access routes.
All proposed actions are complementary and must be implemented in a coordinated way. In order to ensure that the system functions and to achieve the aim of reducing vehicle numbers without causing problems in Mölle or hindering or limiting visitor access, it is vital that the development of the Kullaberg Gate coincides with the regulation of vehicle entry and the introduction of bus services. This must also take place at the same time as the comprehensive transport economic management system which enables the financing of the cost of bus services without a cost for either management or bus users. The forms and intensity of access regulation policies, bus service and economic management can adapt and change over time. However, this must always be done in a coordinated manner.

Before developing on each point it is important to narrow the timeframe down to the peak period which justifies the application of regulatory measures. To determine this, the capacity data for the main entrance since July 2016 has been analysed. This graph displays the overlapping data from the two years. It is necessary to make a combined analysis of all available data given that the weather is a determining factor in the number of registered visits. Overlapping the two years’ highlights this. More visits take place on sunny days although the definition of the system should not be restricted to the weather forecast (but rather should take this into account in order to plan for additional bus services).
In view of this data, the following peak periods for the functioning of the bus service and entrance regulation have been established:

**Peak Season.** Regulation every day. From June to August.

### Peak Season

<table>
<thead>
<tr>
<th>Days</th>
<th>Cars</th>
<th>Cars/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekdays</td>
<td>37</td>
<td>1.048,78</td>
</tr>
<tr>
<td>Weekends</td>
<td>16</td>
<td>1,112,63</td>
</tr>
</tbody>
</table>

**Total number of cars and daily average during peak season. Based upon 2017 capacities**

<table>
<thead>
<tr>
<th>Days</th>
<th>Cars</th>
<th>Cars/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 June - 15 August</td>
<td>38,805</td>
<td>1,048,78</td>
</tr>
</tbody>
</table>

Source: Compilation based on Kullaberg Nature Reserve counters. Main entrance. 2017

**Chart 6. Number of cars peak season**

During Peak season there is no notable difference between working days and holidays. The weather is the factor with the most influence. It is for this reason that the bus schedule will remain the same every day.

**Medium season.** Regulation only on weekends and holidays: the remaining weekends between May 1st and September 30th.

The final weekend of April and Easter may also be included.

The following table displays the 2017 data regarding the number of days and cars in each period. There may be slight differences between years.

<table>
<thead>
<tr>
<th>Days</th>
<th>Cars</th>
<th>Cars/day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 May - 21 June</td>
<td>27</td>
<td>83,63</td>
</tr>
<tr>
<td>16 August - 30 September</td>
<td>27</td>
<td>83,63</td>
</tr>
<tr>
<td>Period with bus service</td>
<td>80</td>
<td>78,290</td>
</tr>
<tr>
<td>Rest of the year</td>
<td>283</td>
<td>64,015</td>
</tr>
</tbody>
</table>

**Total cars and daily average in each period**

<table>
<thead>
<tr>
<th>Days</th>
<th>Cars</th>
<th>Cars/day</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 June - 15 August</td>
<td>51</td>
<td>10,667</td>
<td>39,77%</td>
</tr>
<tr>
<td>1 May - 21 June/ 16 August - 30 September</td>
<td>27</td>
<td>83,63</td>
<td>15,23%</td>
</tr>
<tr>
<td>Period with bus service</td>
<td>80</td>
<td>78,290</td>
<td>55%</td>
</tr>
<tr>
<td>Rest of the year</td>
<td>283</td>
<td>64,015</td>
<td>45%</td>
</tr>
<tr>
<td>TOTAL YEAR</td>
<td>365</td>
<td>112,345</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Compilation based on Kullaberg Nature Reserve counters. Main entrance. 2017

**Chart 7. Total cars and daily average**

The proposed period for the application of the measures consists of a total of 80 days. During these days a total of 78,290 cars access West Kullaberg, this represents 55% of the annual total. On these days the average number of vehicles entering is 979.

