

## Suitability assessment and Greenway planning in Cegléd micro-region, Hungary

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### Abstract

Greenways help to draw attention to valuable sites, but their impact extends to less preferred sites as well. Greenways are useful for wildlife as they involve corridors and core areas, provide a complex natural habitat, and are beneficial for human recreation. In Hungary, the greenway movement has the goal of promoting leisure activities, healthy lifestyle, together with the knowhow of agriculture, land use, nature friendly maintenance and related agricultural products like food and handicrafts. Greenways offer cooperation among a range of partners in the countryside.

Greenways in Hungary are situated mostly along creekside lowlands on floodplain landscapes. This is the case in Cegléd, where a social eco-farm of 12 hectares, planned and run by our clients, plays an important role already in education and social employment. Furthermore, the site has significant ecological values, such as a creek and an officially designated national ecological corridor. During our fieldwork combined with mapping and analysis, **we aimed to assess the suitability of the routes near the social eco-farm for greenway development purposes**. The lessons we learned during the planning were related to the decisive factors of greenway suitability: the importance of landscape character, the role of the potential users and partners, and the aspects of management.

### Introduction

The landscapes of Hungary were dominated by 70-80% agricultural area, with about 50% arable land in the 20th century. By the first decades of the 21st century, the agricultural land use ratio has shrunk but the proportion of built-up areas and forests has increased. The **decrease in agricultural land use** intensity gave growth **perspective to nature protection and leisure activities**. On the plains of Hungary, it caused both a renaissance of farmlands but mostly a transformation of farms with more significant residential functions. In these circumstances greenways, as tools in planners' hands, can provide a solution by introducing the countryside to citizens, and farms to living agricultural know-how inheritance.

Our clients, working as a non-governmental organization, endeavor to preserve the knowhow of agricultural land management, and to educate underqualified young people and young adults in carpentry, masonry and housekeeping in the countryside. The farm operated by the civil organization provides a testing ground for the socio-educational and ecological roles as well. The planned greenway has to involve the 12-hectare **social eco-farm** in the neighborhood of the town of Cegléd near the Budapest Metropolitan Area. This paper presents the results of the greenway design completed in 2023-24. The planned greenway will serve several functions: it will facilitate non-motorized access to the farm, connect farmers in the area, promote the sale of local products, and serve as a showcase of the local natural and cultural heritage.

The planned social eco-farm is located on the outskirts of the town Cegléd, close to the village Ceglédbercel, about **one-hour drive or public transport ride (80 km) from the capital city Budapest**. Our study area is the wider neighborhood of the farm where the greenway suitability assessment was carried out, and covers 40 km<sup>2</sup> of land (Figure 1.) Our landscape historical analysis showed that the settlement of Cegléd was founded in the Middle Ages (10th or 11th century). In the Turkish era (16th–17th century), the population fled to the town to escape the devastation, and the outskirts became the home to harsh cattle farming. In the 18th century, some of the population began to move to farms, as a result of which the town became the center of a large farming community, which is still a very typical way of living and identity of landscape in the Great Hungarian Plain. In the 18th century, viticulture began in the area, mostly in areas with sandy soil, where the grape vines survived the phylloxera epidemic of the 19th century. After the Second World War, both the production structure and the society of the town underwent a fundamental transformation, with the appearance of industrial farming in the area. In the early 2000s, the farmhouse lifestyle ceased, with a large part of the farms standing empty. However, there were also people moving in, some for cheaper housing and others for better living conditions.

