CREATING A RECREATIONAL CYCLE NETWORK FOR ODSHERRED

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UNIVERSITEIT GENT

RUC
Roskilde Universitet

UNIVERSITY OF COPENHAGEN

CYCLING IN DENMARK

- Very popular

- Copenhagen as bicycle capital

- Tour de France 2022

What makes Copenhagen the world's most bicycle friendly capital?
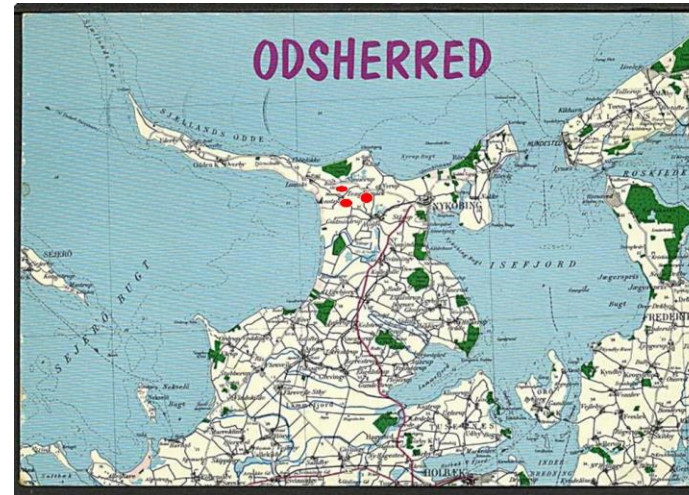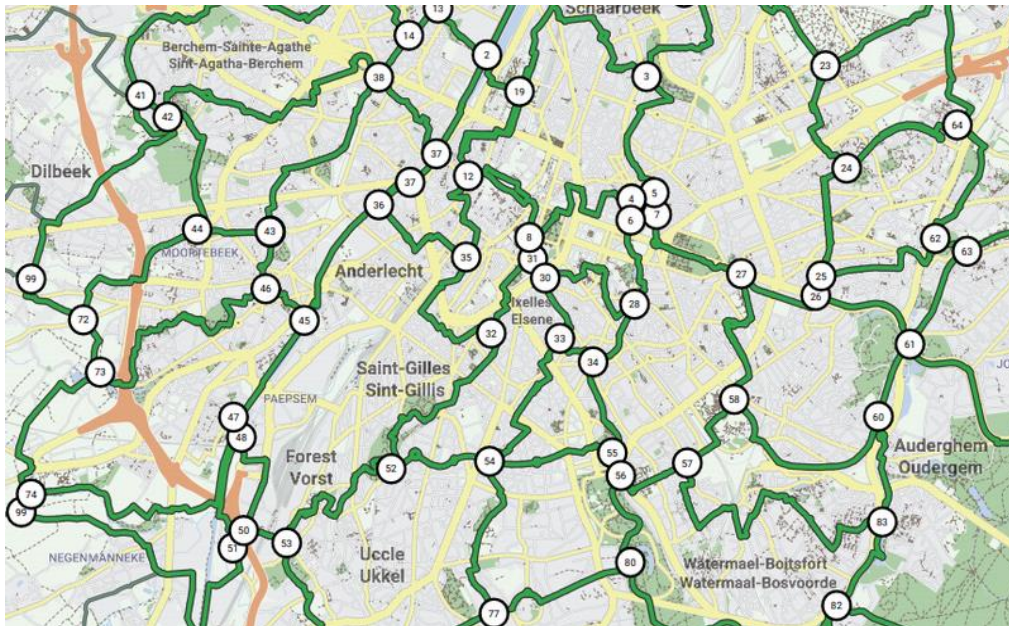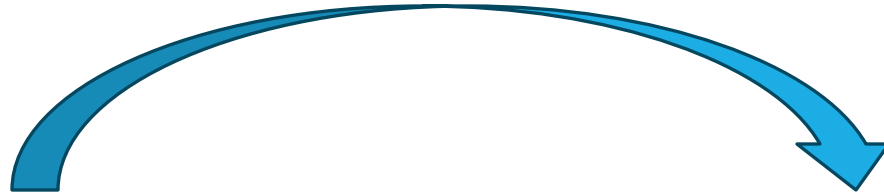
NUMBERED-NODE CYCLE NETWORKS

- Started in Belgium (1995)