The regulatory measures aim to reduce the number of cars by 50%. Taking into account that the round trip journey distance equates to 8 km, there would be a total reduction of 39,145 vehicles in each direction and 313,160 km worth of emissions (39,145 X 8 km). (Those produced by buses should not be counted).
Surveys carried out among those drivers arriving in Kullaberg, mostly to Kullen Fyr, have shown that many of them would be willing to come using alternative transportation, leaving their car before reaching Mölle, if the following two requirements are met:

- Availability of parking without difficulty.
- Frequent bus service.

Kullaberg Gate should be the most appropriate place to leave the car and take the bus. In order for this to be efficient, the following requirements must be met.

15.1. The visit starts here: location

In road signage and in prior information for visitors both in printed form and online, it must be made clear that the visit to the Reserve starts here.

The visitor is recommended to access via Kullaberg Gate. This is mandatory for visitors not having previously booked online, but it is also rewarding: visitors should not go directly to Kullens Fyr unawares, because they will miss out on many things.
The visitor will be made aware of everything they can see and do in the Reserve and they are invited to leave their car behind and take the bus, walk or cycle, or combining bus and walk. The different options are explained to the visitor so that they can choose.

If it is decided to set a fee, those who wish to enter using their car will have to buy a “car ticket” which will allow them to enter and park. (This can also be purchased online in order to avoid the queue at Kullaberg Gate).

It is important to choose a suitable location so that Kullaberg Gate functions efficiently. The decision regarding this location is the responsibility of Höganäs council. However, the chosen locations must comply with the following criteria:

• Proximity to access road and ease of entry and exit for cars
• Location near Mölle.
• Clear pedestrian routes to the Reserve

15.2 What the visitor should find at Kullaberg Gate

Kullaberg Gate should be a space which is suitable for holding cultural and recreational activities. It must have alternative uses throughout the year. The designated parking area should be clearly separated and hidden from view.

The following services must be available:

• Bus stop
• Tourist services
• Information
• Toilets
• Entrance tickets
• Coffee shop (optional)

The required area varies between 1,000 and 2,500 m².

15.3 Car park dimensions

The parking offer must meet the goals of regulatory policies. For this, it is important to have sufficient space in order to enable a change in these policies. Furthermore, it is important to take into account that, if the selected location is close enough to Mölle, Kullaberg Gate would also be able to serve as a spill-over for cars parking in the village. Although the dimensioning may become more precise after the precise location has been chosen and the parking policies for Mölle are known, estimations can be made based upon current information and the demand for parking.

On peak days, more then 1,600 cars can gain access. During the 4-hour peak period, there are approximately 200 vehicles per hour. The visit length to the area is approximately 2 hours. Using this rate of entries and exits we have concluded that at present the total demand for parking within the area is around 500 spaces on peak days and 360 on days when 1200 vehicles enter. We note that during peak hours the number of occupied parking spaces equates to approximately 30% of the vehicles which enter each day.

Source: Kullaberg Nature Reserve counters. Main entrance. 2017

Graphic 14. - Number of cars 15 July
Kullaberg Gate aims to reduce vehicle entry by 50%. Most likely, the average visit time for those who leave their car at Kullaberg Gate will be longer. Furthermore, it is important to take into account the fact that some of those visiting the Reserve (8.5%) are staying in Mölle or camping and can access the Reserve directly by bus without going to this parking area. Those visitors travelling from Hogänäs (6.8%), Helsingborg (10.7%) and other towns which are well connected with Mölle may decide to leave their car at home and use public transport for the whole journey given that they have alternate access to the Reserve by bus. Using these considerations, we have made some basic simulations of the entering and exiting process at Kullaberg Gate on peak days (anything over 1600 vehicles) and for medium peak days (1200 vehicles) and we estimate that the number of required spaces during the peak hour would equate to 40% of the number of vehicles using the facility that day. On peak days this would serve 800 vehicles and 320 spaces should be provided.