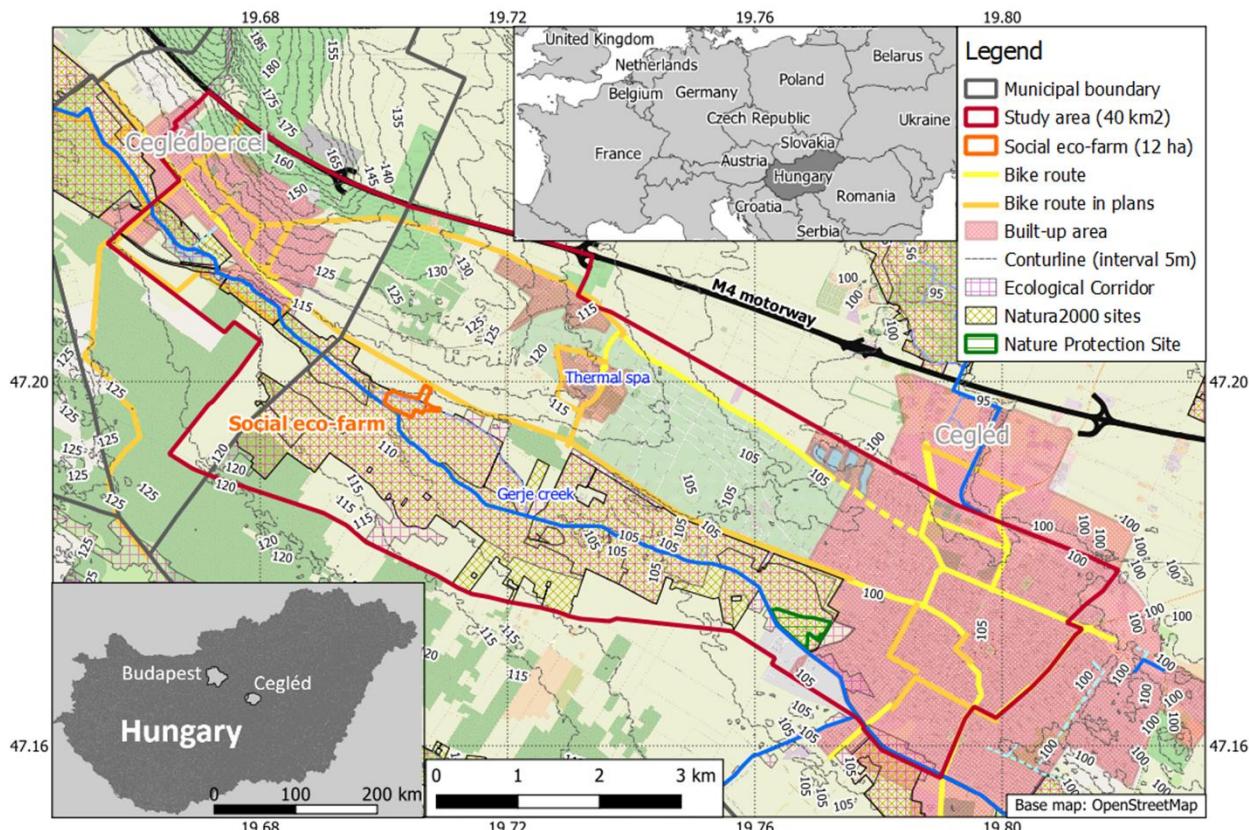


Figure 1. Study area near the town of Cegléd and the M4 motorway

The area around the social eco-farm is characterized by **agricultural land use and commercial woodland patterns**. The Gerje Creek runs across the study area, but its average flow rate is less than 15 liters per second. Along the creek there are mostly **natural grasslands**. The main road No. 4 runs by the social eco-farm. Besides, a long-distance cycle route is planned to connect Cegléd and Ceglédbercel, though at present, the road is not suitable for cycling due to heavy traffic. Additionally, there are plenty of dirt roads crossing the area further away from the main road.

During our **field work** combined with mapping and analysis, we aimed to assess the suitability of the routes near the farm for the purpose of greenway development. The road network between the town Cegléd and the village Ceglédbercel was explored, mapped and assessed in order to investigate the possibility of connecting the two settlements with a non-motorized route. **The goal was to provide leisure activity for the visitors of the town of Cegléd and the neighboring thermal spa, which is visited by locals as well as tourists from the capital, Budapest and its region.** The greenway was designed according to the general goals listed by the European Greenways Association (EGWA Greenways) in mind, to achieve the following objectives:

- to improve the safety of users,
- to provide conditions for access to nature,
- to propose routes for day or weekend hikes,
- to link and present existing landmarks,
- to involve the public in local projects,
- to promote local products.