- Spread to other countries

- Flexible and easy to use
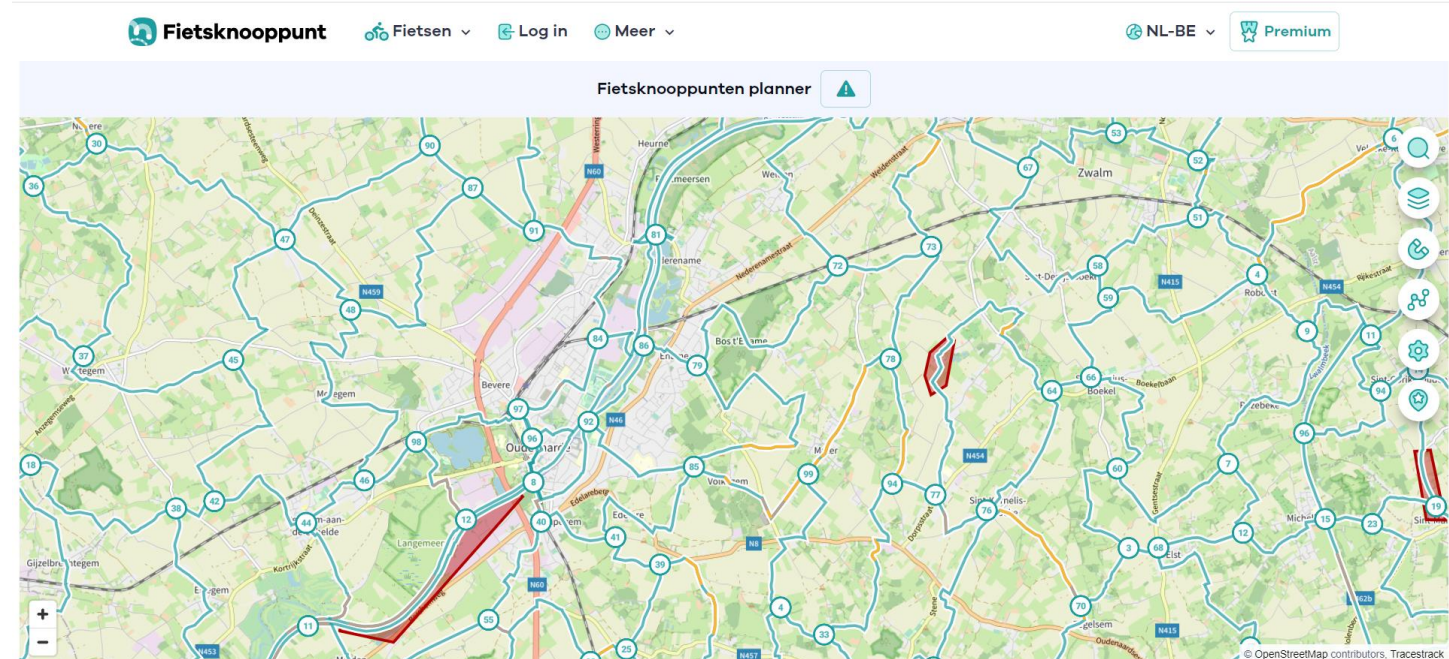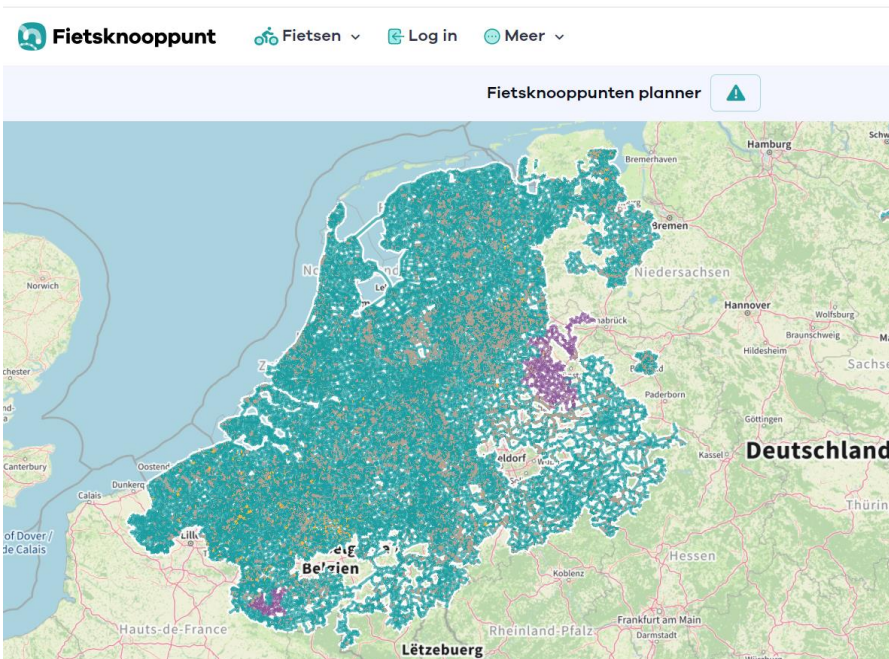
OBJECTIVE

Make a cycle network for Odsherred with GIS

RESEARCH QUESTIONS

How can a recreational cycle network be created in Odsherred?

- Current situation in Odsherred?

- Data & parameters?

- Accuracy of the network?

- Reproducible?

RELEVANCE

Connect Geopark sites

Promote cycling tourism
- Sustainable
- Boost of local economy
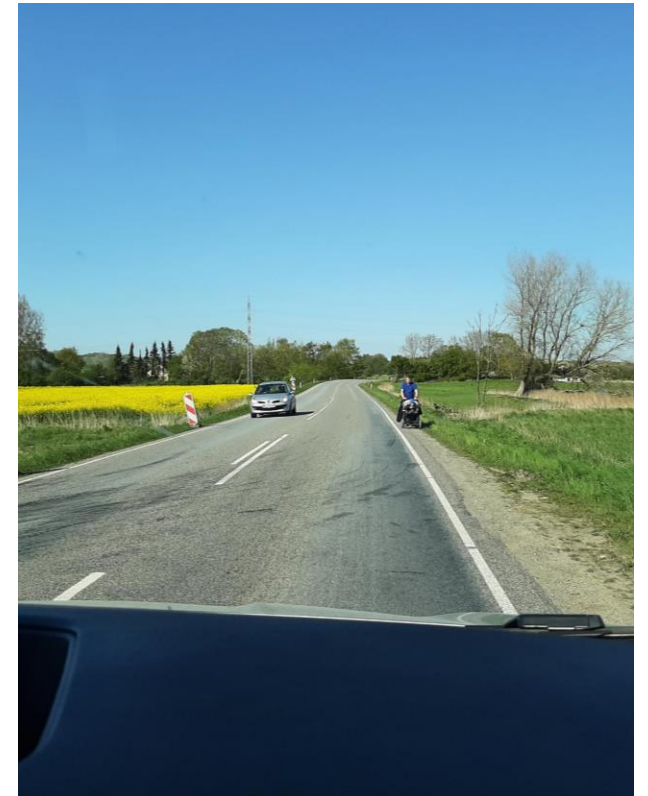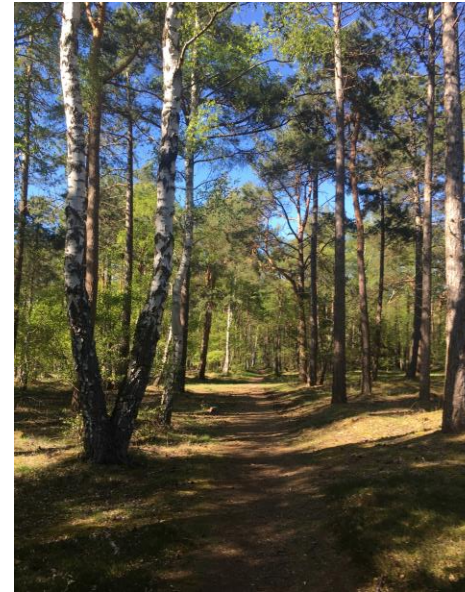
STUDY AREA