Based on this data and estimations, and accounting for the mentioned uncertainties, we recommend developing Kullaberg Gate progressively, adapting its dimensions to the demand at that time. However, these are reference figures:

In terms of the 50% reduction goal, the expected demand would be **320 spaces on peak days**.

With 240 parking spaces we can meet the demand the majority of the time. Regulatory measures could begin from this dimension. However, it is important that there is an opportunity for expansion if necessary.
The current bus service is designed for a particular sector of the population and is subsidized by the regional administration. It is a small-scale service.

The new bus service is designed to provide a competitive transportation alternative to cars in a gradual fashion. For this to be possible, the service must meet the following criteria:

- High frequency
- Service to the East in order to vary the visit. Aiming to promote the areas of Björkeröd and Himmelstorp and facilitate walks through the Reserve combining walking and the bus.

**Estimated demand**

The bus service has been designed and scaled in coordination with Kullaberg Gate as an alternative entrance for cars to the Reserve through Italienska Vägen. The demand for the bus service is based on these hypotheses:
Development of the Sustainable Management Plan for the Mobility and Accessibility in the Kullaberg Nature Reserve

- During peak season, half of all drivers will opt to leave their car at Kullaberg Gate and use alternative access modes.
- According to the surveys carried out for this work the average vehicle occupation is estimated at 2.5 persons.
- 75% of passengers in these cars will use the bus for access.

We can use the previous estimates as indicative figures regarding the scope of the average number of travellers who will opt to use

<table>
<thead>
<tr>
<th>Estimation of number of cars per day using Kullaberg Gate and Bus Service users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>24 June - 15 August everyday</td>
</tr>
<tr>
<td>1 May - 23 June/16 August - 30 September weekends</td>
</tr>
<tr>
<td>Data for whole period with bus service</td>
</tr>
</tbody>
</table>

Source: Compilation based on Kullaberg Nature Reserve counters. Main entrance. 2017

Chart 8.- Estimation cars using Kullaberg Gate

This is a useful prediction but it is not a precise figure for the project. This is because many factors which have not yet been determined will have an impact on service demand:

- Location, design and dimension of Kullaberg Gate.
- The mechanisms and pricing for access regulation.
- Management of parking spaces within the Reserve.
- Features and distribution of alternative access on foot and bike.
- Bus system pricing policy.
- Visitor responses.

Access system management will be able to regulate, on the basis of the various factors, the number of car and bus visitors in order to adjust these to have the desired effects (we are working for a 50% reduction).

Proposed routes

Using these requirements, a proposal including two lines has been made. These are displayed on this map:

The routes of the two lines must be adjusted so that the starting point coincides with the place in which Kullaberg Gate will be located.

The black line would connect Mölle (a stop at the port) with Kullens fyr and with Kullaberg Gate. The round trip would be between 8.5 and 9km and would take 30 minutes. Buses would be able to provide 2 services per hour in each direction.

The red line would connect Kullaberg Gate with Björkeröd. The round trip would be between 5.4 and 5.8 km and would take 20 minutes. Buses would be able to provide 3 services per hour in each direction.
Frequency and timetables
The service frequency should be at least 1 service every 15 to 20 minutes during peak season. During the first and last hour and lower demand hours 1 service every 30 minutes is sufficient.

These are the suggested provisions, frequency and timetables for the bus services:

**BLACK LINE. Kullens Fyr.** Every day during peak and medium season.
Service every 15 minutes from 10.30am until 6.30pm (2 buses)
Services every 30 minutes from 9.30am until 10.30am and from 6.30pm until 7.30pm (1 bus)

**RED LINE. Björkeröd.** Only during Peak Season.
Services every 20 minutes from 10am until 6pm (1 bus)

The parameters of the service offer are summarized in this table:

