TALL SOM FORTELLER

Urban areas

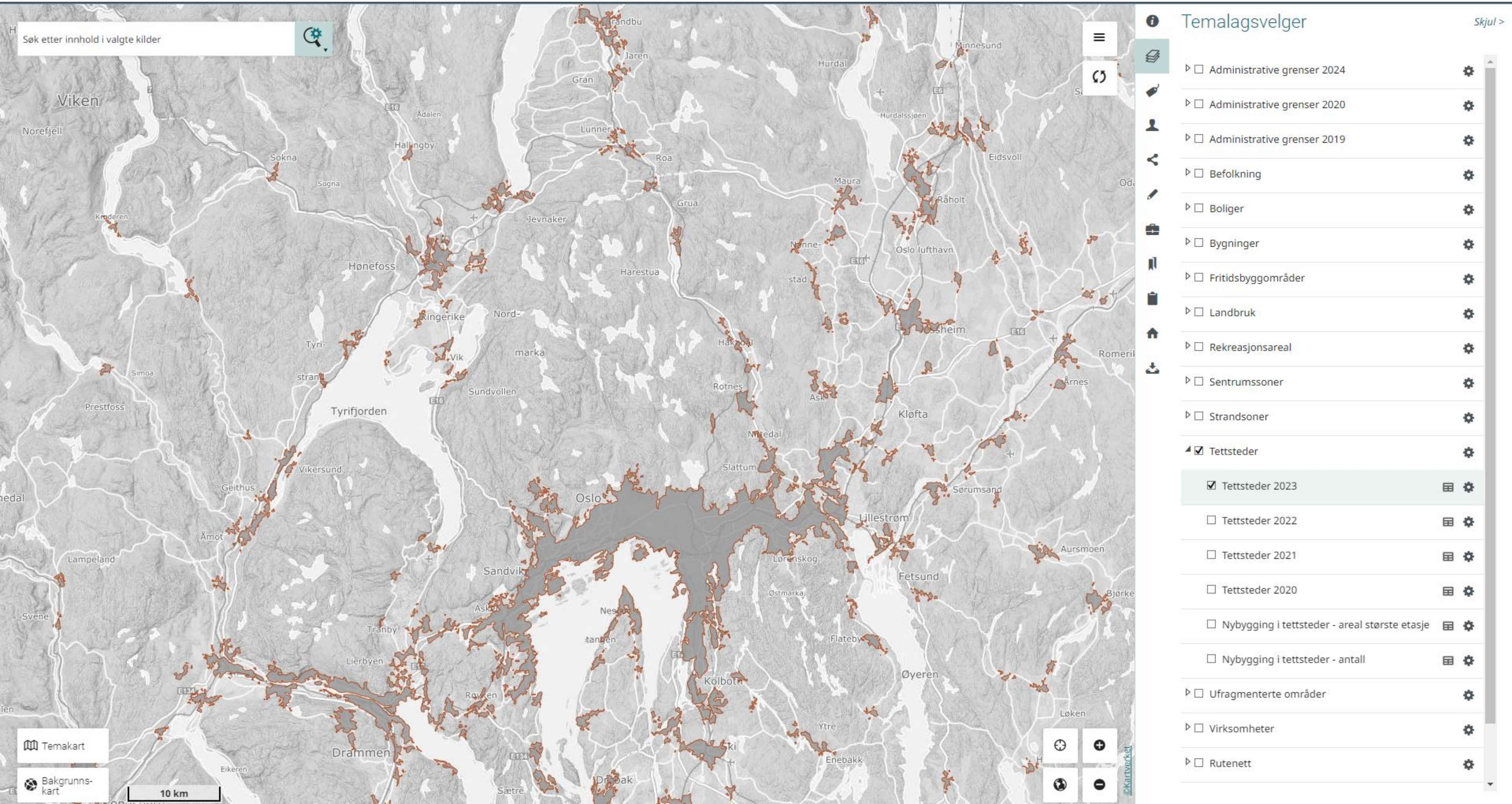
MORTEN LETNES

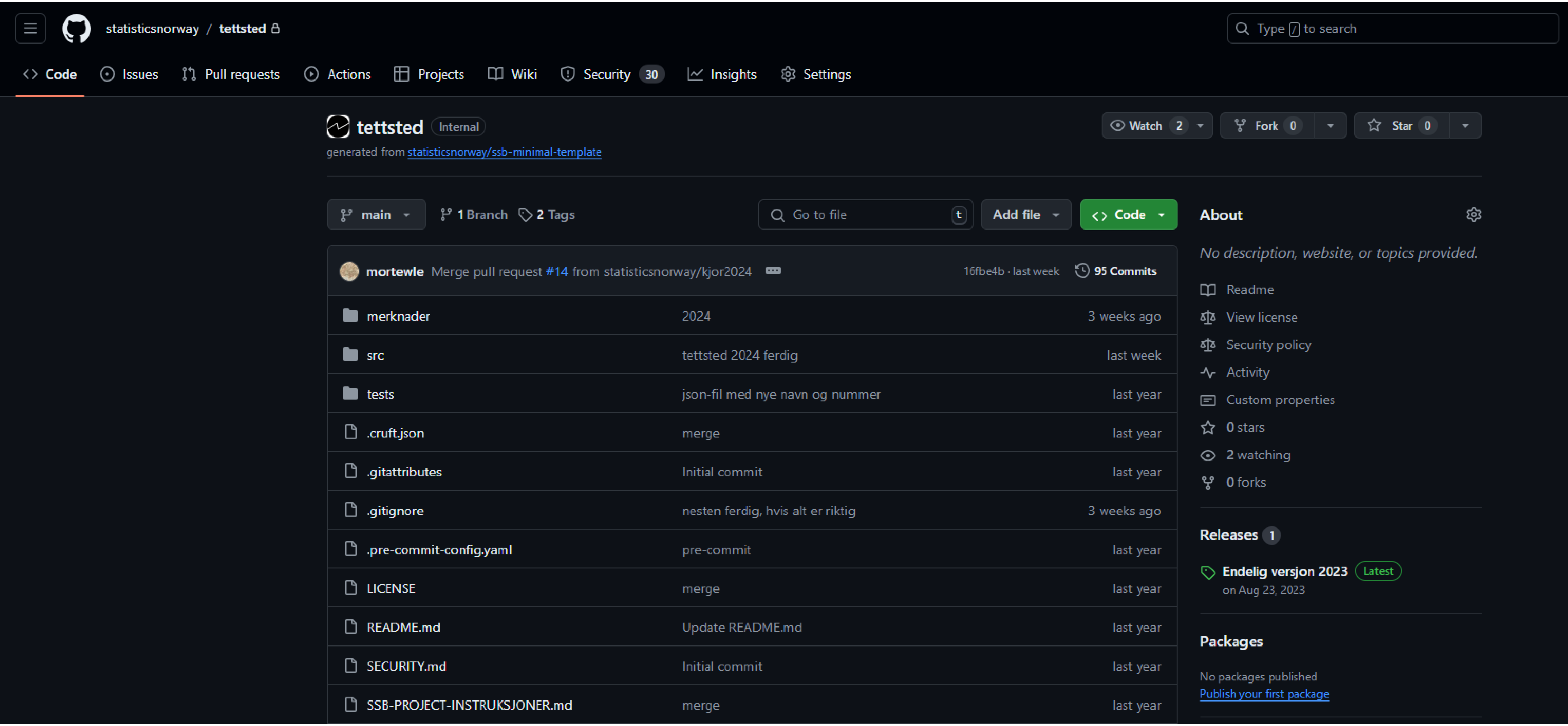
Statistisk sentralbyrå
Statistics Norway