## Background and Literature Review

The first initiative to be considered a greenway, although the term greenway itself is not used until the 1980s, was Olmsted's 1867 Boston "Emerald Necklace", a network of green spaces and parks designed to support the recreation of the city's population (Fábos et al. 1968). It was there that the basic definition was formulated, which remains the fundamental principle of greenway design to this day. In our case, the greenway in Cegléd is a **network of rural green spaces** like grasslands and woodlands in an agglomerating region.

In the term applied widely in the US, the importance of a spatial network is clear: "A greenway is a corridor of open space, varying greatly in scale, and incorporating or linking diverse natural, cultural, and scenic resources" (American Trails). The **dual role** of greenways, **recreation and protection**, is also highlighted: "Some greenways are recreational corridors or scenic byways accommodating pedestrian and non-motorized vehicle traffic on both land and water, while others function almost exclusively for environmental protection and are not designed for human passage." Both of these aspects are very relevant in our Cegléd Greenway study (American Trails).

At the same time, greenways can create new educational, sporting and economic opportunities for the towns and villages they pass through and connect. The US Greenway community has defined greenways partly adding new motivation with **life quality focus** in many aspects that are relevant in our Cegléd study as well (Budai et al. 2009 based on Hudson River Valley Greenway): "Now that communities around the world are striving to preserve the uniqueness of their neighborhoods, greenways are a great opportunity to improve quality of life, provide space for recreation and tourism for local residents and visitors alike, and help preserve fragile natural assets."

Little identified the following **types of greenways** for America. (Little 1990):

1. urban riverside greenways
2. recreational greenways based on natural corridors
3. ecologically significant natural corridors along rivers and streams
4. scenic and historic routes along a road or highway
5. comprehensive greenway systems or networks based on natural landforms.

Julius Gy. Fábos simply defined greenways with the most important aspects as: greenways as ecologically significant corridors, recreational greenways and, or greenways with historical and cultural values (Fábos 2004). Another aspect rose when the planner's role was highlighted and the **greenway as an asset** was associated in **regional planner's toolkit**: The term greenway can be considered a tool in the planner's hand (Ahern 1995) to propose a safe, healthy, environmentally friendly neighborhood.

The European Greenways Association (EGWA) was founded in 1998 in Namur (Belgium) to promote the use of greenways in Europe. The aim of the Association is to promote recreational, sporting and tourist greenways throughout Europe (EGWA). EGWA proposed in 2024 to extend the definition of a greenway. According to the new definition “a greenway is an **independent road** designated for non-motorized users, including pedestrians and cyclists, signposted as such. Its use might be open to other non-motorized users, for example, **horseback riders**, if signed as such or defined in the national legislation.”(EGWA Revised Definition). The horseback rider issue is relevant in Cegléd as there are five different horse farms within the study area. We also aimed to follow the **expectations, considering the route** EGWA has set out for greenways:

- Gentle inclines (maximum 3% slope gradient) or none at all,
- Set apart from the road network,
- Limited number of crossing points with roads.
- Route continuity through the maintenance of their public ownership and the selection of connecting routes in sections where this continuity has been lost. (EGWA Good Practice Guide)

The Greenway initiative arrived in Central Europe via the Czech Republic, with the development of the Vienna-Prague Greenway route starting in 1998. Greenways Hungary was a member of the Eastern European Greenways Alliance with the Ökotárs Foundation, together with Bulgaria, the Czech Republic, Poland, Romania and Slovakia (Murphy & Murek 2010). The Central European Greenways Alliance has set the following main objectives, which also link to our Cegléd study area:

- Inspire, develop and support greenway projects, which bring together protection of cultural heritage and improvement of environmental quality to encourage sustainable development and improve quality of life in both rural and urban areas;
- Build cooperation and partnerships between the civic sector, public sector and business aimed at providing organizational, advisory and financial support for projects and initiatives consistent with the greenway philosophy (CEG).

The Eastern European Greenway Association divides greenways into three categories based on length: long-distance, local and urban. The planned greenway in Cegléd is classified as local, as it connects the town with the surrounding rural areas, a village nearby. Its planning process kept all these parameters in mind (GPA).