<table>
<thead>
<tr>
<th>Estimation of Bus Service hours. Average values per day in each period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
</tr>
<tr>
<td>24 June - 15 August</td>
</tr>
<tr>
<td>1 May - 23 June/ 16 August - 30 September</td>
</tr>
<tr>
<td>Data for whole period with bus service</td>
</tr>
</tbody>
</table>

Source: Compilation based on Kullaberg Nature Reserve counters. Main entrance. 2017
*Chart 8.- Estimation of Bus service*

The proposed service offer is not sufficient to meet demands on the busiest peak days. It is for this reason that reinforcements will be necessary. It is important to determine the type of bus and capacity. The fact that these are short routes, travel is at a low speed and the features are very similar to urban environments, will be taken into account. However, comfort is important in the quality of service and therefore it is recommended that the journey can, almost always, be taken whilst comfortably seated.

Other service alternatives
Initially there are 2 different lines proposed, anticipating that accessing Björkeröd will be easier with minibuses because the road is narrow. There are other solutions to manage this access. One of these is limiting access to cars. If the service is provided with a 12-metre bus, as with those used for Kullens Fyr, the two lines can be joined.

Other service options may also be considered such as taking the buses as far as Himmelstorp. This option may present an improvement on the described system, however it is more expensive and complex to manage. The proposed system has been formulated and scaled with the following criteria:

- Zero cost for users. Fully free bus service.
- Zero cost for management. This means that the service is financed by the car entrance fee.
- Efficiency is determined by the frequency of the service.
- Dimensions will have to increase if visitors from Nimis leave their car at Kullaberg Gate.

If these requirements are modified or removed it may be interesting to introduce bus services to Himmelstorp and even to Arild.

The following section justifies the estimated parameters to scale the services based upon the “zero cost” criteria for both users and management.
This plan proposes radically changing the means of accessing Kullaberg (mainly in the West) by substituting trips by car for trips by bus, on foot and by bike.

The initial goal is to halve the number of cars and to ensure that the system works without a cost for management or users who select alternative access means. The full cost of the system would be funded by the access and parking fee paid by visitors who opt to enter the Reserve by car.

There are several ways to regulate access. In this case, the establishment of an access fee has been selected for the following reasons:

- Each visitor will be able to choose their preferred option. Using the survey results it is expected that the proportion of visitors who will voluntarily leave their car is sufficient to reach objectives.
• Visitors accept this measure and are in favour of the introduction. 2 out of 3 visitors prefer the regulation over the current situation.
• Through joint management of all resources, the alternative bus service can be financed through these funds.
• Price modification can be used at any time to regulate the objectives.

The environmental management of Skåne is proud of the Nature Reserve’s economic management system. A few years ago the entrance fee to the protected area was removed. The proposed parking fee is not intended to raise funds for other actions.

There are precedents in Europe for the establishment of fees for the use of parking spaces. The measure is applied in order to improve services for visitors. This is a reasonable policy, however it not Länsstyrelsen’s objective in applying this charge. The sole objective is to regulate vehicle entry. The pricing policy must demonstrate good practice so that the visitor sees it as the option which is the most respectful towards the environment as well as the cheapest. However, the overall economic goal of the system is not to make any profit. The goal is to reach a balance. All entrance revenue will be invested in the bus service.

In order to facilitate understanding of the functioning of the system, this table has been created to analyse and compare the estimated revenue from the access of cars and the cost of buses.

The analysis was carried out on the regular service of an average day during Peak Season and Medium Season. (The small surplus shown in the table would be used for necessary reinforcements which have not been evaluated).

![Chart 10: Estimation of Bus service cost](image-url)
18. Access using non-motorised transportation

Access to the Reserve on foot or bike from Kullaberg Gate will likely remain a minority choice made by visitors, although relatively significant. 10% of the visitors would access on foot as a first option and 16% would combine “walking and bus.” The percentages rise to 35% and 66% among those who believe they could walk if the right conditions were met. According to this data we can estimate that more than 30% of visitors could use the pedestrian access roads. The demand will depend largely upon the final location of Kullaberg Gate, the use of signs to pedestrian access roads to the Reserve is vital. On the other hand, access by bike is more complicated due to the gradient.

