NTNU

Kunnskap for en bedre verden

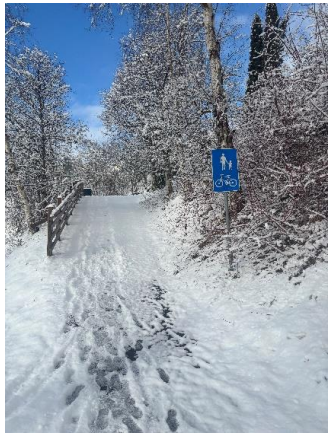
Snarvei Analysis

Børsa

Irene Hofmann, 23.04.25

Preliminary results

One week internship



Irene Hofmann

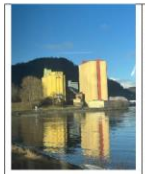
Hospitering in Skaun from 10.03.-14.03

The following document gives a brief description about the discussions and impressions in Skaun Kommune and of the municipality of Skaun.

1. Day 10.03.2025

Visiting Norgesmøllene i Buvika:

- 23 people work here
- Produce flour



Fabric

Productionhall

Machine

Rahul told me the municipality uses QGIS. They don't use any existing land use planning tools like *Areal- og transportplanleggingsmodellen* (ATP) model that is taught by the university.

Meeting about snarvei prosjekt:

- Agreed on Viggja between Viggjavegen and Viggjahåggån
- Agreed on Buvika
- Børsa, → they discuss if its possible to build the snårvei according to the regulations. No solution yet. Børsa is not clear – if it's possible to extend the path around the football field. Kai said farmers are complaining about pedestrians who walking across the fields.
- There is no place for a cycle path from Børsa to Venn → very expensive and no place for it.
- Skaun, Eggkleiva are left behind as well. Not much people for common public transport.
- Eggkleiva is a school → there is no cycle way between Skaun – Eggkleiva to Børsa.

I asked about systematic analysis where snarvei are possible.

Dag 4 - Torsdag

09:00-09:30 – Miljøpakken - Hanne

09:30-11:00 - Sammenhengende gangveier med et nettverk av snarveier, turveier, gangveier og fortau.

11:00-11:30 – Lunsj

11:30-13:30 – Befaring. Analyse

13.30-14:00 – Delta på arbeidsmøte

14:00-14:15 – To kaffe

14:15-15:15 – Snarveiprosjekt - Hanne og Rahul

15:15-16:00 – Rapport (skriftlig). Arbeidsdag slutt

Snarvei (=shortcuts)

- Improvement of existing agricultural paths
- Building new shortcuts

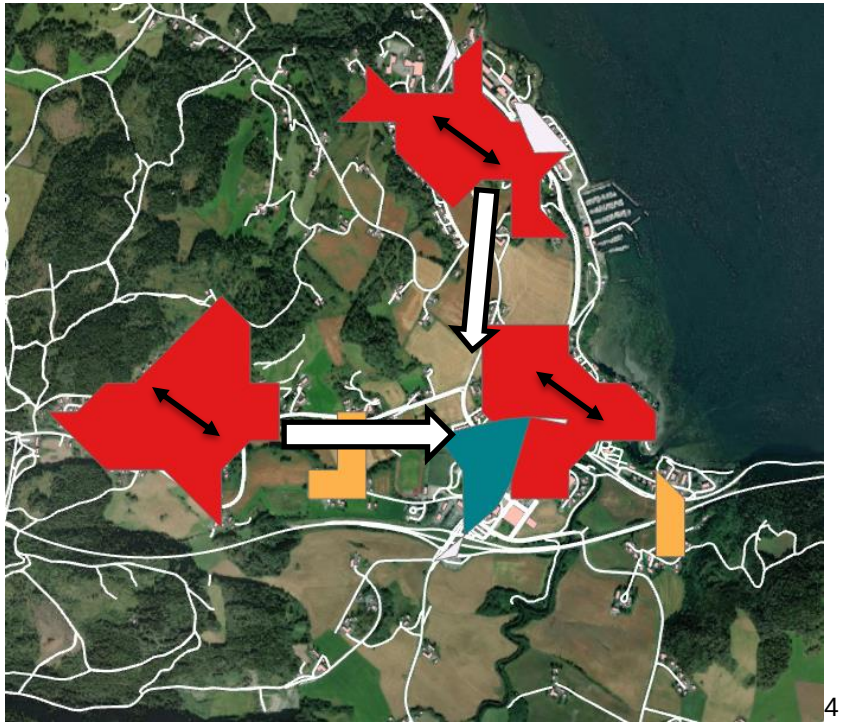
- Functionality:
  - Improved connectivity within the settlements
  - Enhanced access to local attractions
  - Direct connections to key destinations
  - Spatial separation from car traffic