Urban areas in Norway

- Published every year
- As publically available geodata since 2000
- 2013: New and improved method
- 2023: code translated from ArcMap to Python (geopandas)
  - Production time: 2-3 hours

https://kart.ssb.no/




statisticsnorway / tettsted
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security 30
Insights
Settings
tettsted Internal
generated from statisticsnorway/ssb-minimal-template
Watch 2
Fork 0
Star 0
main
1 Branch
2 Tags
Go to file
t
Add file
Code
mortewle Merge pull request #14 from statisticsnorway/kjor2024
16fbe4b · last week
95 Commits
merknader 2024 3 weeks ago
src tettsted 2024 ferdig last week
tests json-fil med nye navn og nummer last year
.cruft.json merge last year
.gitattributes Initial commit last year
.gitignore nesten ferdig, hvis alt er riktig 3 weeks ago
.pre-commit-config.yaml pre-commit last year
LICENSE merge last year
README.md Update README.md last year
SECURITY.md Initial commit last year
SSB-PROJECT-INSTRUKSJONER.md merge last year
About
No description, website, or topics provided.
Readme
View license
Security policy
Activity
Custom properties
0 stars
2 watching
0 forks
Releases 1
Endelig versjon 2023 Latest
on Aug 23, 2023
Packages
No packages published
Publish your first package

Data sources

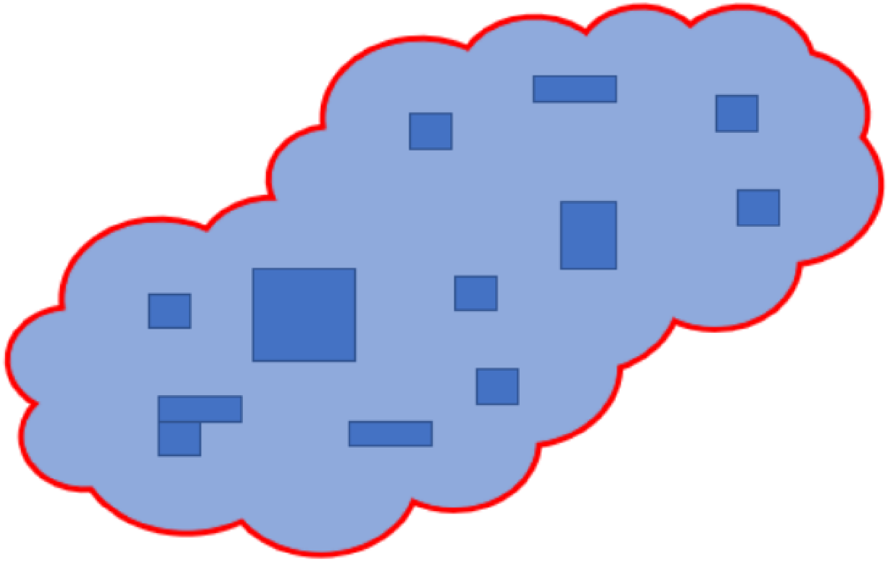
- Statistics Norway's own **land use classification**
  - Combination of multiple sources from the mapping authority
- Buildings from the maping autorities and the cadastre

Urban area components

- Cores
- Satellites

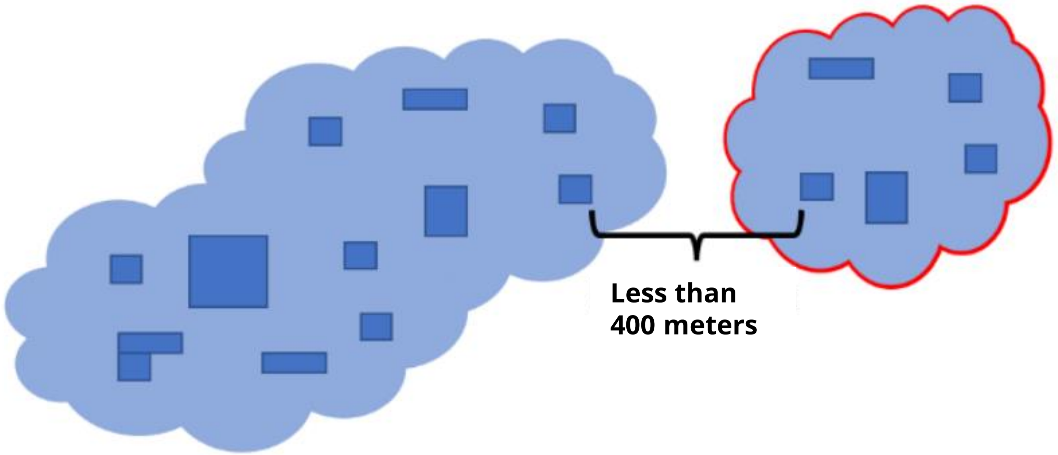
Cores

- At least 200 inhabitants
- Max. 50 meters between small buildings
- Max. 200 meters between buildings where many people might live/work (apartment b., office b., industrial b., hospitals, etc.)



Satellites

- Same rules about distance (50/200 m)
- At least 0 residents
- At least:
  - 5 residential buildings
  - OR 5 commercial buildings
- No more than 400 meters to nearest urban core



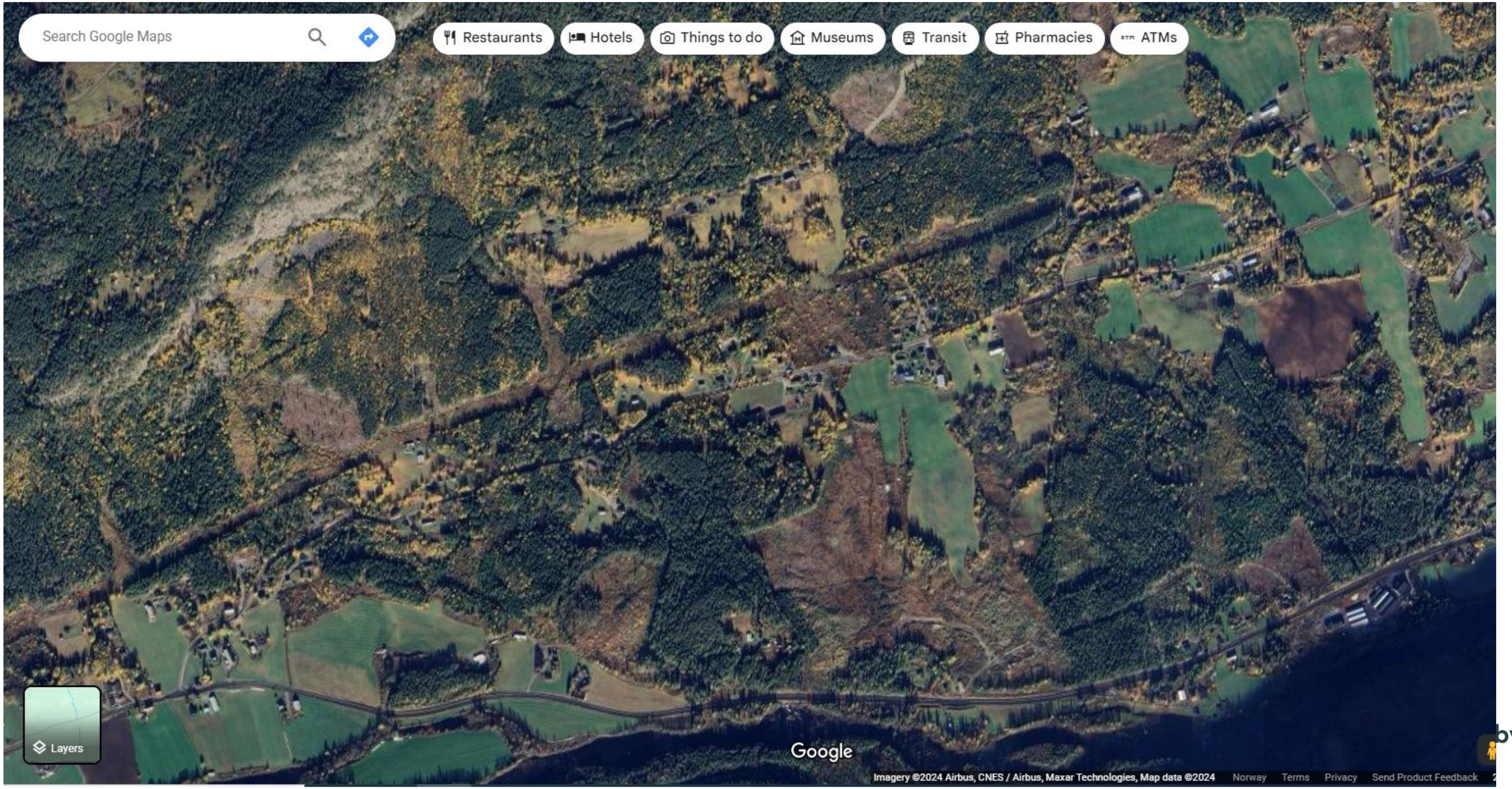
Statistisk sentralbyrå
Statistics Norway