In any case, the dimensions of the area are suitable for non-motorised transport, the routes are interesting and the suitability of the routes to Kullaberg Gate is justified to encourage visitors to use these access modes.

It is also important to remember that one of the itineraries most used by visitors goes from Kullaberg Gate to Kullens Fyr, and that the only comfortable and simple route to connect these places goes through Italienska Vägen. In order for it to be an appropriate route for pedestrians there must be a reduction in the number of vehicles.
B. HOW DO WE MOVE AND ENJOY IN KULLABERG?

19. General planning. The quality of the visit and the information provided

Access to the Reserve is designed in a way that invites to enjoy certain areas by car. Sightseeing around the lighthouse is the main attraction, and there are other secondary points of interest (Ransvik beach, the caves, the golf restaurant and Himmelstorp). But all the sites are reached in the same way, you arrive by car and walk short distances. This set-up means that there are many cars driving around, and most visitors are not able to see the whole Reserve.

The following sections contain proposals for ways of improving the situation, from how mobility is organised, to the experience of the visit to Kullaberg Nature Reserve. To diversify and upgrade the quality of the visit it is essential to formulate measures to promote walking and cycling, whilst, importantly, acknowledging that for some of these measures to be successful it will be necessary to reduce the number of cars.

In the upcoming sections we are going to address the following points:
1.- Redesigning Italienska Vägen

The only route to Kullens Fyr which is easy for most of the public to use is Italienska Vägen. This route is currently designed for cars. It must be redesigned in order to make it compatible with other forms of transport, prioritising pedestrians, bikes and alternative transport.

However, before this proposal can be developed, the number of cars needs to be reduced through the implementation of the policies outlined in previous sections. Having fewer cars crossing the Reserve will reduce the noise, pollution and danger on the roads and in surrounding areas. It will also benefit the nature and improve the visitors’ view of the Reserve.

The action should seek solutions that are compatible with use by pedestrians and cyclists.

2.- Improving arrival at the car parks; redesigning Kullens Fyr car park

Many of the visitors drive to the car parks, primarily Kullens Fyr and Himmelstorp; this is where the visitor gets their first taste of the visit. There are two goals of working on the car parks.

On the one hand, it will serve to offer visitors who travel by car a nice way of accessing the network of pathways and points of interest of their visit. On the other, it will mitigate the impact of the car parks and improve the visitors’ view of the landscape.

3.- The walking routes; strategies to offer more diverse visits

Offer information and interpretive facilities to invite the visitors to discover Kullaberg by foot.

There needs to be a pedestrian route connecting the two ends of the area, Kullens Fyr and Arild.

A combination of pedestrian walkways and public transport could enable people to fully enjoy the Reserve.

4.- Cycling

This mobility plan explores and describes the provision of publicly accessible bike trails, not for sport but as a means of transport. Cycling offers great potential for visiting the Reserve. It is possible to cross from East to West in a few hours, although it is more complicated in the eastern part because there is less of a platform to share between different users and, moreover, it is important to diminish the environmental impact (effect on the area alongside the path and erosion). To prevent these problems, it is important to:

• Define the routes well and adapt them to the different circumstances.
• Provide good information to raise awareness.
• Ensure that the trails are properly maintained.
Italienska Vägen is crucial to the history of Kullaberg. It is the natural route to travel throughout West Kullaberg, and it is the only route accessible to cars. However, it is also the only good walking route accessible to most people. Any other route from Mölle to Kullens Fyr is tough due to the gradients and uneven ground.

In peak season, cars take over this route. The high number of vehicles has made it difficult to walk or cycle, especially because drivers, who often break the 30km/h speed limit, often feel that they have priority over other modes of transport.