Odsherred municipality

METHOD

Suitability map (GIS)
- Constraints
- Factors
- Weighting (SAATY)
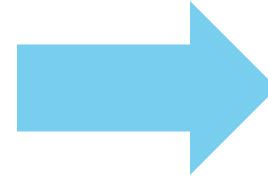
Fieldwork
- Qualitative control
- Interviews

CONSTRAINTS

No motorways

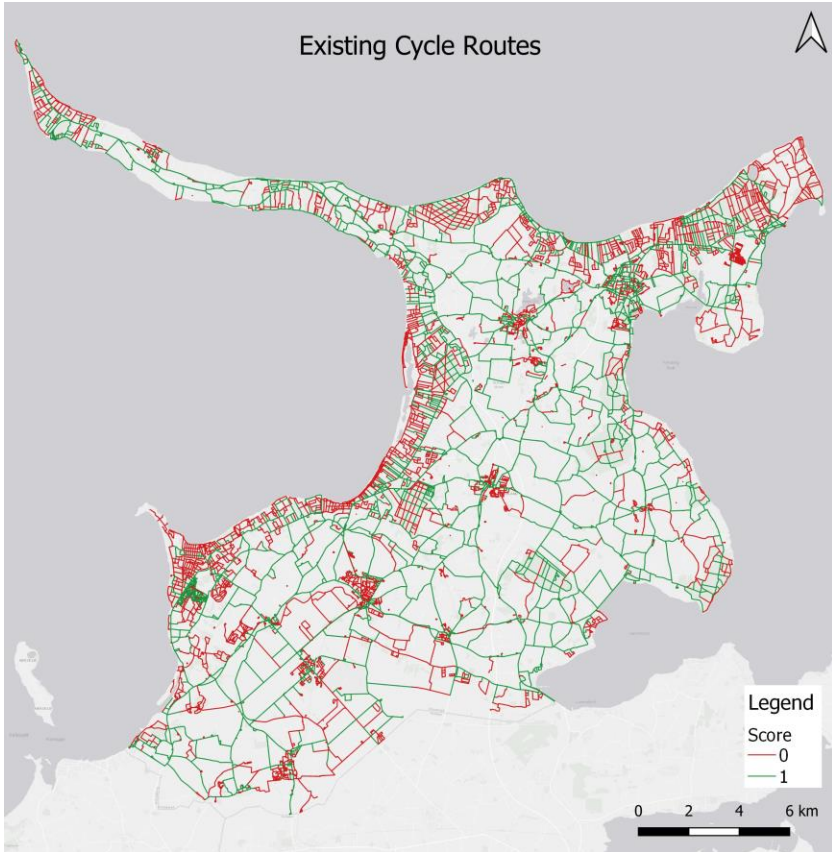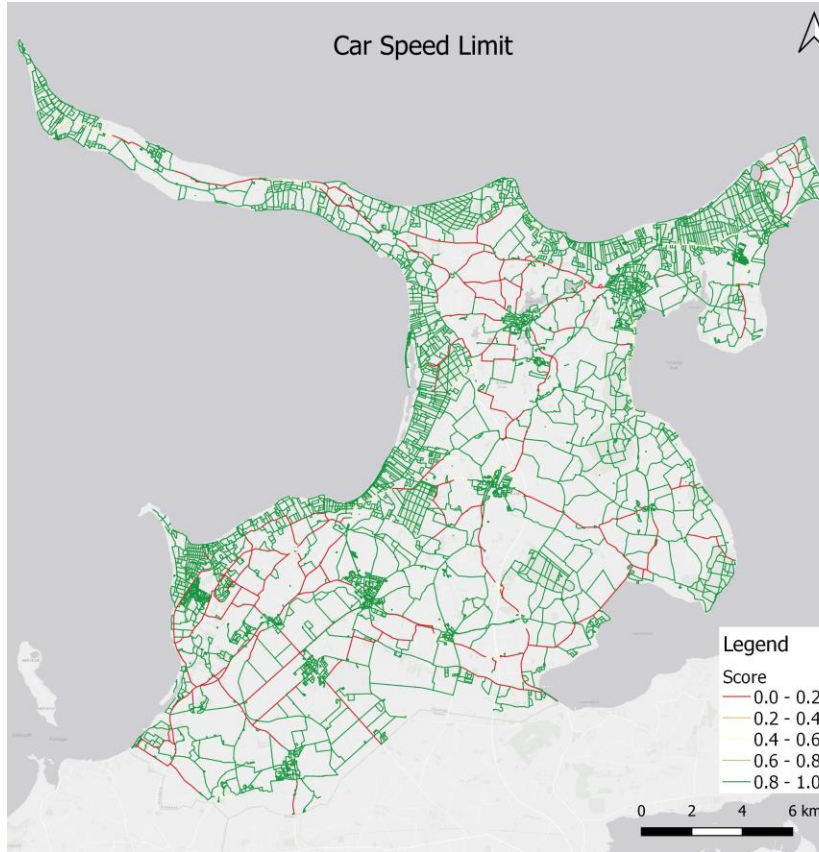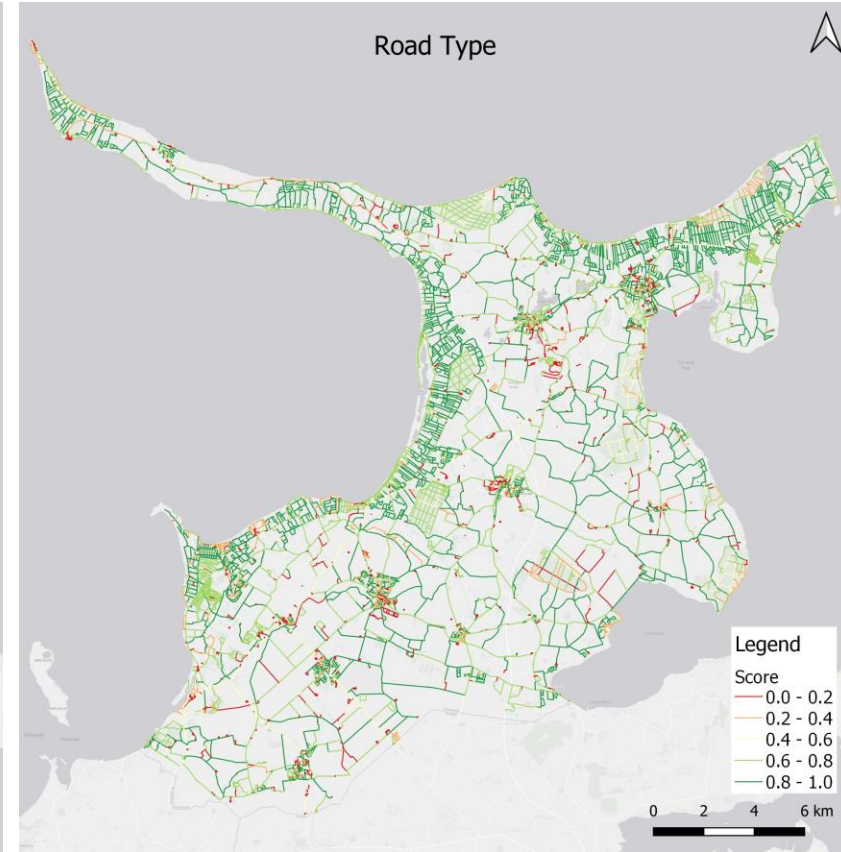No roads forbidden for cyclists