## Method and Data

Our suitability assessment methodology is based on the results of literature research, field surveys, and the expectations of the client, the owner and manager of the social eco-farm. Working for two years in the study area of 40 km<sup>2</sup> we generated a complex methodological framework that considers several aspects of landscape analysis in order to manage a smart and smooth greenway planning phase. The framework (Figure 2.) in **the first phase**, called “survey and analysis” included

- the **suitability analysis** of the key destination of the potential users: the **social eco-farm**,
- the exploration of **potential partners** who have activities nearby the farm and may cooperate in development and maintenance,
- the analysis of the potential free time **activities, interest and motion** of the future users, hikers,
- the preparation of an **inventory of landmarks**, in order to assess the sites of interest,
- the use of the **landscape character assessment** of the country generated in recent years, to identify the diversity of landscape throughout the region,
- the exploration of **potential routes** like residential roads, dirt roads, side roads, pathways of 104 km long in the study area, preliminary field assessment via car tour,
- the **field survey of routes**, with documentation, and analysis of 100-meter-long road sections of 58 km with the cooperation and study work of bachelor student groups, using GPS (Fig. 3.).

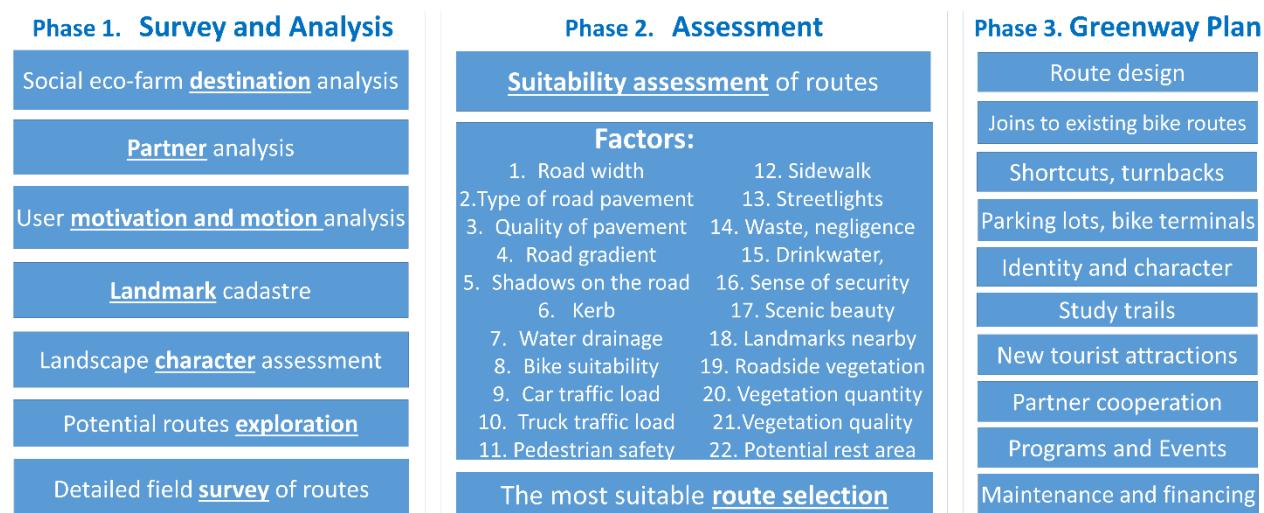


Figure 2. Methodological frame of the Greenway planning based on suitability assessment

The **second phase** completed a **suitability assessment** of the routes by 22 factors (Figure 2.). The first half of the **factors** concentrated on the road itself (type, quality, traffic, safety, etc.) and the next 11 factors considered the neighborhood of the roads (beauty, vegetation, landmarks, security, etc). Based on the suitability, the greenway **route selection** is finishing the assessment phase.

The **third phase** of the framework focused on **planning parameters** (Figure 2.). The greenway plan should consider the route design, the linkages to existing bike routes, the possible shortcuts and turnbacks, parking lots and bike terminals, and the change of travel modes. The potential development of new attractions, study trails, partner cooperation, programs and events together with landscape identity and site character is also part of the planning phase. Financing and maintenance questions need answers as well.