Why 50 meters instead of 200?

Why 50 meters instead of 200?

- Norway doesn't have a village system of settlement – instead, individual buildings/farms are often spread out with 100-500 meters between houses
- Using 200 meters would result in long stretches of rural areas defined as a single «urban» area

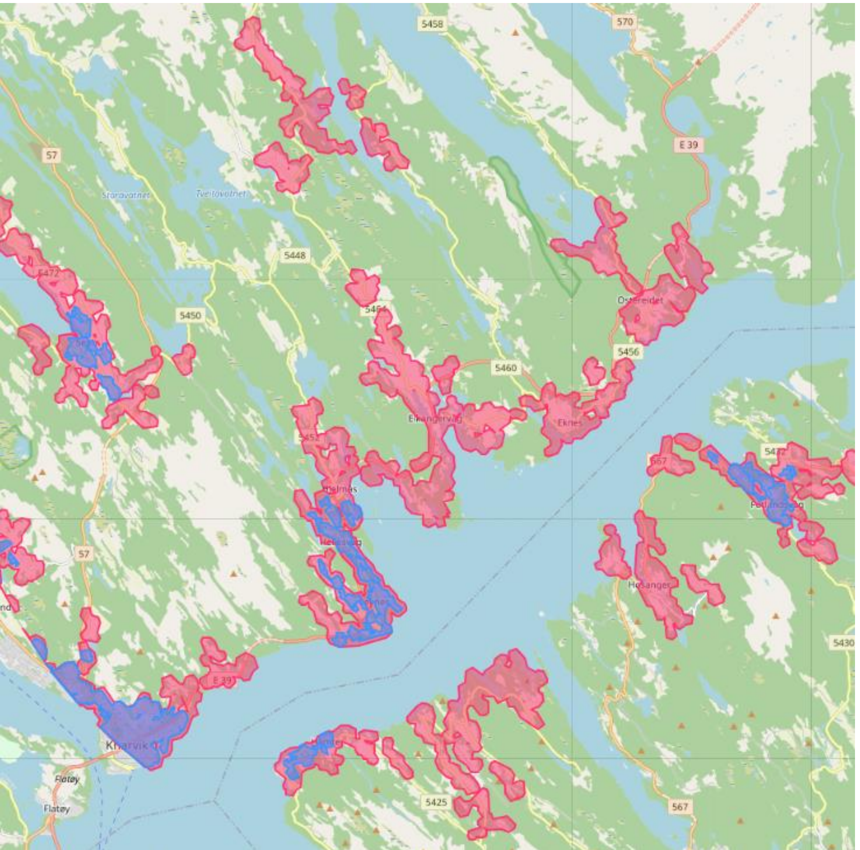
Buildings spread out

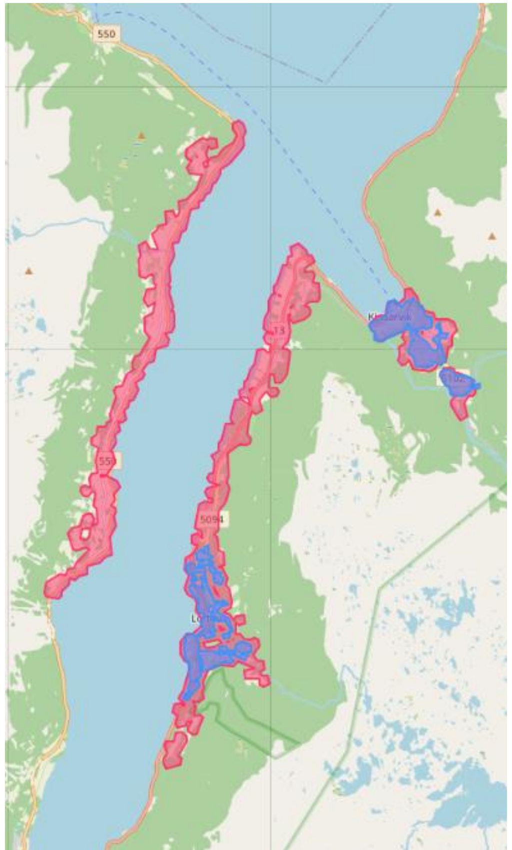


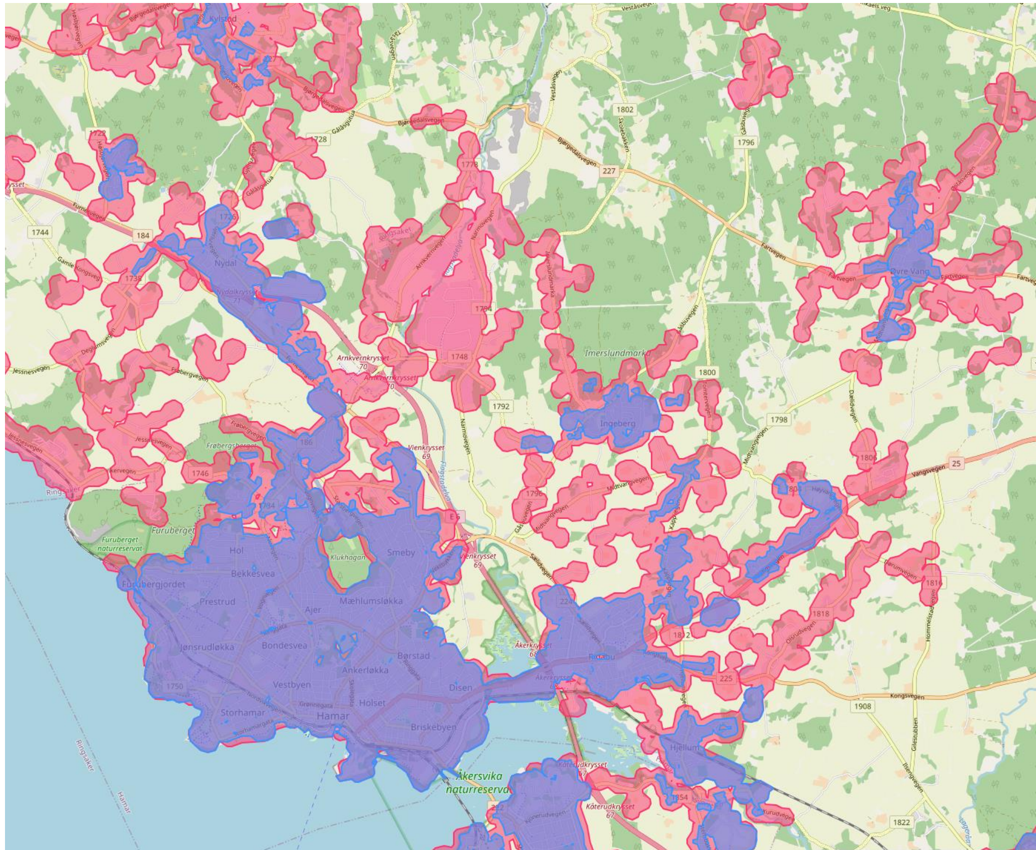
byrå

If we used 200 meters...

Here are the clusters with the current method (blue) and if all buildings were buffered 100 meters (red)







If we used 200 meters...