No dead ends

ROAD FACTORS
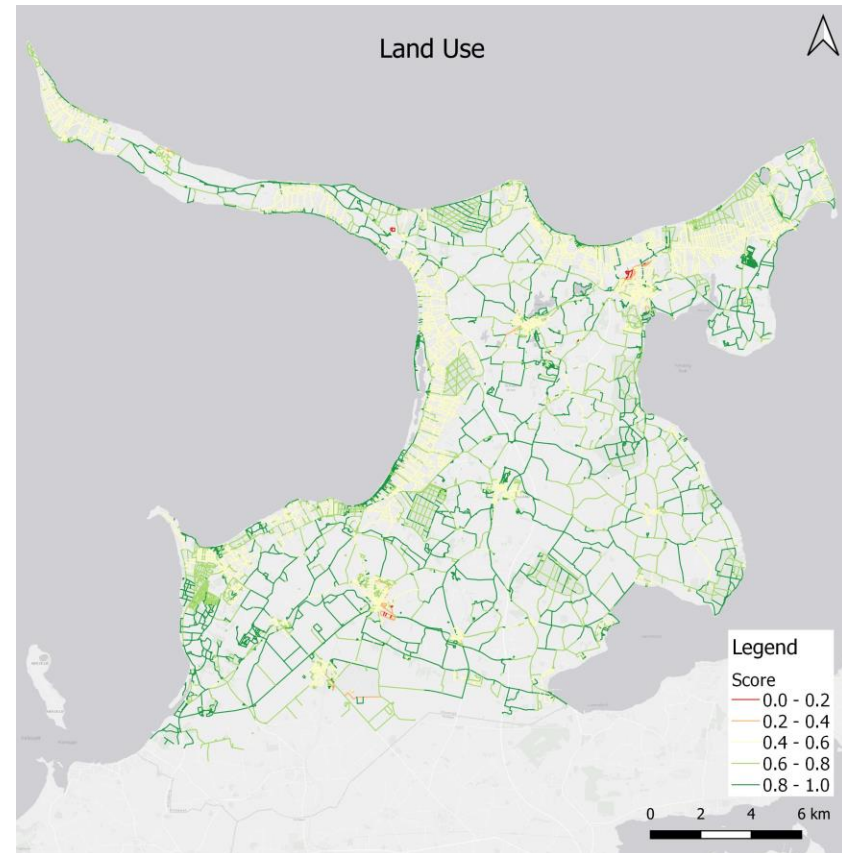
PHYSICAL FACTORS

Land Use

Slope

Sights

Legend
Score
0.0 - 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0

Legend
Score
0.0 - 0.2
0.2 - 0.4
0.4 - 0.6
0.6 - 0.8
0.8 - 1.0

Legend
Score
0
1
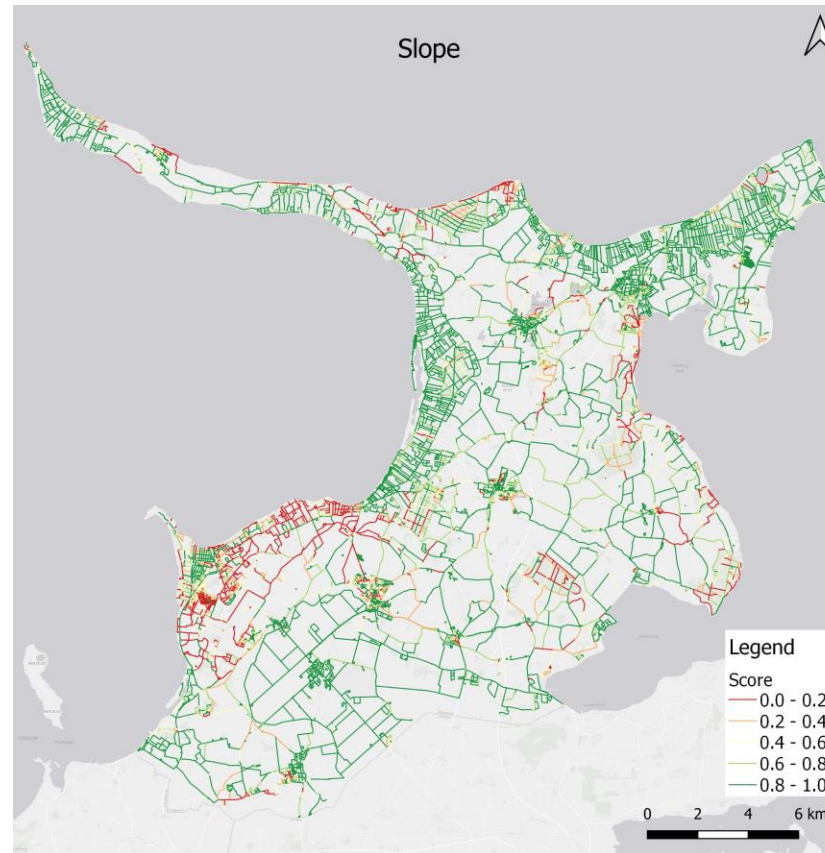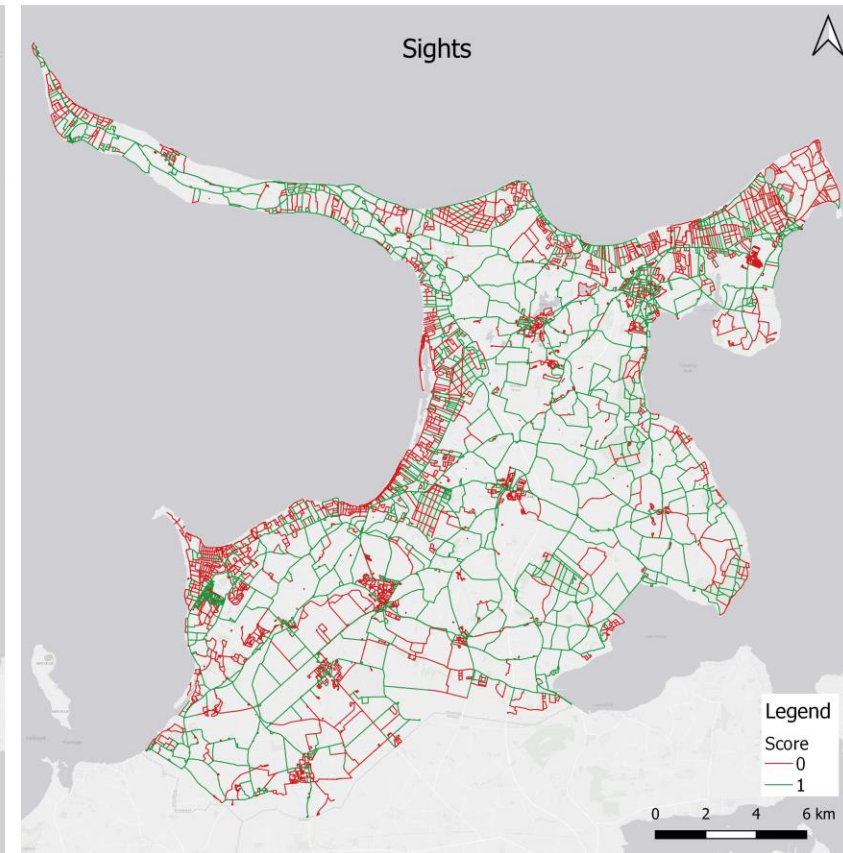
COMBINING PARAMETERS

Factor 1	Factor x														AVG	Mediaan
Natural environment	Existing cycling routes	7	6	6	6	2	2	2	7	6	6	0,333333333	7	1	4,487179	6
Car speed limit	Existing cycling routes	7	7	7	3	4	0,5	0,166667	7	6	0,166667	0,166666667	4	4	3,846154	4
Car speed limit	Natural environment	1	4	1	0,333333	0,25	3	0,142857	0,142857	0,2	0,166667	0,2	7	7	1,87967	0,333333
Road type	Existing cycling routes	5	4	7	4	3	0,166667	5	1	6	6	1	4	0,2	3,566667	4
Road type	Natural environment	3	4	0,25	0,333333	0,2	0,166667	0,25	0,333333	0,2	0,333333	1	7	1	1,389744	0,333333
Road type	Car speed limit	0,166667	4	1	4	1	0,166667	6	5	0,166667	3	1	5	0,25	2,365385	1