**Figure 3. Mosaics of field survey documentation contributing to suitability assessment**

For the planned greenway, the basic expectation was that the road:

- should preferably follow a lane that appears as a natural corridor in the landscape: along a watercourse, or along existing green spaces (grasslands, woodlands, vineyards),
- should be physically separated from motorized traffic,
- should be suitable for both pedestrian and cyclist traffic.

## Results

In our suitability assessment, the first phase gave the results in each topic. First, we introduce the results of the social eco-farm as a greenway destination for bikers. The **destination analysis** showed that the **property of the social eco-farm** is capable of multifunctional use. The goals of the social eco-farm are suitable to the landscape potential of the site, and there are no regulations against the planned functions, especially touristic; hiking and biking usage are welcome. The restrictions for built-up area prompt that the new constructions of built-up land should focus on 2.5 hectares within the 12-hectare site, while study trails, outdoor furniture, information boards, and greenway stations can be designed all around the site. The site is not an outstanding national scenic value but a typical farm of the countryside in this region with a nice open atmosphere.

The **partner analysis** justified that there are more than a hundred potential partners whose interest could be similar to “run a greenway”. The partners are mostly wineries, horse farms, holiday resorts, food sellers, and organizers of local festivals and events. The **user motivation and motion analysis** showed that the potential user groups come partly from the town of Cegléd, the nearby village Ceglédbercel, and partly from the holiday resort area of Cegléd-Spa that has been continuously developing since the 1990s. The users' motivation is to move out, hike, bike or ride a horse in the farmlike neighborhood of the Thermal Spa.

The **landmark survey** and analysis discovered landscape elements related to rural, agricultural and scenic values, that provide scenic beauty and are excellent representations of land management know-how. The **landscape character assessment** showed that in spite of the plain land, the area is diverse in landscape character mosaics, and 8 different character subtypes are overlapping with the study area. This means that the greenway route has the potential to cross several different landscape character mosaics. Based on the field survey, six of these could be reasonably involved in the greenway (Town dominant plain, Grassland dominant plain, Woodland mosaic plain, Vineyard dominant hill land, Agglomerating holiday resort, Farmland and garden mosaics).