- It would result in **9 percent more «urban» people**
- And **33 percent more «urban» area**

Let’s continue

Distance calculation: as the crow flies

Cons:

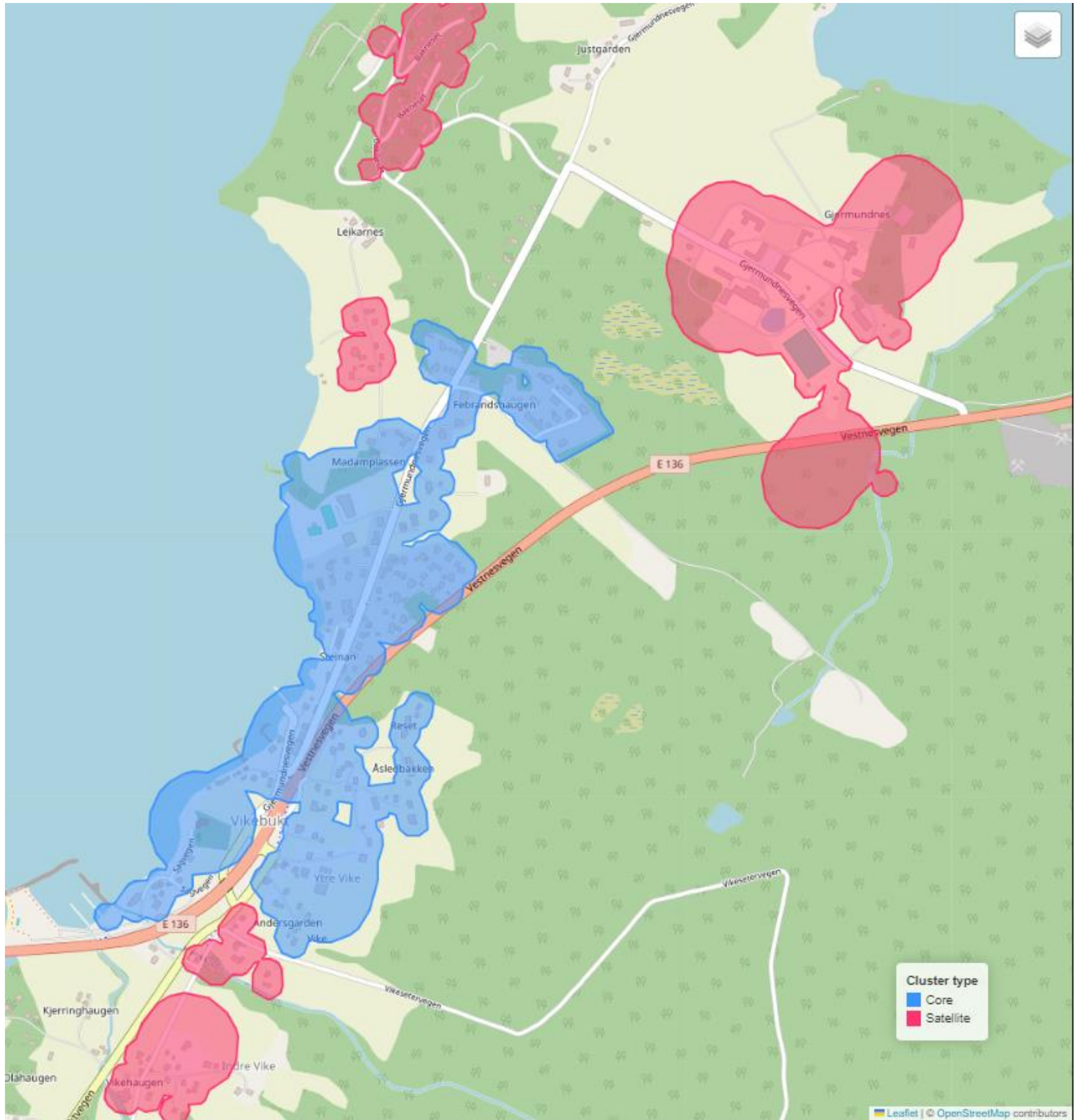
- People don’t travel in a straight line

Pros:

- Reliable: doesn’t depend on high quality data (roads, footpaths, GTFS)
    - Especially important in new built areas – our «area of interest»
- Timeless: travel modes and patterns vary
- Fast calculations

Textbook example: Vikebukt

- One core with 220 inhabitants (2024)
- Five satellites
- 280 inhabitants total (2024)
- Here we see buildings buffered 25/100 meters and dissolved into clusters

