Distribution and intensity of agricultural traffic

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Christchurch, 5 May 2016

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Shared space - Agricultural traffic

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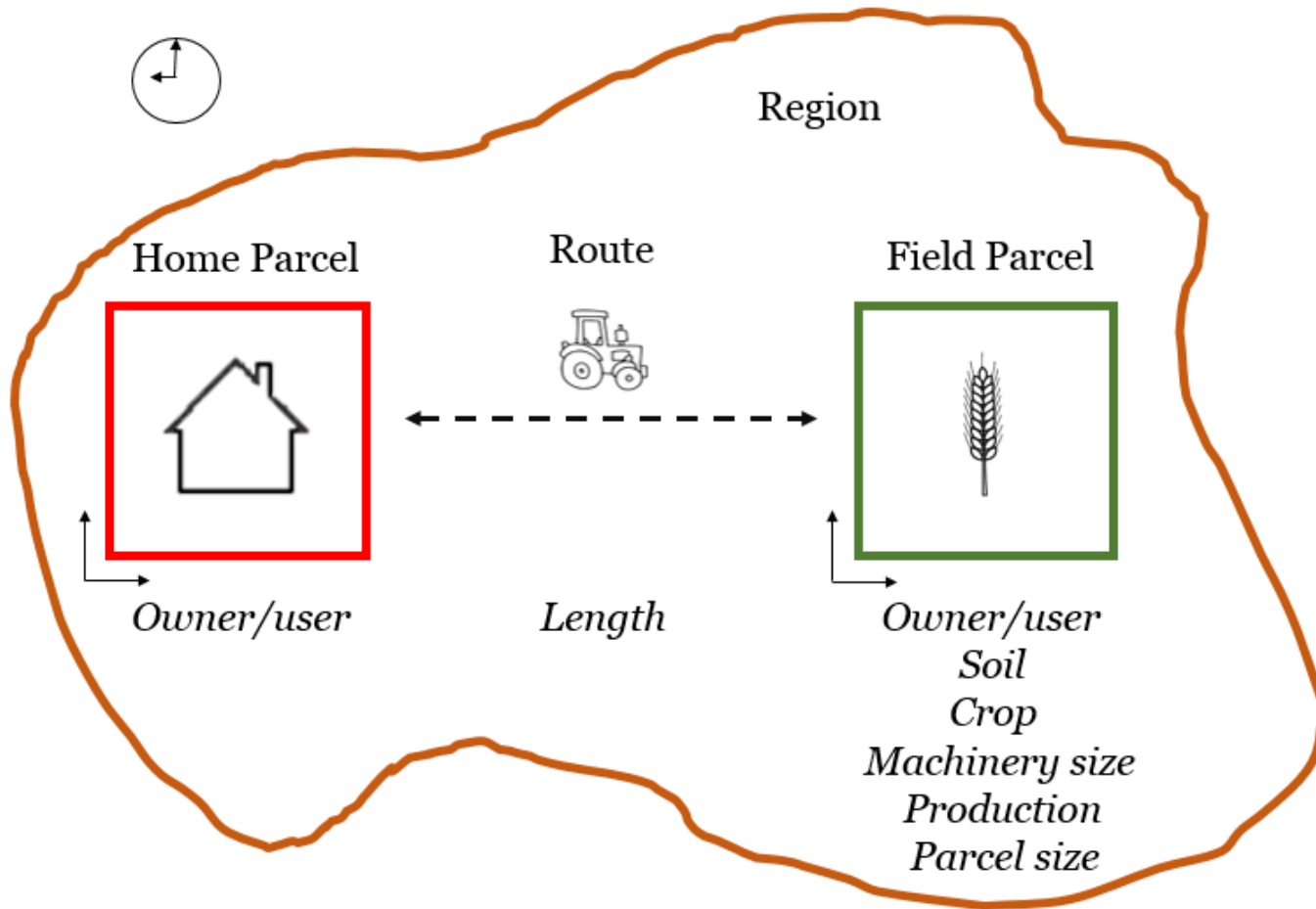
Followed methodology

- Aim: to develop a GIS model that shows the spatial distribution and intensity of agricultural for a specific area and for a specific season
- Why:
    - To locate potentially unsafe locations
    - To manage road usage (separate different modes)
    - To take measures to reduce traffic intensity