- Goal:

  Shortcuts that save travel time lead to faster access to destinations, encouraging more walking

Method: Identifying snarveier

1. Evaluation of settlement cluster structures



Method: Identifying snarveier

2. Using internal knowledge & existing studies

Method: Identifying snarveier

3. Identifying patterns from barnetråkk for snarveier

Method: Identifying snarveier

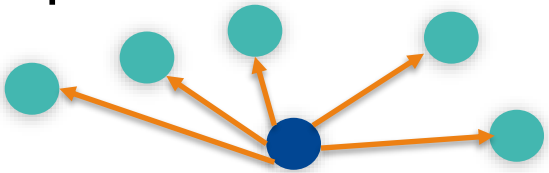
4. Alignment of feasibility with Arealplan/Reguleringsplan

Result: Snarveiplan Børsa

Result: Snarveiplan Børsa

What is the effect?

- Improved connectivity→ connectivity index



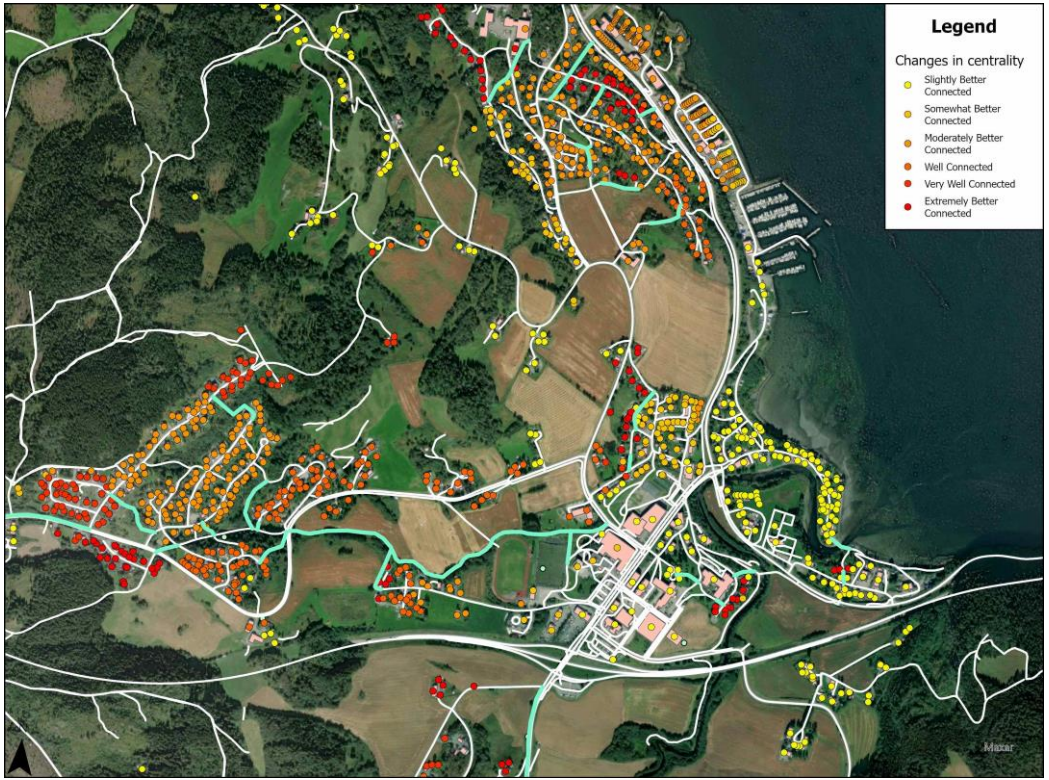
- Improved directness → straightness index
  - Routed length / straight line