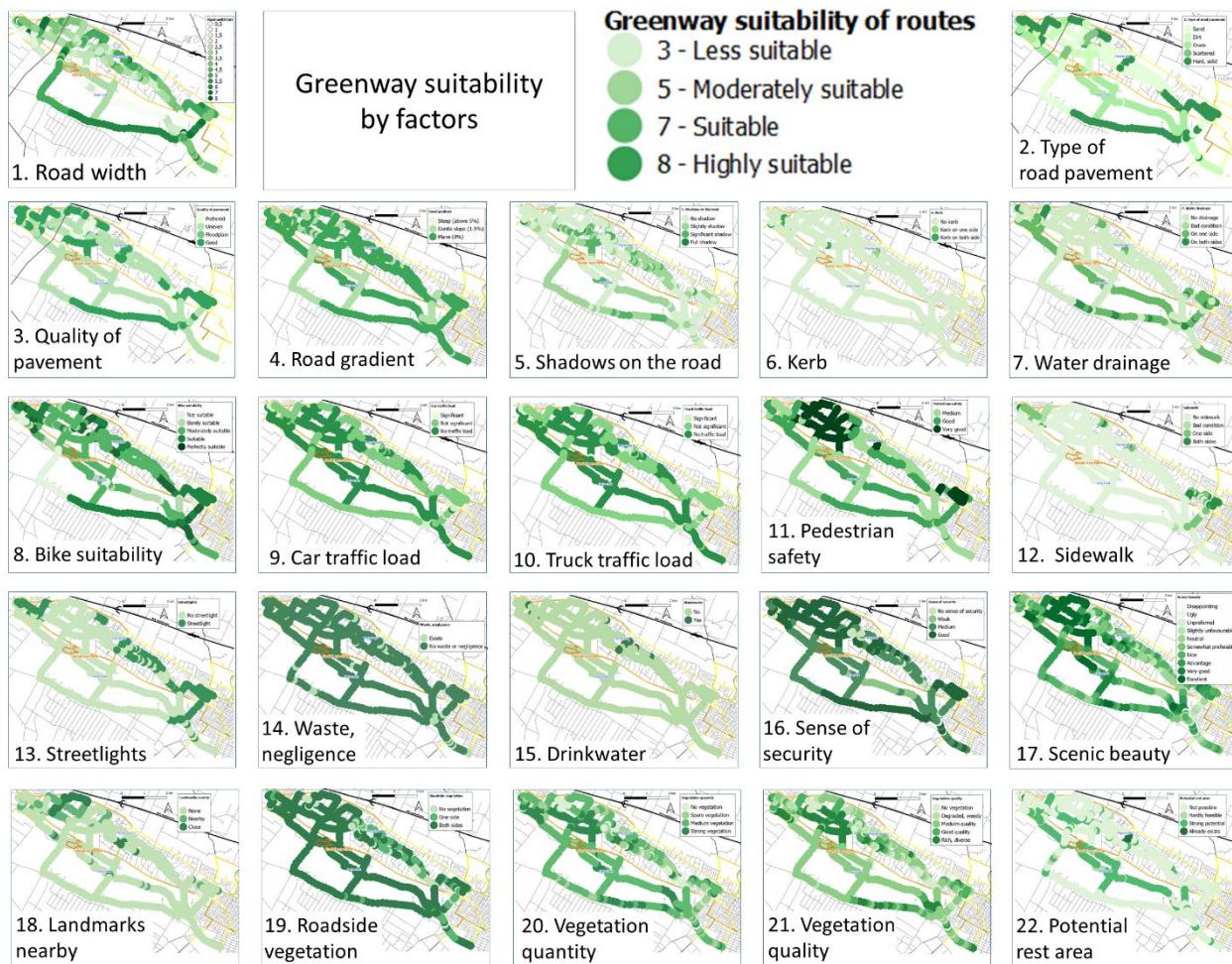


Figure 4. Results of suitability assessment of roads by factors of a bike greenway

As a result of the **potential routes exploration**, the bikeable, walkable and rideable roads were mapped and prioritized for the field survey. Based on the 22 aspects (Figure 4.), the **field survey of routes** was aggregated and we have produced a summary map. The map shows the most suitable sections for greenways in the 58 kilometers surveyed, by summing up the **positive and negative ratings** obtained for the criteria. Each section group has been given additional ratings (Figure 5.).