For some time now, the Reserve managers have been working to redesign this route to change the way in which drivers perceive it, highlight the fact that they are entering a special and sensitive area and encourage them to reduce their speed.
Various projects are being developed; the landscape architect Laura Parsons, who works for the Reserve, provided us with images of two projects which target individual points along this route – the entrance from Mölle and the arrival at Kullens Fyr.

In the meantime, however, it is important to be aware of the problems involved in walking along this route.

It is, however, necessary to alter the layout of the entire road in recognition of the fact it is used by pedestrians and cyclists, and to make it clear that cars do not have priority. The plan involves changing the road markings to highlight the preference for pedestrians. A design similar to that used in other places in Europe is being proposed, the closest example of which is in Allerum (Helsingborg). Alternatively or combined with this measure, widening and adapting the trail along Italienska vägen could provide other users with a safer route apart from cars.

Nevertheless, with the current intensity of traffic, the design could cause problems. It makes sense to wait for Kullaberg Gate and for the entrance to be regulated before implementing this measure.
21. Reshaping and redesigning the car parks

The car parks are the first part of the Reserve that visitors experience. This initial contact can influence the visitor’s opinion because it is where they will plan their visit. We recommend that the following points be taken into account:

- The dimensions of the Kullaberg car parks will be altered based on the operation of the Kullaberg Gate. It will be possible to progressively remove the seasonal car parks in the western part of the Reserve.
- The car parks will have a less intrusive impact on the view of the landscape; they will be hidden from view from most of the routes used by visitors to travel around the Reserve.
- The parking areas will be well-maintained and organised; there will be vegetation within the car park.
- They will be clearly and conveniently connected to the nearby trails and paths.
- Suitable information about what can be seen and done in Kullaberg will be provided. Developing Kullaberg Gate will radically change the conditions of access and of initial contact with the Reserve. Most of the information will be provided here, but it is important to take the provision of information into account in all projects to improve the parking areas.
The developed version of this plan does not include a proposal to change the car parks by the eastern entrances of the Reserve. It simply proposes certain changes to how they are designed and maintained. Nevertheless, when Kullaberg Gate starts operating, it will probably significantly change the way in which people visit the Reserve, including the Himmelstorp area, and this will require a renewed adjustment to the provision of parking and services.

We will now develop suggestions and proposals for concrete action to be taken at each point of access:

**Björkeröd**

The parking area is used by a moderate number of people on peak days. Sometimes it serves as the starting point for a range of different activities undertaken by school groups. It is the right shape and size; no intervention is needed. The provision of public transport from Kullaberg Gate could change how this entrance functions but this would not affect the size of the car parks.

**Himmelstorp**

The Himmelstorp car parks are an important part of the strategy of diversifying and upgrading the visit to Kullaberg; they play an important role in facilitating and enhancing visits to the eastern part. The demand for parking spaces is high and closely linked to visits to Nimis; at certain times during peak season the car parks overflow. In its proposals, the plan does not envisage reducing the flow of vehicles to Himmelstorp by introducing a bus route to connect this entrance to Kullaberg Gate. To do so would require increasing the size of Kullaberg Gate, which would hinder its implementation. Once the gate does start operating, however, this option should be considered.

One possibility could be to change the parking provided for Himmelstorp by removing the spaces from the high area, simply leaving some spaces for people with reduced mobility. More parking would then be made available in the low area, thus greatly mitigating the impact of traffic on this area.
West Kullaberg

Building Kullaberg Gate will reduce the demand for parking in the western area. This will make it possible to gradually reduce the parking areas inside the Reserve.