- Enhance walking → Walkscore

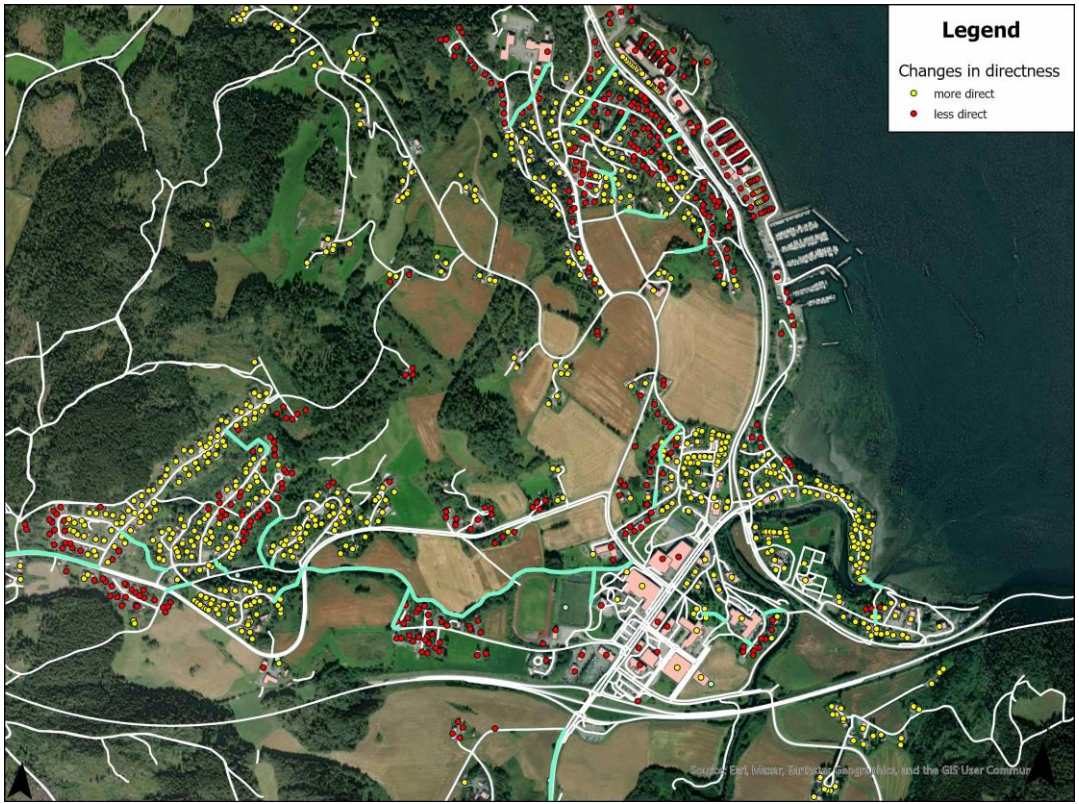
Datasources

- Network:
  - Elveg, OSM, Traktorvei
- POI:
  - FKB, OSM, Google Maps, Barnetrakk
- Other attributes:
  - Separation from car traffic
  - Traffic speed
  - “Snow removal”
- 100m x 100m centroid grid population dataset 2019