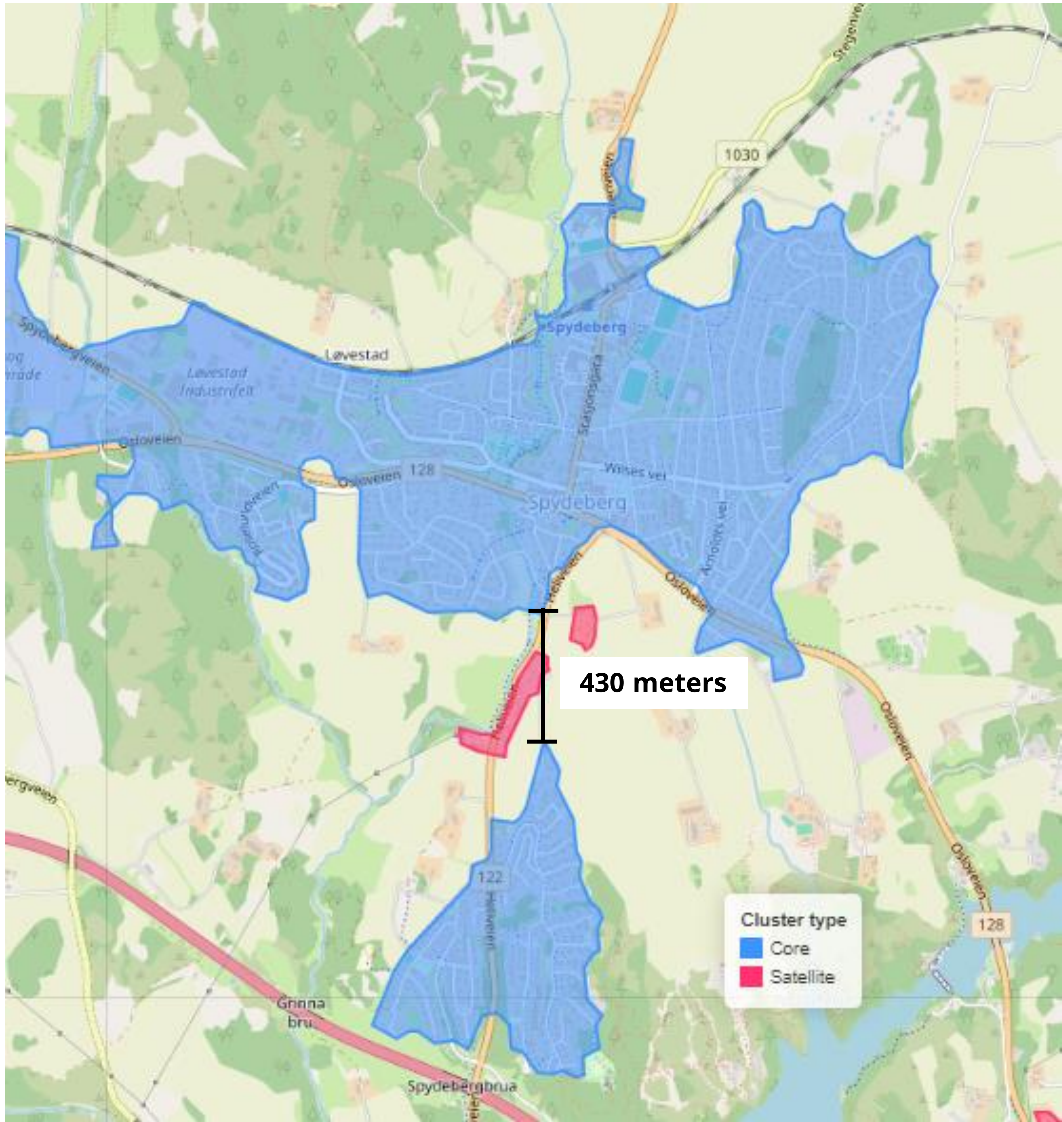


An urban area can have multiple cores

- Cores merge if there is less than 400 meters between them
- Vestnes: four cores

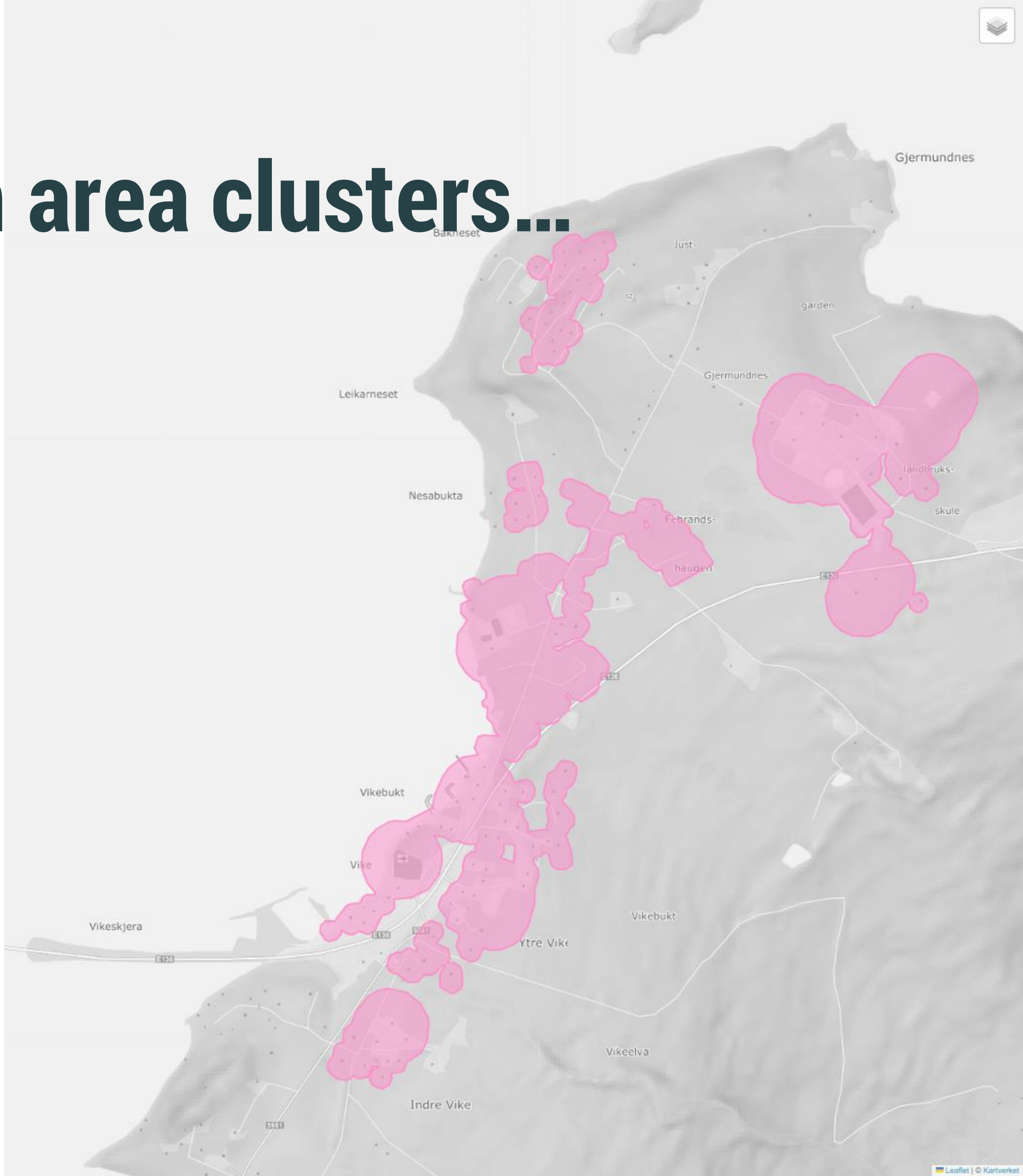
An urban area can have multiple cores

- Cores also merge if they have a **shared satellite**
- Spydeberg: two cores more than 400 meters apart, but with a shared satellite