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Concept

Region

Home Parcel   Route   Field Parcel

Owner/user   Length   Owner/user
Soil
Crop
Machinery size
Production
Parcel size

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Modelling in three steps

- Calculating routes from homestead to distant parcels
- Calculating traffic intensity (# rides) over that routes
- Calculating and mapping of all rides for each route segment

- Applied for:
    - land owners and land users
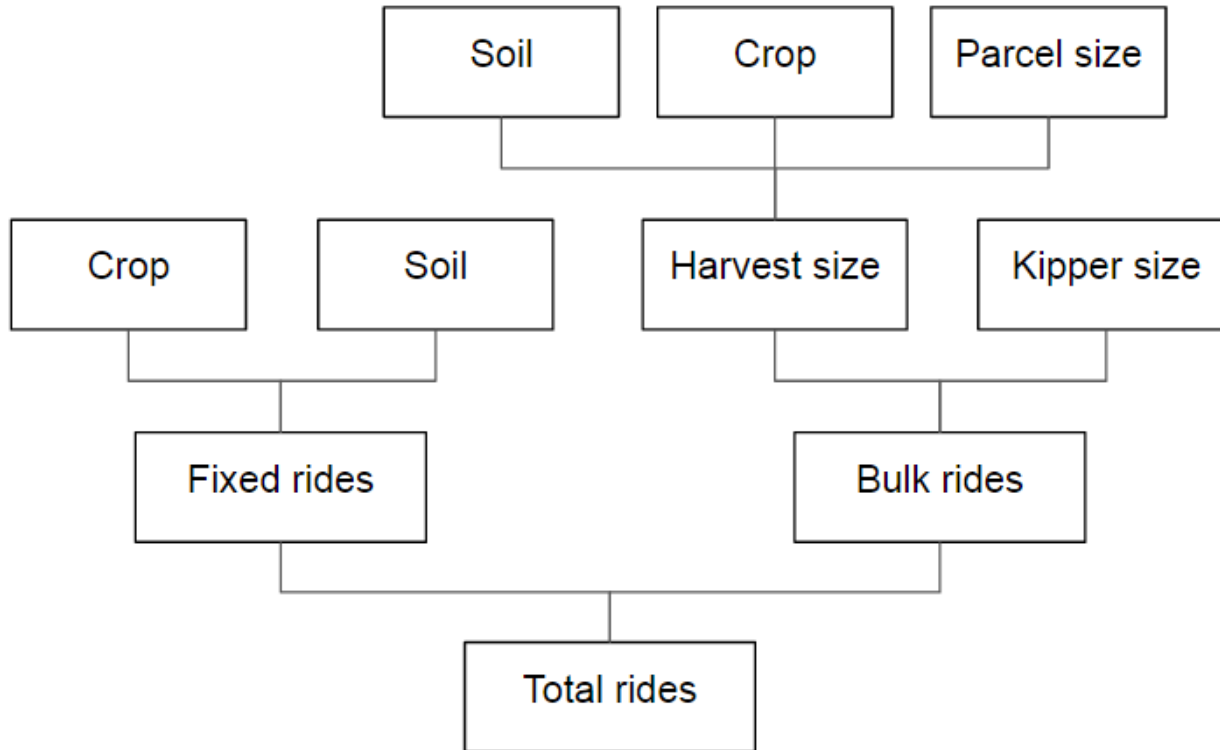   - four seasons (winter, spring, summer, autumn)