Effects: Connection



Effects: Directness



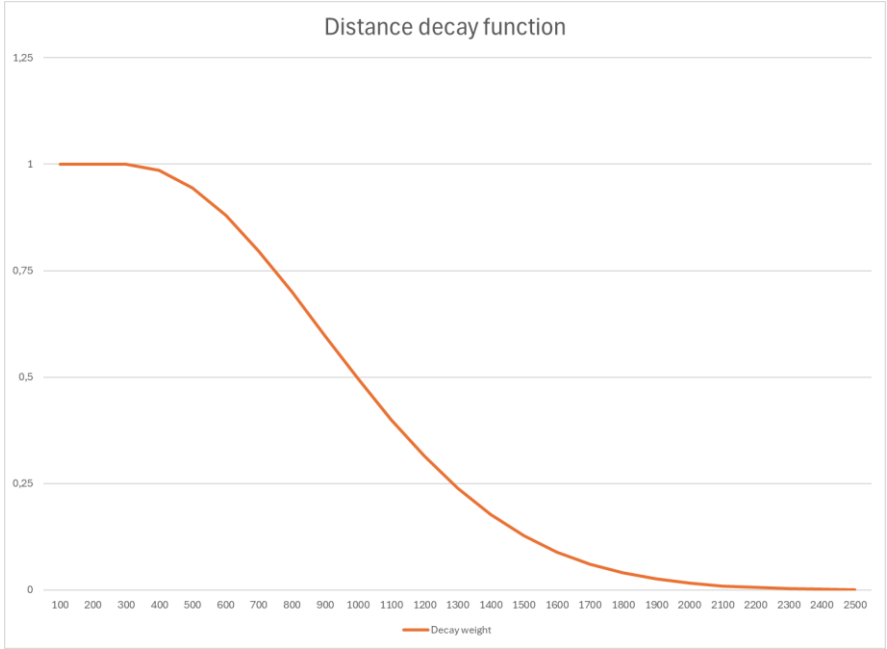
Effects: Walkability

Method: Walkscore

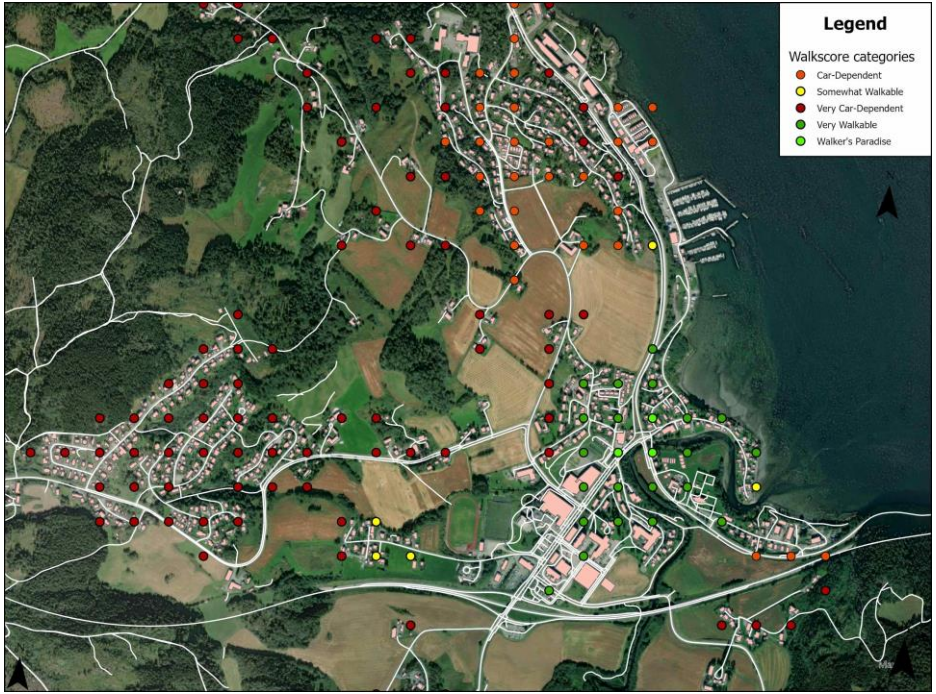
Adjusted weights for more rural setting

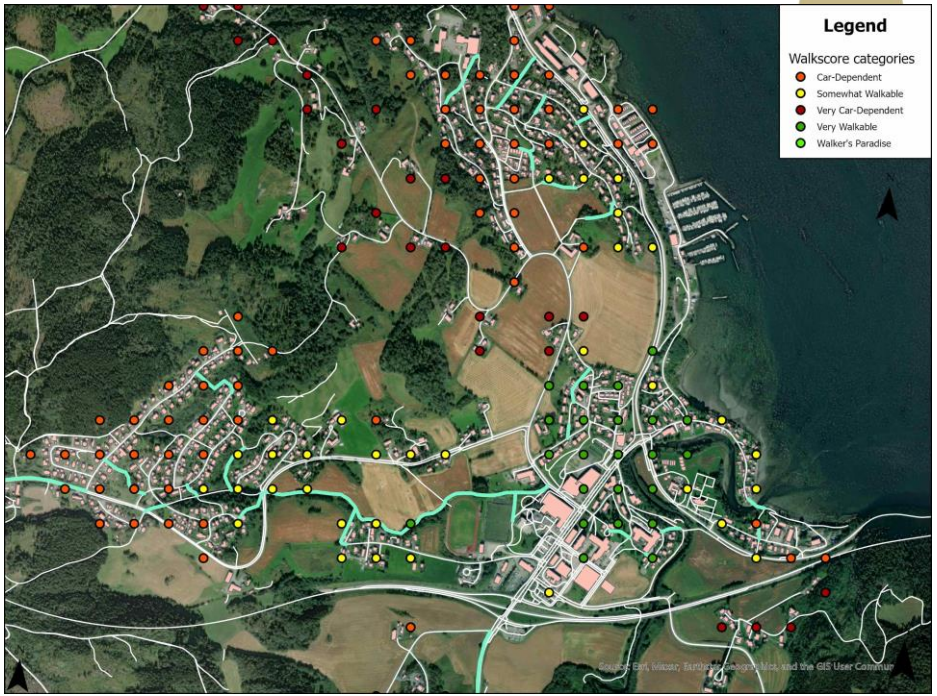
Attraction	Example	Total weight	Weights
restaurant		2	0.75, 0.45, 0.25, 0.25, 0.225, 0.225, 0.225, 0.225, 0.2, 0.2
shopping		2	0.5, 0.45, 0.4, 0.35, 0.3
cafe		2	1.25, 0.75
grocery		3	
bank		1	
library		1	
leisure	community center, church, playground, museum, etc.	1	
sport	indoor & outdoor sportsground	1	
school	school & kindergarden	1	
pharamcy		1	
GP		2	1.25, 0.75
nature	viewpoint, access to hiking,	1	
public transport		0,5	
neighbors	distance to neighbors	0,5	