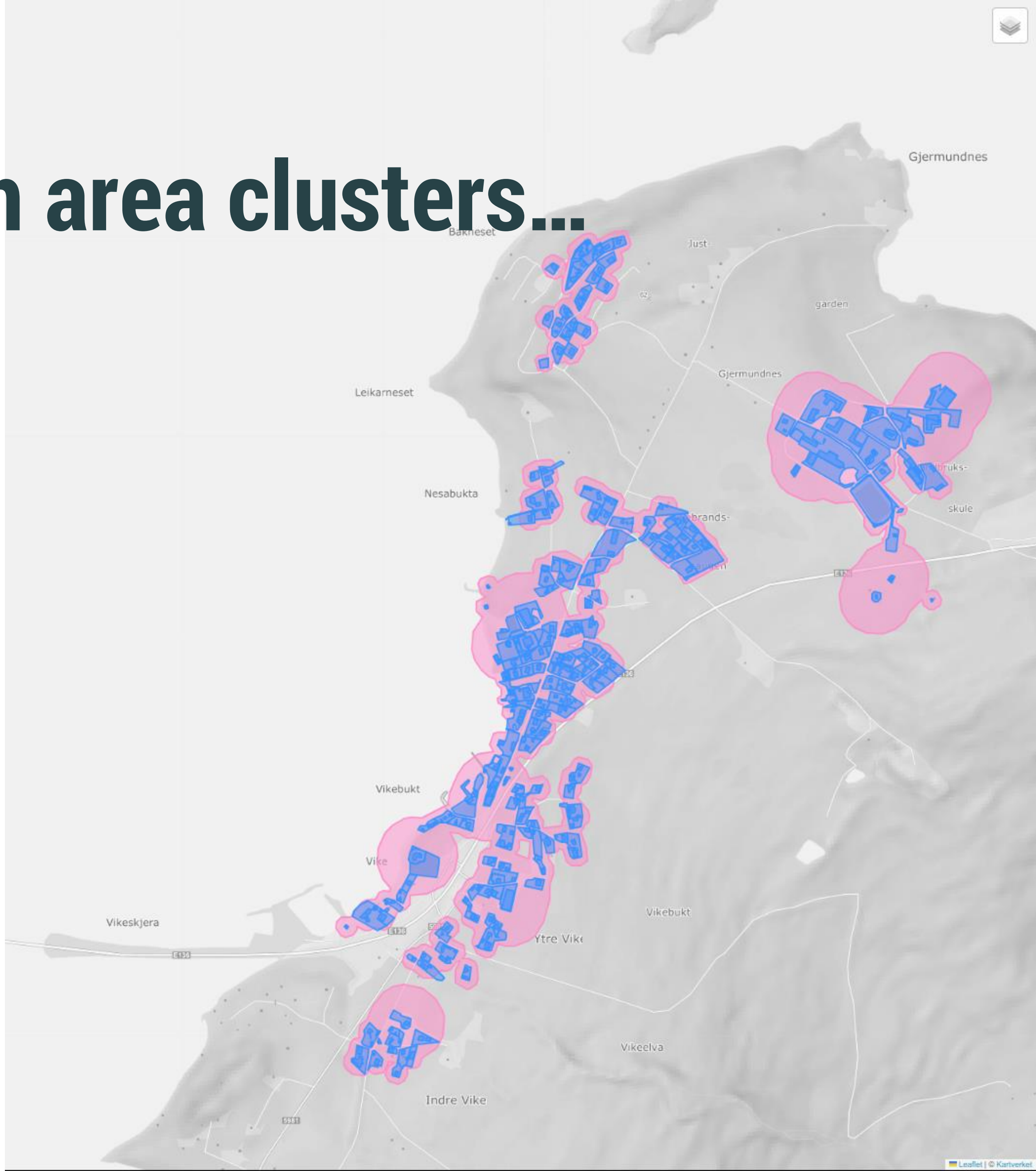
Method step-by-steps (simplified)

After finding the urban area clusters...



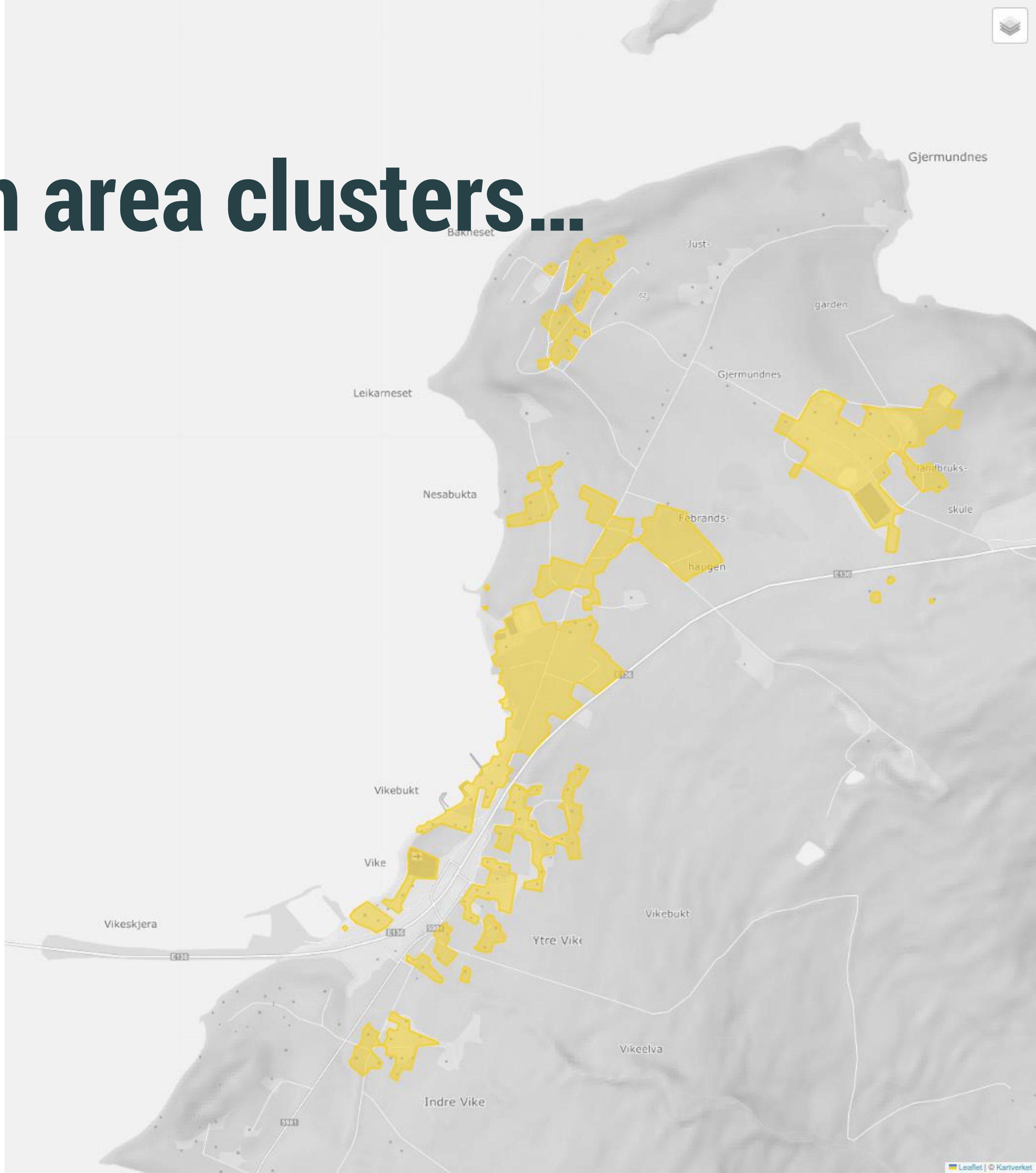
After finding the urban area clusters…

- Select **buildings** and **built up land use polygons** within the clusters (blue)