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Route factors

- Spatial distribution of land:
  - Location of distant parcels relative to homestead
  - Access point to parcel
- Road network
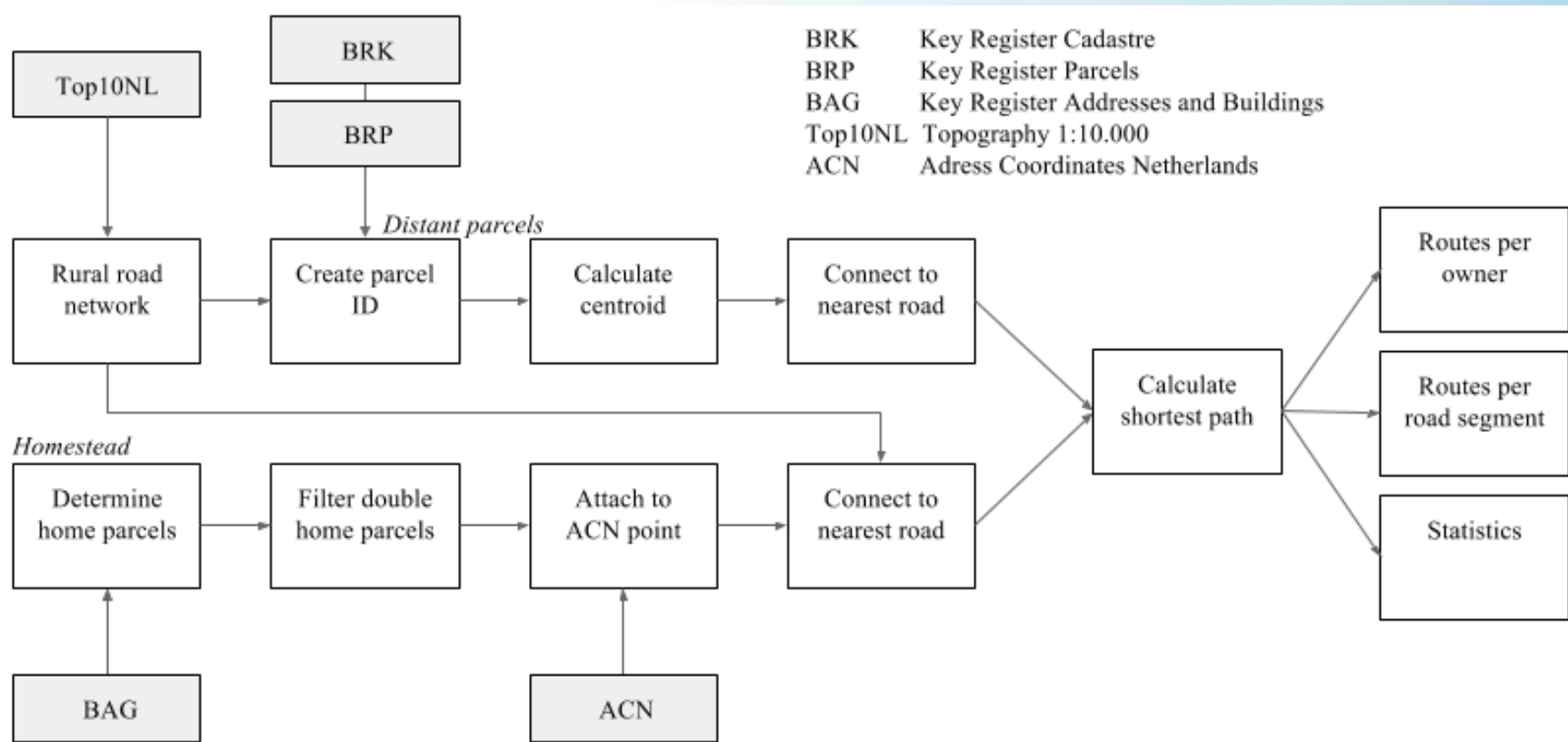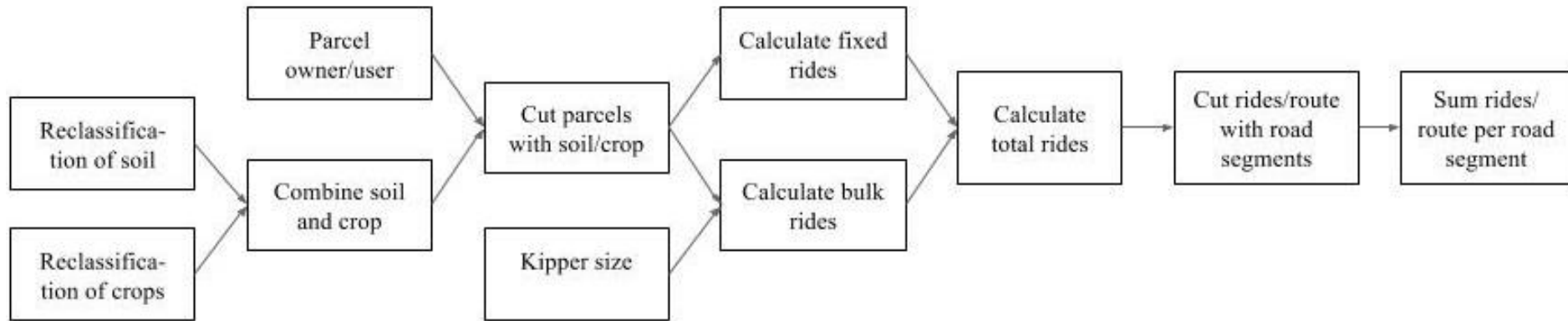

4ha. op 7km.