Cumulative Gaussian decay function



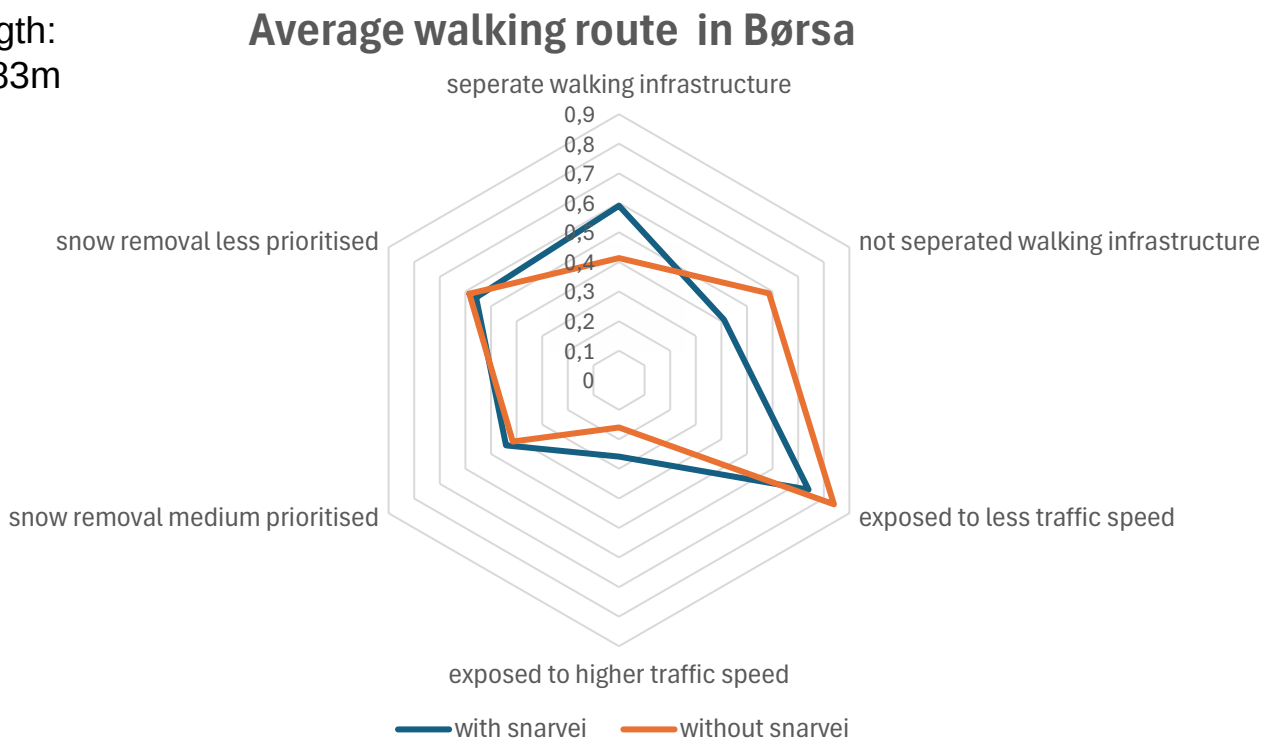
Results Børsa



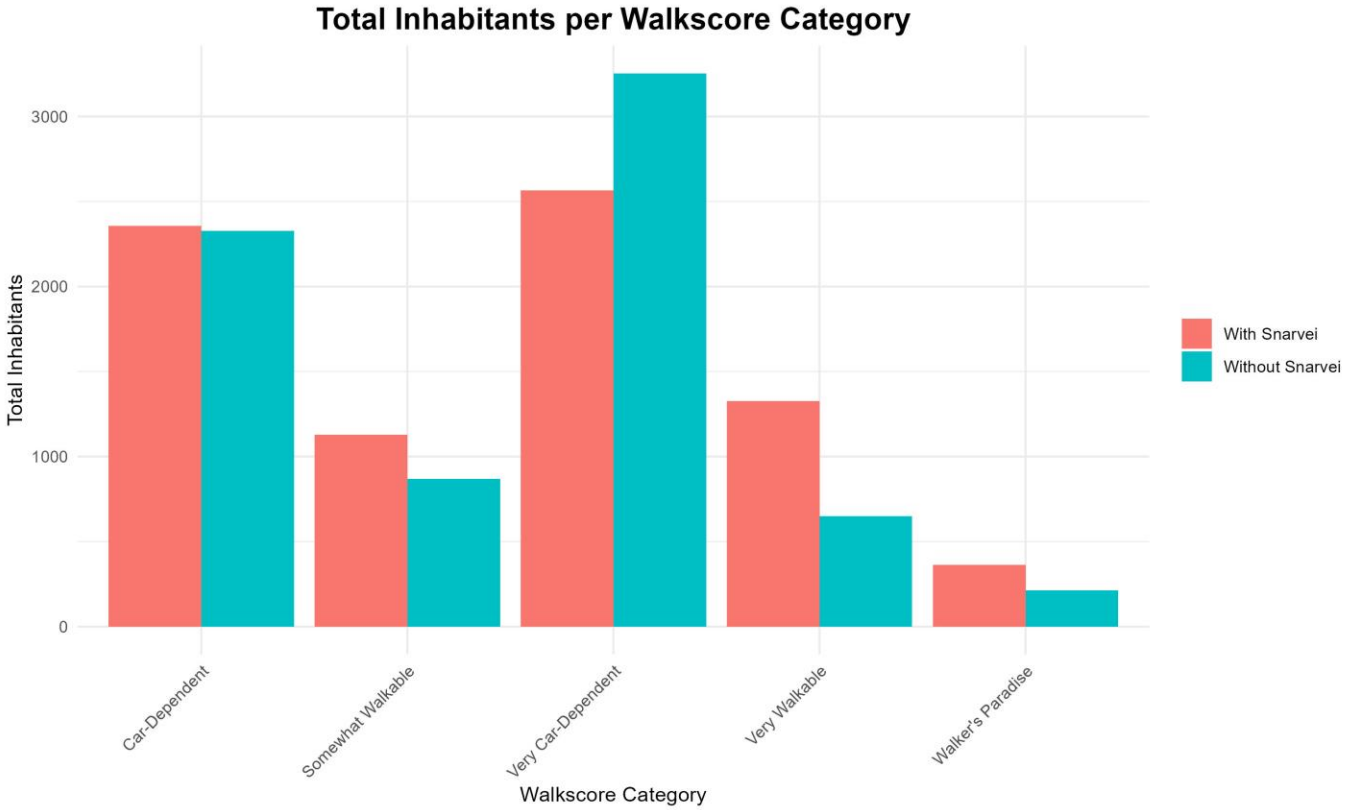