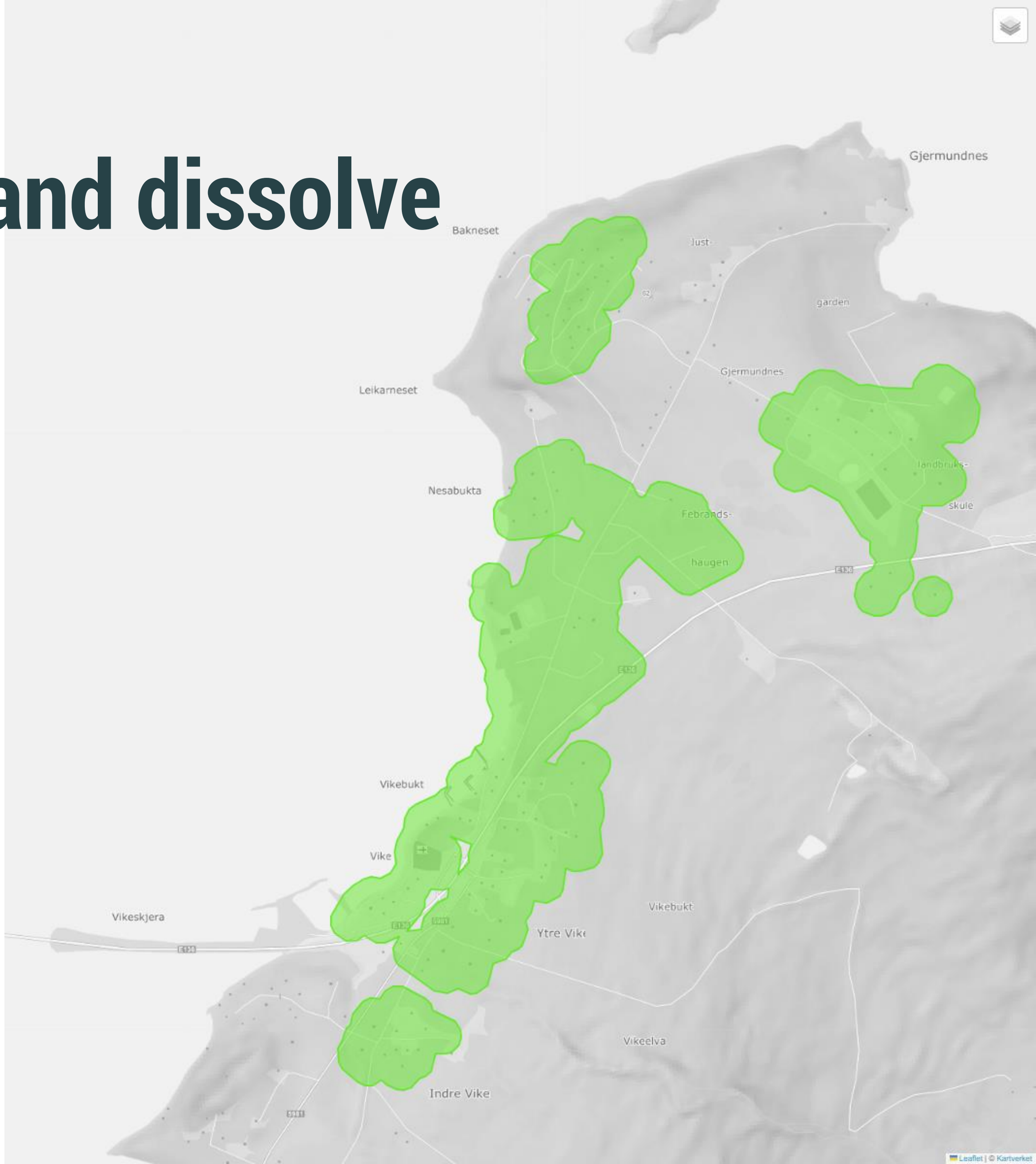


After finding the urban area clusters…

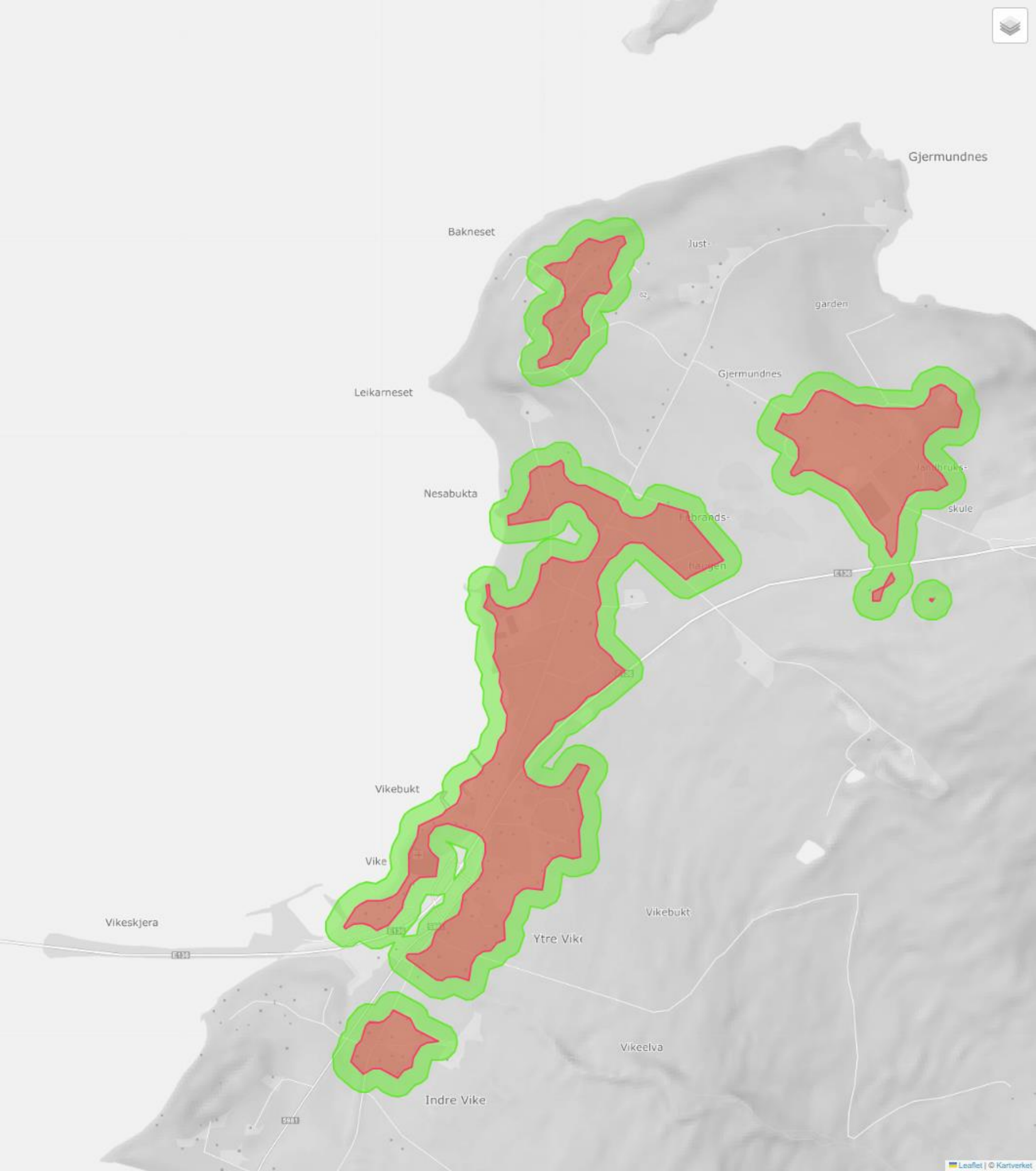
- **Dissolve** and **close holes** smaller than 1 square kilometer