5ha. op 5 km.

12ha. op 3km.

14ha. huiskavel
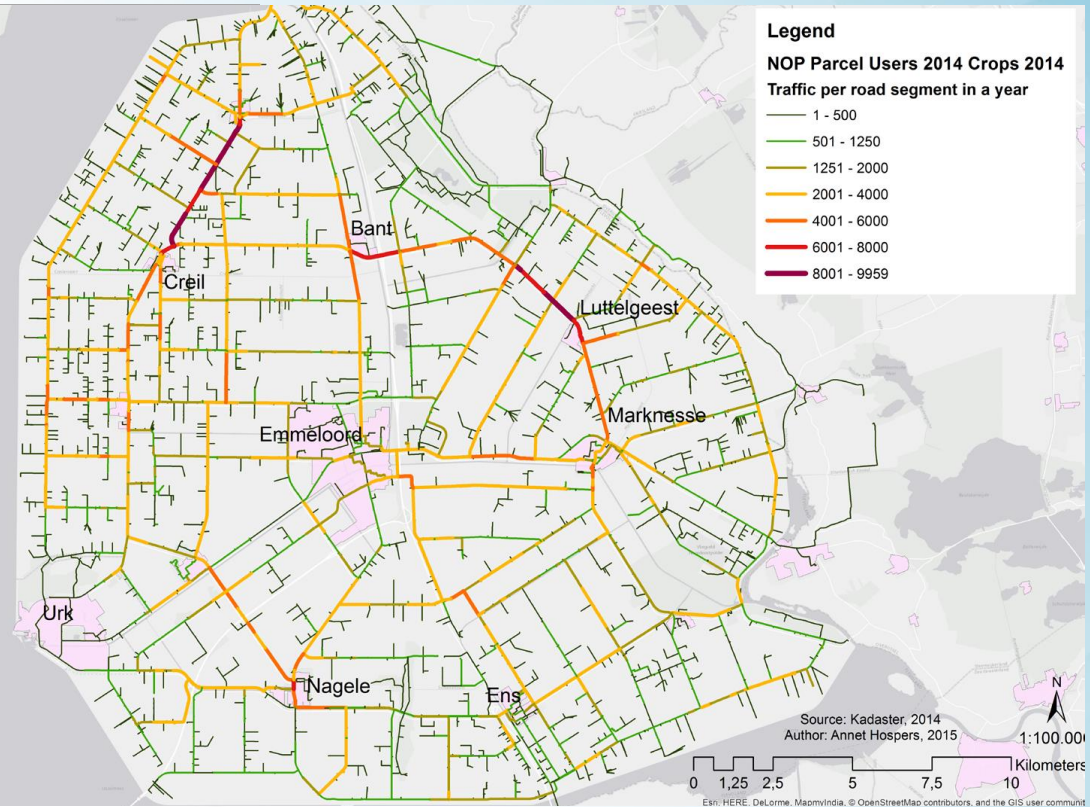
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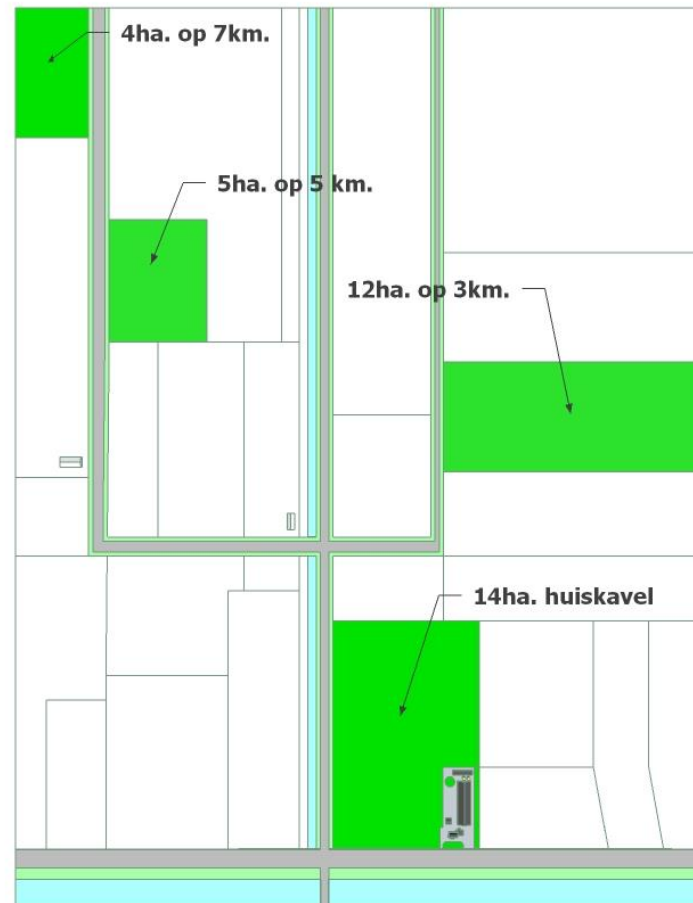
Traffic intensity factors