Interesting places	Existing cycling routes	6	5	4	2	0,2	3	5	7	6	7	0,333333333	7	4	4,348718	5
Interesting places	Natural environment	0,166667	1	0,166667	0,166667	0,333333	1	1	1	0,166667	1	0,333333333	7	1	1,102564	1
Interesting places	Car speed limit	0,142857	4	0,25	1	0,2	5	2	1	6	6	1	1	1	2,199451	1
Interesting places	Road Type	0,166667	1	0,25	0,2	0,2	6	4	1	0,2	4	0,5	1	4	1,732051	1
Slope	Existing cycling routes	5	1	1	0,5	3	6	0,142857	2	6	6	3	7	1	3,203297	3
Slope	Natural environment	1	0,25	0,166667	0,142857	0,333333	2	0,142857	0,333333	0,166667	0,333333	3	7	0,25	1,163004	0,333333
Slope	Car speed limit	1	0,166667	0,142857	0,5	1	2	7	4	5	5	3	1	4	2,600733	2
Slope	Road Type	7	0,2	1	0,333333	1	1	0,142857	1	5	6	3	1	1	2,128938	1
Slope	Interesting places	7	0,333333	0,25	2	2	2	0,142857	0,166667	0,2	0,5	3	5	0,25	1,757143	0,5
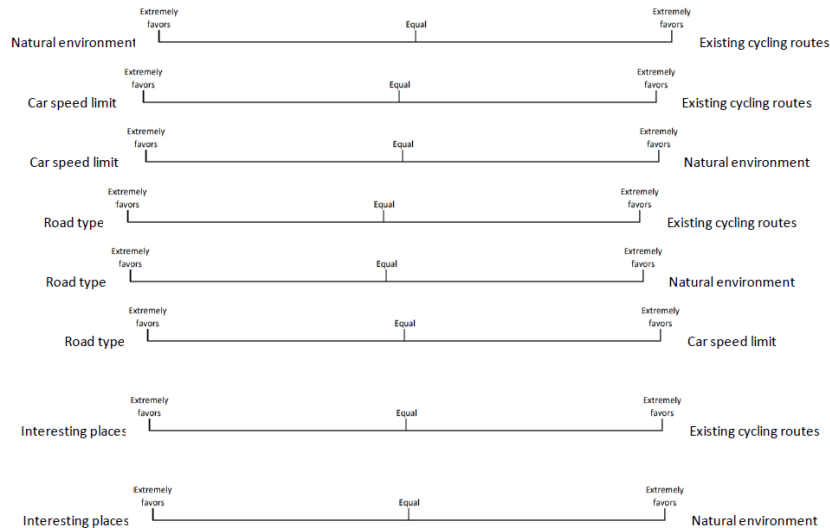
Factors			
	F2	Natural environment	0,324972
	F5	Points of interest	0,210068
	F4	Road type	0,146457
	F6	Digital Elevation Model	0,141683
	F3	Speed limit	0,135819
	F1	Existing routes	0,041