Changes in average conditions

Average length:
655m → 1083m

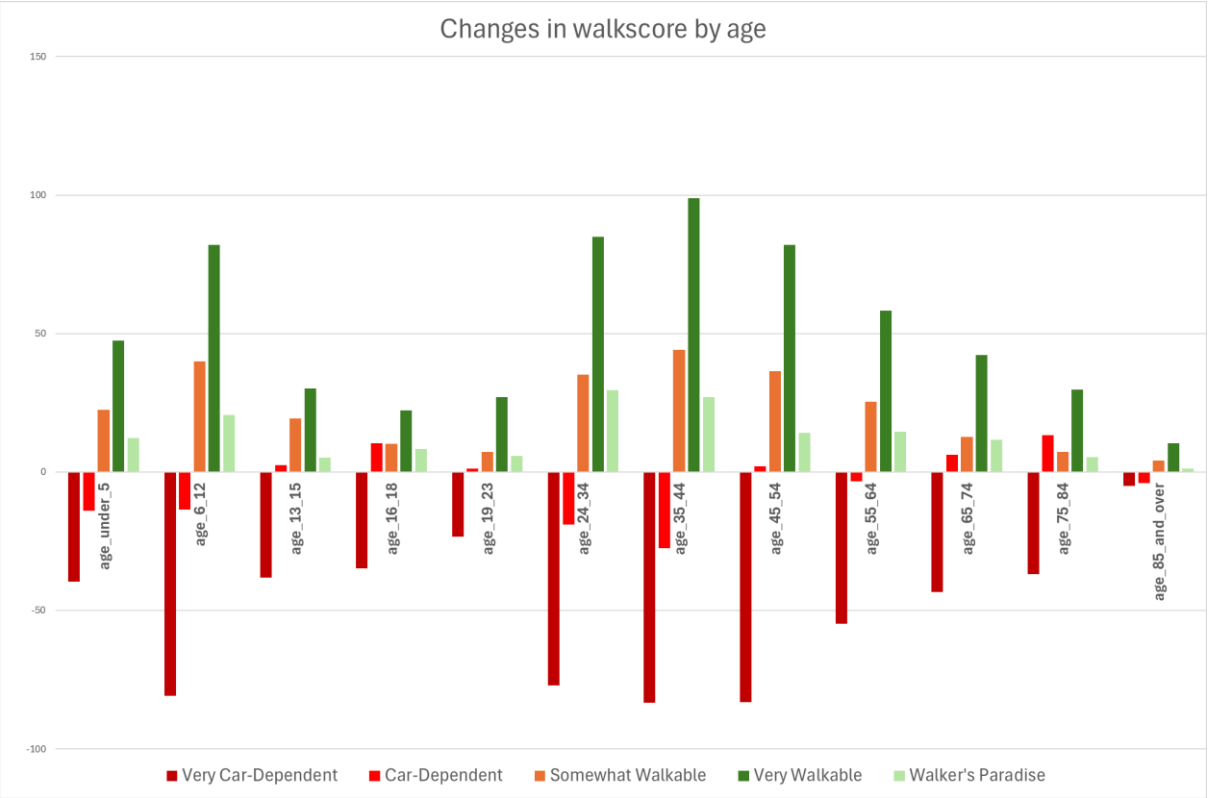


Who is effected in total?