The number of vehicles in this area in peak season would be halved from current levels (from 500 to some 250). The number of parking spaces provided in this area could be reduced. This should be done progressively, without causing any disruption around the car parks. It will be possible to be selective when reducing the number of spaces to ensure efficiency and to achieve the environmental goals, as well as to implement the strategy to diversify and upgrade the visit. The following measures would thus have to be prioritised:

- The Ransvik seasonal car parks are only used occasionally and could be removed.
- The Kullens Fyr car park is used most. There can be 250 vehicles at peak times. One of the strategies proposed in the participative process was specifically to reduce or remove this car park to upgrade the surrounding area, to make it possible to move around the area on foot and to make taking the bus a more competitive offer. The proposal is that this is where the number of parking spaces be – progressively – reduced, to a maximum of 120 spaces. There would be 60 places for permanent use and another 60 for seasonal parking. This should, however, have a certain layout marked by vegetation to prevent cars from parking in a haphazard manner and to hide them from view.
- In Kullagården the current capacity would be maintained; the site does need more vegetation. Strategic measures could be taken to direct people to this car park, according to the demand at Kullens Fyr.

The parking available in the main car parks of the western zone could be reduced as is shown in this table:

<table>
<thead>
<tr>
<th>Parking</th>
<th>Today</th>
<th>Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Regular</td>
<td>Seasonal</td>
</tr>
<tr>
<td>Kullens Fyr</td>
<td>85</td>
<td>165</td>
</tr>
<tr>
<td>Kullagården</td>
<td>190</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Compilation based on Kullaberg Nature Reserve counters. Main entrance. 2017

Chart 11.: Proposed parking spaces

In addition to these general recommendations, the development of the mobility plan included redesigning the Kullens Fyr car park. It is the busiest area of the Reserve and also the area that gets full at peak times. There is also a bus service and large flat area which is used in a disorderly way. It should be dealt with as a matter of priority. The work was carried out in close collaboration with the staff of the Reserve. The detailed design was drafted by the landscape architect Laura Parsons.
Graphic 17.- Kullens fyr parking area. (Proposed design)
22.- Network of footpaths

As stated previously, the main way to visit a nature Reserve is by walking, thus all movement within the Reserve should be facilitated by paths which are adapted to be easy to walk on and which are suitable for most visitors.

In the western part there are no paths for easy walking; it is only possible to promote walking by making it safer and more pleasant to do so on the road. This is the goal of the measures detailed in section 20. Nevertheless, good information needs to be provided and pedestrian use along the road needs to be promoted.

In the east, the red path is connected to the road. The path has a comfortable surface to walk on, and an alternative marked in the north of Mölle Mosse, as part of the Kullaleden. This map (map 17) shows the longitudinal profile of this path, depicting the distances and slopes.

Having carried out this analysis, it is possible to say that this path is suitable for all the public, and given that the route takes an estimated 2.5 hours, it is manageable for most people. However, we are aware that this is a large distance for many people and the return trip can be too much. That is why we consider the bus support to be crucial in connecting walking itineraries which encourage the standard visitor to discover Kullaberg by foot.
Extending the options for walking:

Björkeröd, in the south, is a rural area where there are traditional houses, grazing lands and a lake. It is quite different from the forest and reefs that can be found in most parts of the Reserve. There are many opportunities to walk around the area which are not promoted or marked on the maps for public use. The proposal is thus to promote the paths through Björkeröd, marking them both physically and on the maps.

In the information provided to the visitors, therefore, the easy routes that cover the length of the Reserve should be clearly identified as a basic network that connects the whole Reserve and is suitable for most visitors (map 18). To encourage visitors to discover the central part of the Reserve, the public bus service will stop in Björkeröd, which is at the centre of the eastern part of the Reserve, relatively close to Himmelstorp and Mölle Mosse.
The proposed new axis (map 19) will encourage visitors to discover Björkeröd rural environment. This axis is slightly shorter and easier than the red path, and it is also connected with Mölle and the suggested bus stops. Therefore, this new path is also useful as a link between the town, the bus and the rest of the Reserve.
Interpretation

There are different resources for the interpretation of Kullaberg Nature Reserve. Even though the visitor center is key for this purpose, it is also important to give interpretive information to the visitors in the rest of the Reserve. Along the paths visitors can find signs with interpretive information, as well as digital content via an app called “Hiking Kullaberg”. Currently, the points of interest are focused around Kullaleden and in the West, as shown in the map. Most of these points are related to environmental and biodiversity topics. Thus, it would be a good idea to diversify their distribution all over the Reserve and identify more points of interest related to geological, cultural and archeological heritage, topics in which Kullaberg has lots of examples and history.
This map contains the new path scheme with the traditional paths, the Kullaleden and the new proposed walking axis.
At the moment, some cyclists move around the Reserve and some outdoor-activity businesses rent bikes in the area. Nevertheless, there are few paths adapted for all kinds of cyclists, neither is there much information or any signs for this activity.