Buffer out 50 meters and dissolve

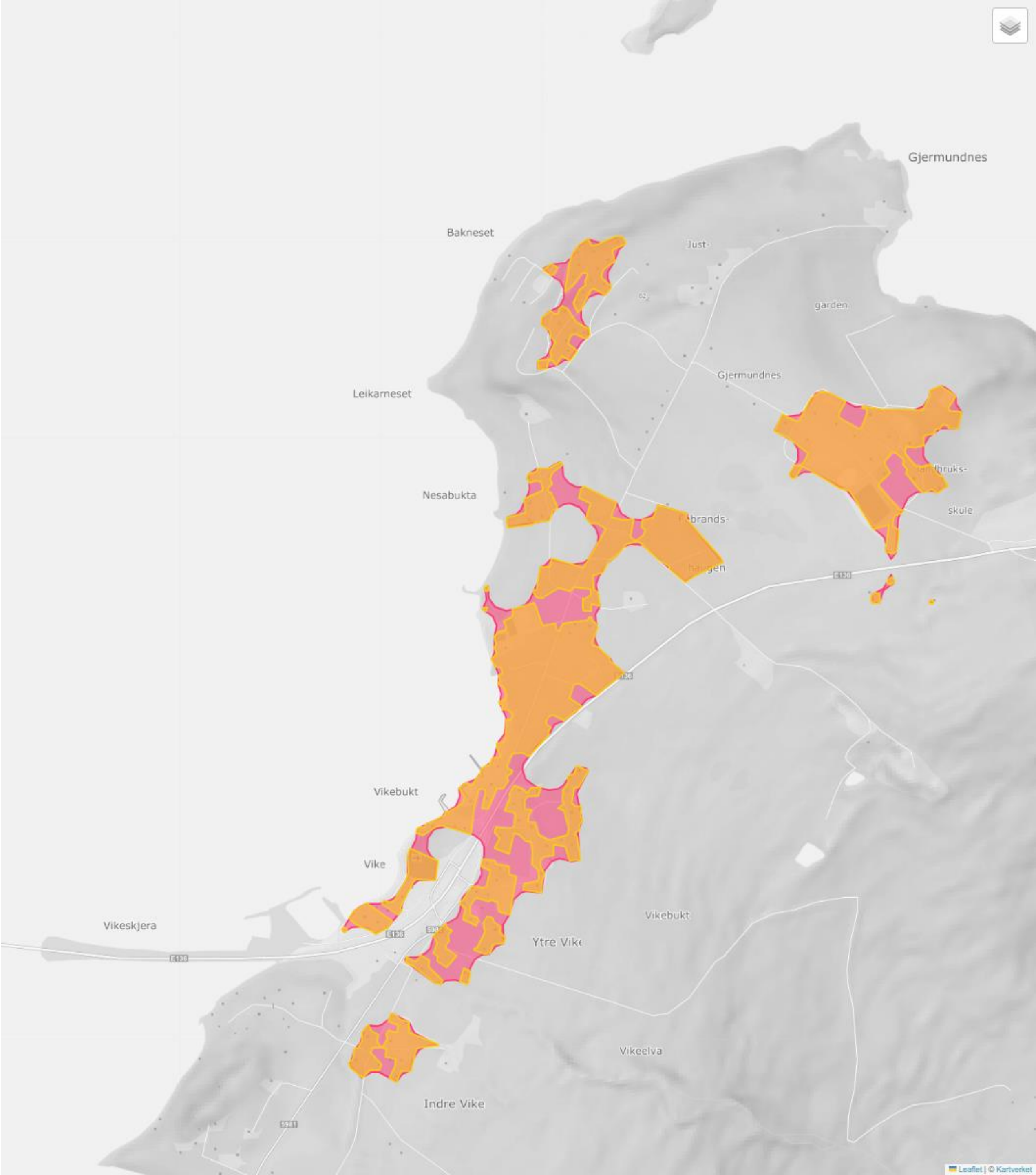


And buffer in again

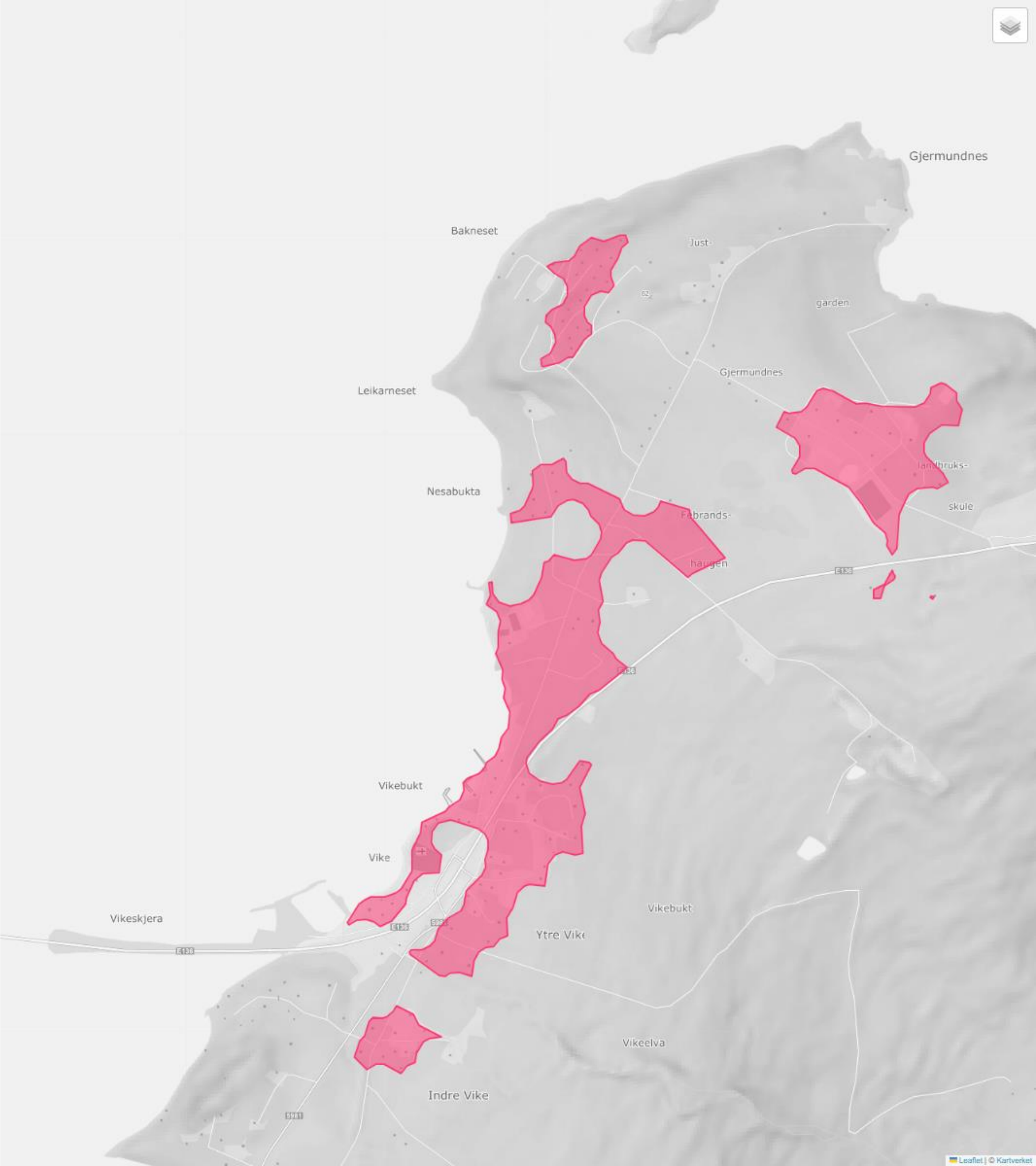


Why the buffering?

- To simplify the polygons into coherent clusters
- Before (orange) and after (red) the buffers



Final results



Urban areas – use cases

- Publicly available yearly geodata and statistics
- Used by municipalities to track and locate development
- Used by students
- Police use it to calculate response times to urban areas

Urban areas – user contact

- We get some emails asking why urban areas have merged or disappeared
- Or people disagreeing with the naming

TALL SOM FORTELLER

Thanks

Statistisk sentralbyrå
Statistics Norway