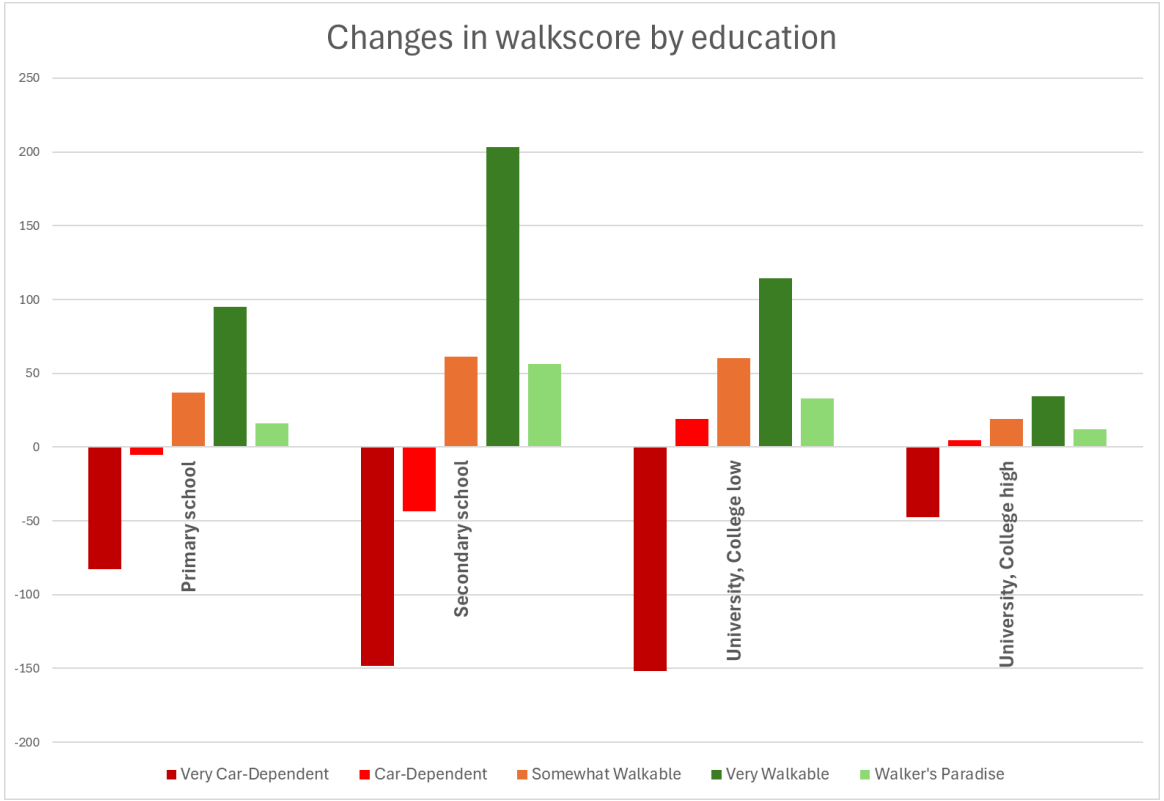


In total 1000 persons have a better accessibility!

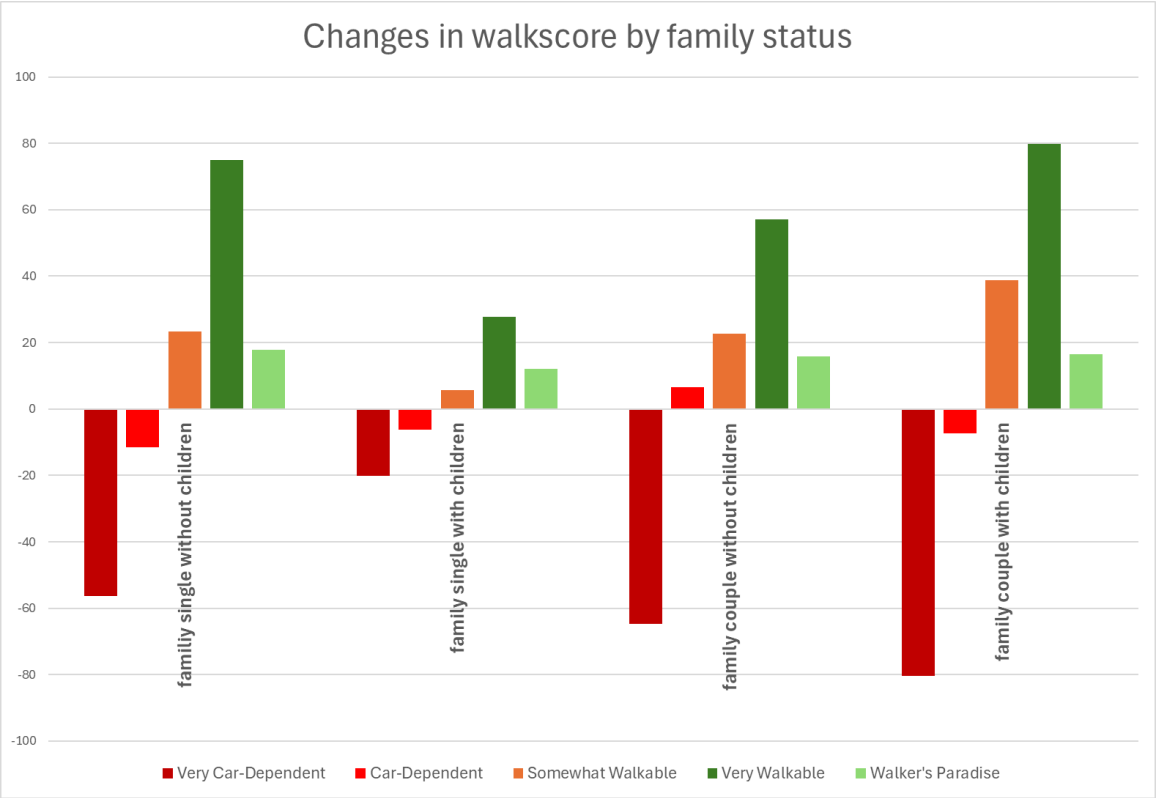
Who benefits?



Who benefits?



Who benefits?



Conclusion

- Walkscore is as an effective starting point for assessing the impact of snarveier. It can be adapted for rural areas for more accurate representation.
- Additional infrastructure, topographic, and weather impact measures should be considered for a comprehensive analysis.
- For prioritizing snarveier: costs of construction and maintenance should be compared with the effects
- Correlations with actual walking patterns are necessary to validate the WalkScore’s effectiveness.
- Integrating Walkscore with demographic datasets provides valuable insights for planners.

Thank you!

Contact information:
Irene Hofmann
PhD Candidate
irene.hofmann@ntnu.no