Cycling is a great way to visit the Reserve and cross from East to West in a few hours. Moreover, user demand is expected to increase, which might mean that regulation is required. We thus recommend monitoring the situation closely and adapting the way it is managed where necessary.

In this plan, the paths have been analysed to identify those adapted for all kinds of cyclists. The objective of this analysis is to provide cyclists with safe routes to move around the Reserve. To reduce their impact, these routes must be designed to ensure:

- Safety of the cyclist
- Safety of the other users of the path
- The prevention of erosion

To find the paths consistent with these requirements we came to the conclusion that those selected must meet the following criteria:
• Be approx. 2 m wide or more (The Swedish standards set a minimum of 1.3 m for public use quality paths. To ensure that routes are shared by pedestrians and bikers we recommend paths with approximately 2 m wide).
• Be easy to walk on (even ground underfoot)
• Avoid areas with steep slopes

The GIS information available has been analysed. In the annex, there are the maps showing the paths that fulfil these criteria. The routes suitable for easy cycling which can be promoted at no risk are shown on the map below. Nevertheless further analyses of the paths are being undertaken so that these routes can be modified in the future with further information.

In the western part of the Reserve, the only route which meets all the requirements is the road, Italienska Vägen. Promoting cycling on this road is very positive as it provides a sustainable alternative to cars and does not have a serious impact; the measures for this are developed in the section 20.

Meanwhile, in the eastern part, there are several paths which used to be roads or were used to transport machinery, and which already fulfil or could fulfil the requirements.

The actual red path (in the east) and the path in the north of Mölle Mosse meet the requirements and can be marked for bikes.

Adapting other areas is very controversial among the stakeholders, and must be carefully analysed, including with the community and the forum, in making these management decisions. Here are the adaptations that could be developed in future phases.

1. **Björkeröd east-west connection**: re-opening the ancient road that used to cross Björkeröd for bikes. This road constitutes the easiest connection between Himmelstorp and Björkeröd and will make more options for cycling available. We recommend analysing the potential and risks of this option with the affected stakeholders.

2. **Björkeröd north connection**: this is the eastern connection between Björkeröd and the red path. Certain slopes of the road are very eroded and this makes it dangerous. It should be repaired if there is a desire to connect the bike routes at this point. The opinion of the neighbours should be taken into account.

3. **Possible extension of the bike routes**: these are two areas where the options to cycle around the Reserve could be expanded, if there is demand. The paths are very eroded and will need significant adaptation that is considered invasive by some of the stakeholders. Therefore, any decision to take these kinds of measures must be discussed and have the support of the forum.

Cycling information:

**Signalling**: there should be direction signs for bikes at entries and crossings. We also recommend developing signs for specific spots to raise awareness about the risks (slopes, low visibility) and the presence of other users (i.e. the possibility of encountering horse riders and hikers).

**Information about the bike paths**: the paths suitable for bikes should be marked on the maps, in the brochure, online and on any other specific maps.

**Awareness**: there should also be information about codes of conduct for cyclists on maps, at bike rental locations and on signs for cyclists at the main suitable entrances of Kullaberg Nature Reserve.

In the information and rules given to cyclists, it is important to take into account the specific characteristics of the territory and...
the demands of the stakeholders. The following issues came up during the participation process:

- The need for bells on the bikes to alert horse riders.
- The importance of not using the paths when the soil is wet to avoid deterioration.
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