SUITABILITY MAP
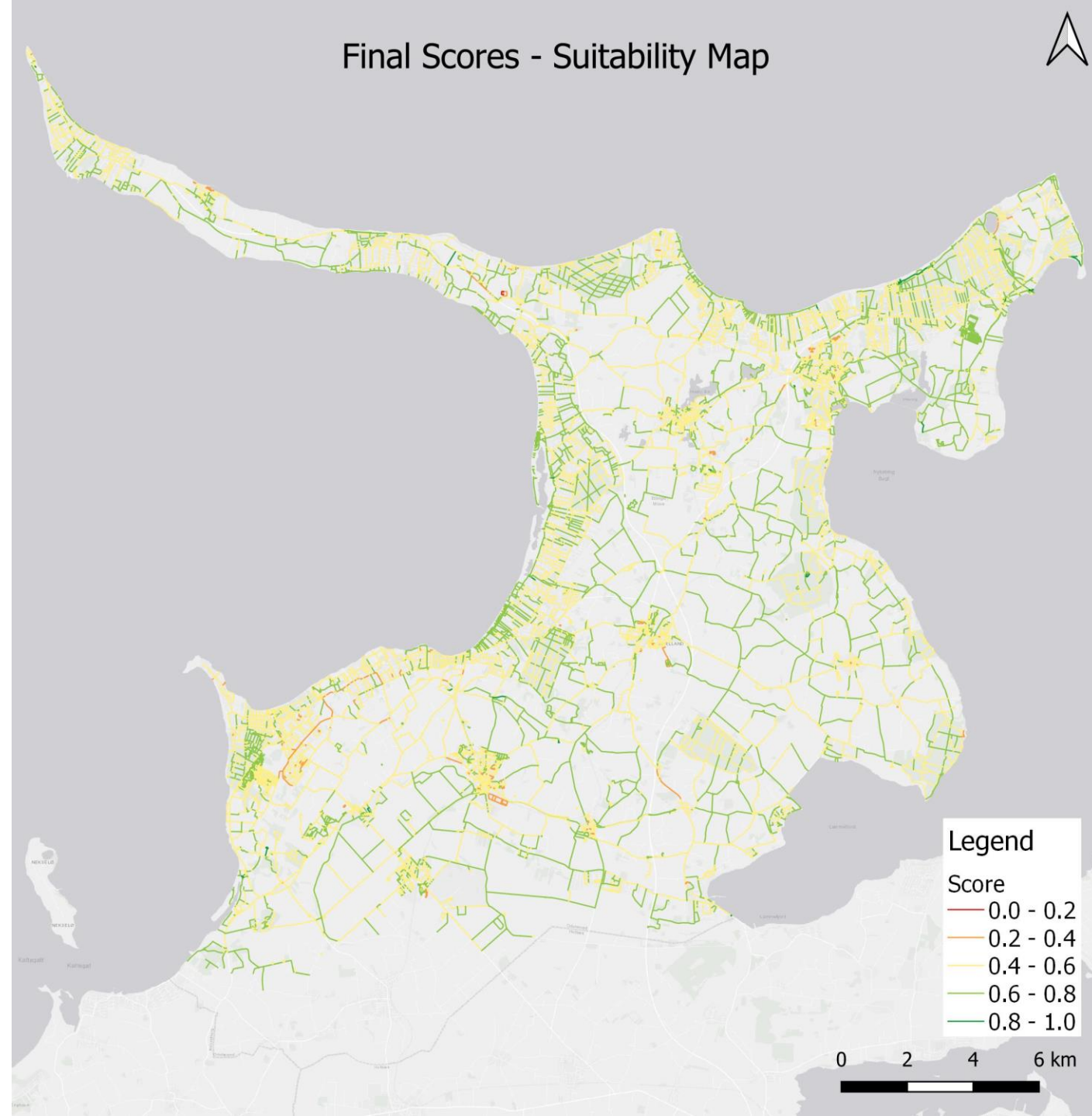
Final Scores - Suitability Map