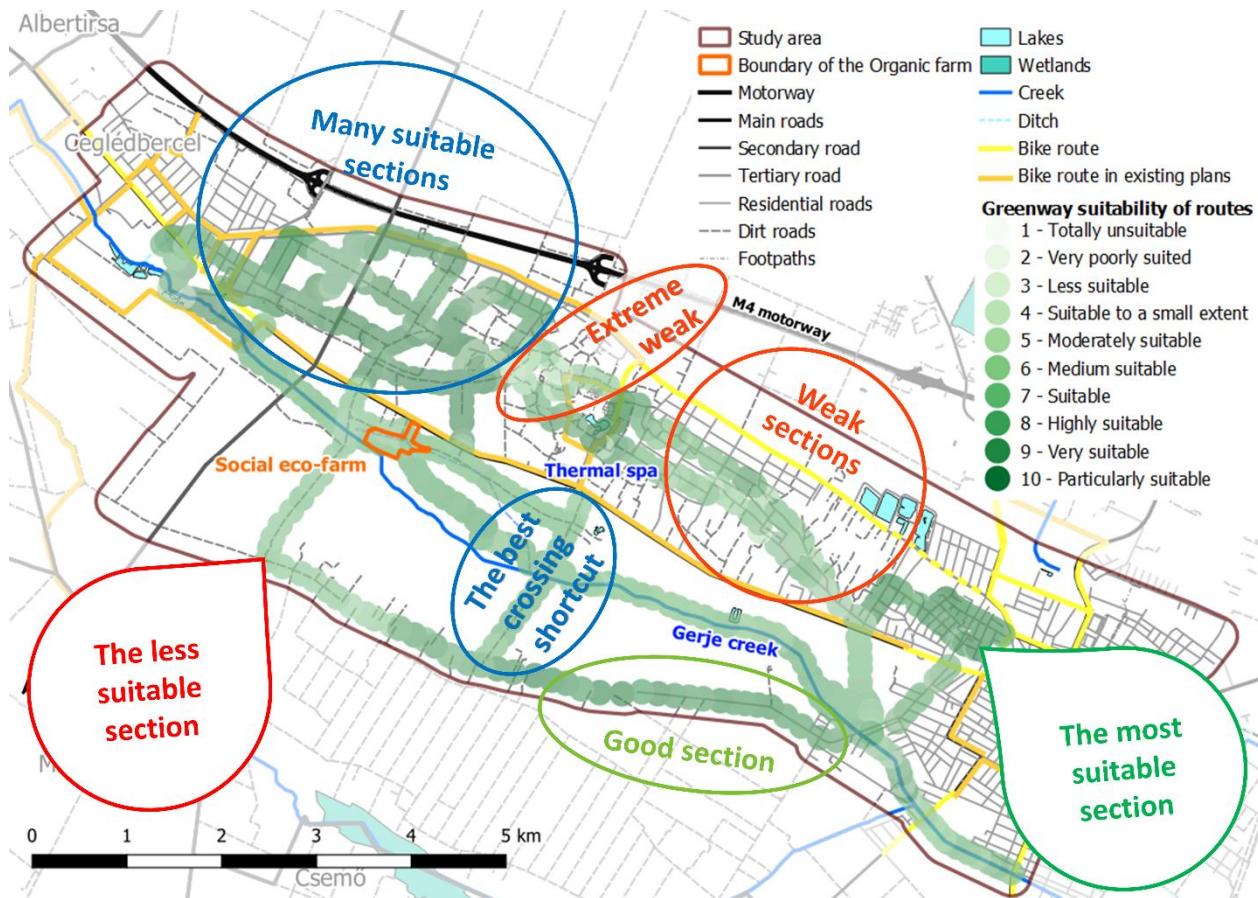


Figure 5. Suitability assessment of bikeable routes for Greenway development

We proposed a **circular, continuous greenway** linking the two settlements, Cegléd and Ceglédbercel. The greenway road network crosses the creek twice, touches the client's social eco-farm and the Thermal Spa of Cegléd. The road has been designed to be safely accessible using **existing, low-traffic roads**. The use of existing roads allows the greenway to be constructed without major investments. Our recommendations for each section include improving the quality of the road, the roadside vegetation (increasing shade), and creating **rest stations**.

The name is proposed as "**From the vineyard to the creek: Cegléd Greenway**". The logo of the proposed greenway reflects the distinctive elements of the place: the creek, the vineyards and the cycle path with a bike shaped by the town's name (Figure 6.). The basic concept of a greenway also includes the provision of parking space for cars and, if possible, bicycle storage at the connection points of the cycle greenway to the main roads. It is important that the connectivity between the southern and northern sections be reinforced. To this end, **cross connections** are recommended.

A hiking greenway along the Gerje Creek can only be developed conditionally in the medium term. This will require **consultation with landowners and farmers**, more regular mowing, the construction or renovation of five **bridges**, and opening **gates** on two fences. We proposed four study trails and two **new tourist attractions** in order to attract the users from the spa neighborhood closer to the social eco-farm. Horseback riding can have an attractive role as the horse farms are close to the spa and the social eco-farm as well. Our proposal gave an example of **native tree** species plantations on the southern side of the roads, **providing shadow** on the road in the hot midday period. Road signs and information boards are recommended in stations and road junctions.