Legend

Score
- 0.0 - 0.2
- 0.2 - 0.4
- 0.4 - 0.6
- 0.6 - 0.8
- 0.8 - 1.0

0   2   4   6 km

QUALITATIVE CONTROL IN THE FIELD

http://we12s016.ugent.be/student2023/giglorie/gip/gip.php
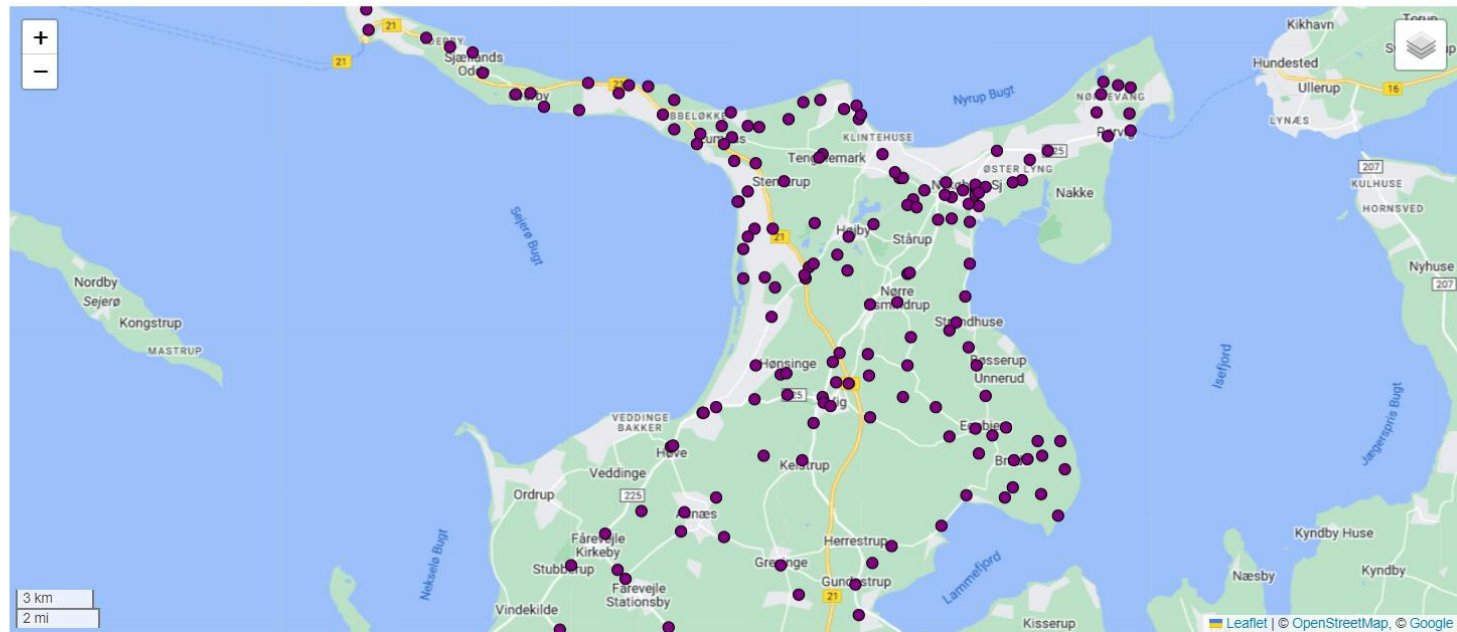
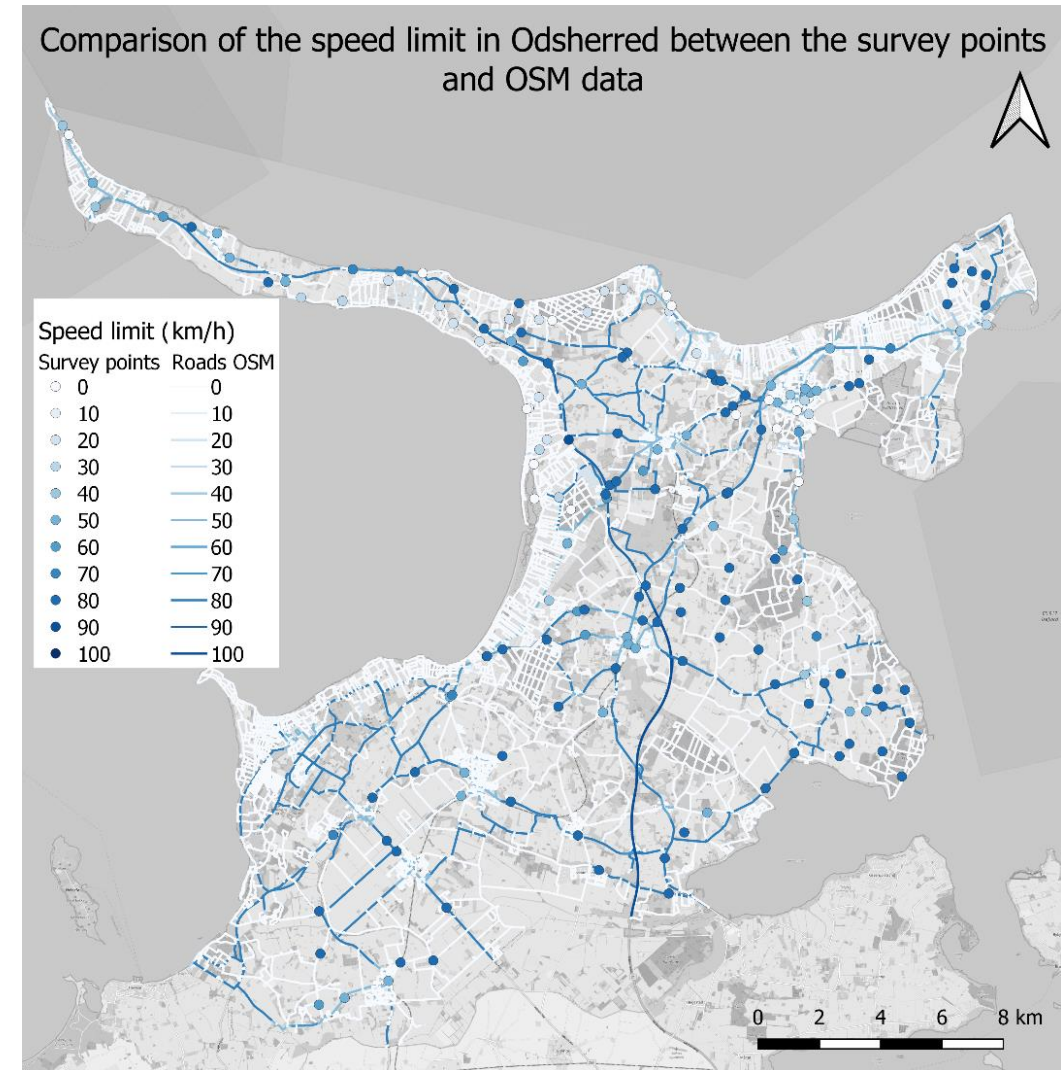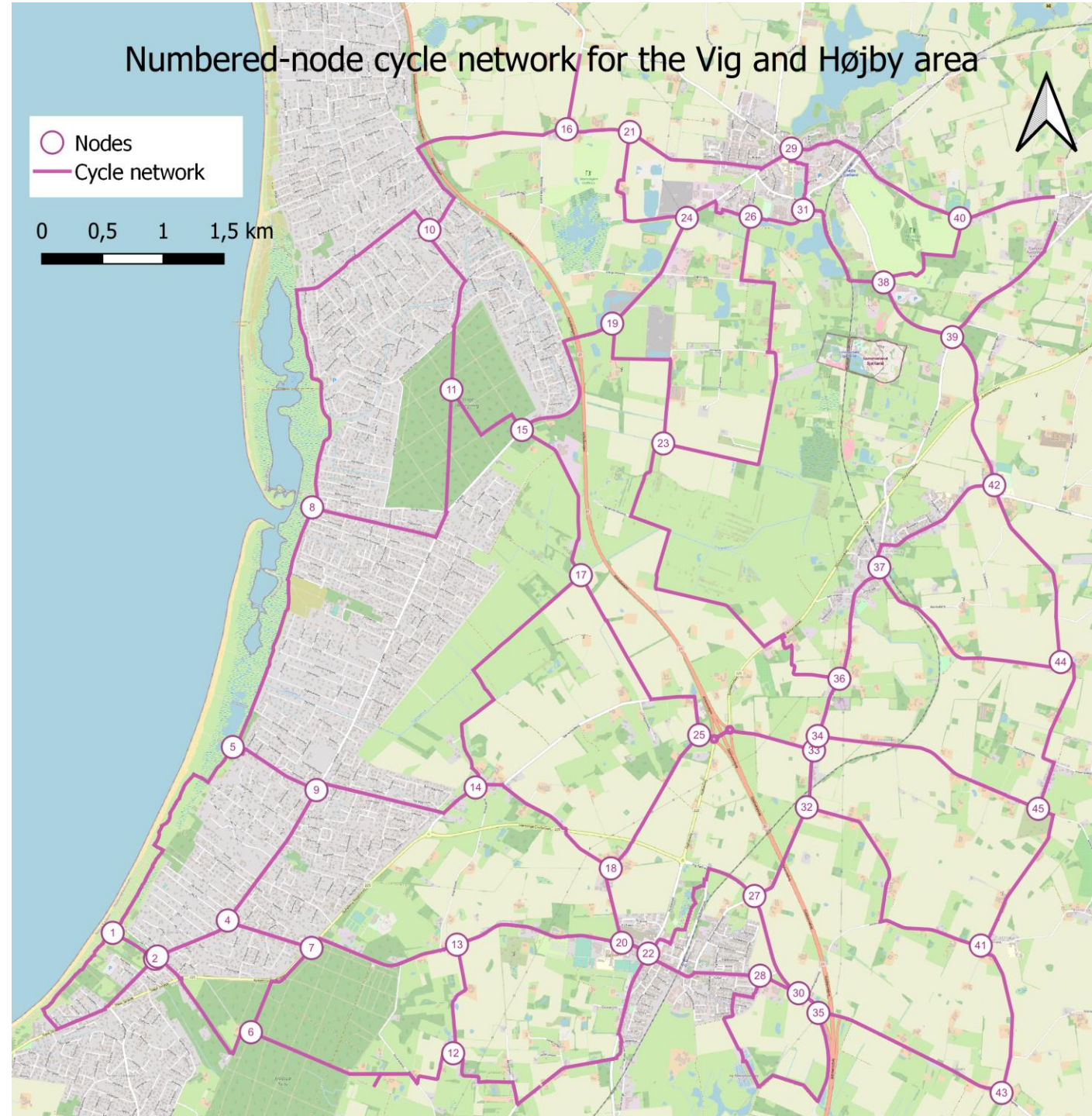# QUALITATIVE CONTROL IN THE FIELD

- Validation input data with own observations

Example:

- 54 / 173 (31%) speed limit not in OSM

- 111 / 116 (96%) roads with speed limit correspond to observations

Comparison of the speed limit in Odsherred between the survey points and OSM data

Speed limit (km/h)
Survey points Roads OSM
0   0
10   10
20   20
30   30
40   40
50   50
60   60
70   70
80   80
90   90
100 100

0 2 4 6 8 km

RESULTING NETWORK

Numbered-node cycle network for the Vig and Højby area

CONCLUSION AND REFLECTION

- Relevant factors that are useful to create a network

- OpenStreetMap data not always reliable

- Reproducible method

- Subjectivity

- Room for improvement