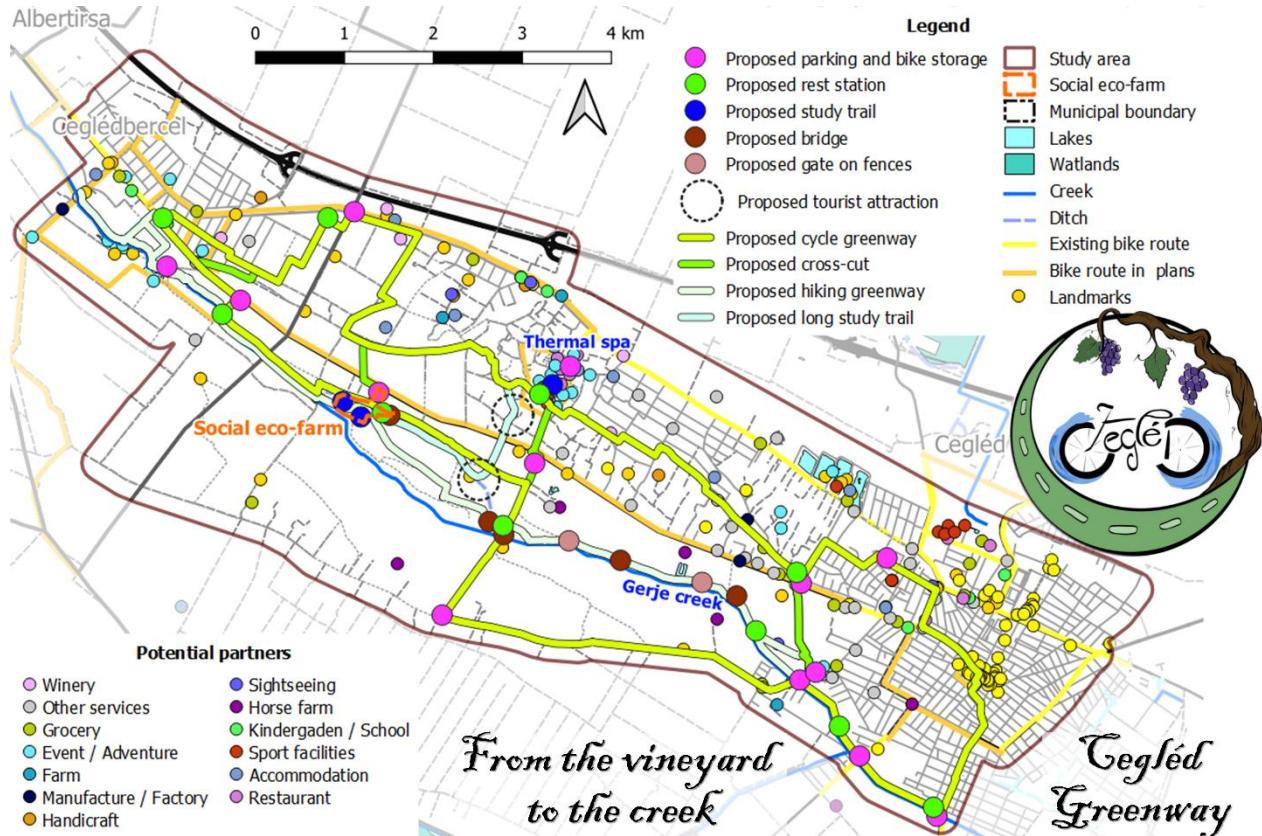


Figure 6. Proposed general plan of the Greenway

## Discussion and Conclusion

Our planned **Cegléd Greenway** can be considered a **mixed combination of the types** of greenways defined by Little (1990). It has recreational, ecological, scenic and historic relevance, as it provides recreational opportunities for the residents of the two settlements and visitors to the social eco-farm, and also showcases the natural and cultural values of the area. The greenway will provide local producers with the opportunity to sell their products and will therefore have an area-enhancing effect, thus also meeting the Ahern principles (Ahern 2002). For the planned greenway, we took into account the CEG recommendations for local greenways: we connected the greenway to the town center and made sure that the greenway was connected to local public transport, and we also designed resting points and information signs.

The key **lessons we learned** during planning, among others, were:

- the decisive factors of greenway suitability are numerous but can be surveyed during field work,
- landscape character has a decisive role in route selection at the study site,
- interest, location and mobility of the potential user groups are key factors in planning,
- after development, the maintenance and the promotion of the greenway are the keys to survival.

The ecotourism foundation could be a suitable organization to run the greenway, as it has a good social base and can mobilize the community involved. With these principles in mind, we can presume that the social eco-farm can benefit from the greenway development.

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