Calculation of routes

Calculation of traffic intensity

Traffic intensity Noordoostpolder

Legend

NOP Parcel Users 2014 Crops 2014
Traffic per road segment in a year

—	1 - 500
—	501 - 1250
—	1251 - 2000
—	2001 - 4000
—	4001 - 6000
—	6001 - 8000
—	8001 - 9959

Source: Kadaster, 2014
Author: Annet Hospers, 2015

1:100.000

0 1,25 2,5   5   7,5   10
Kilometers

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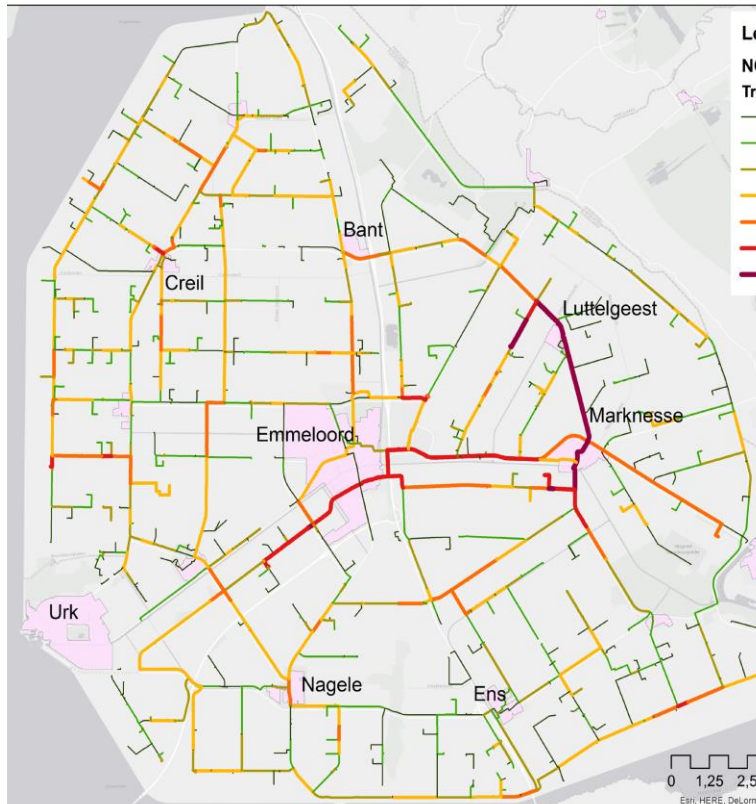
Validation
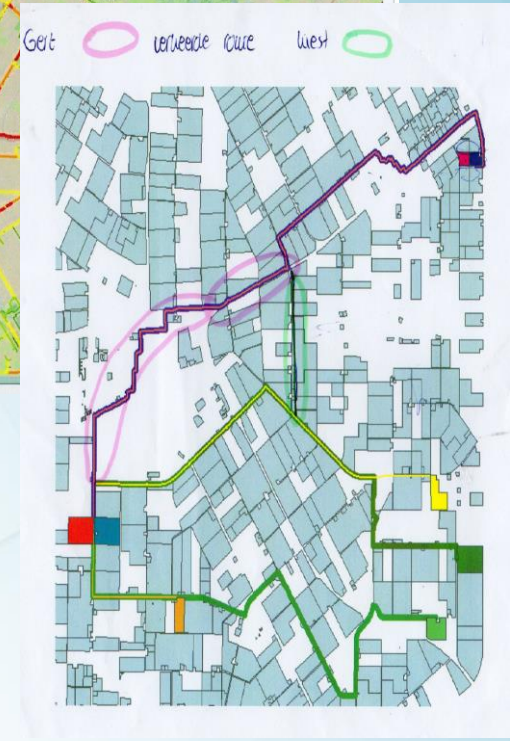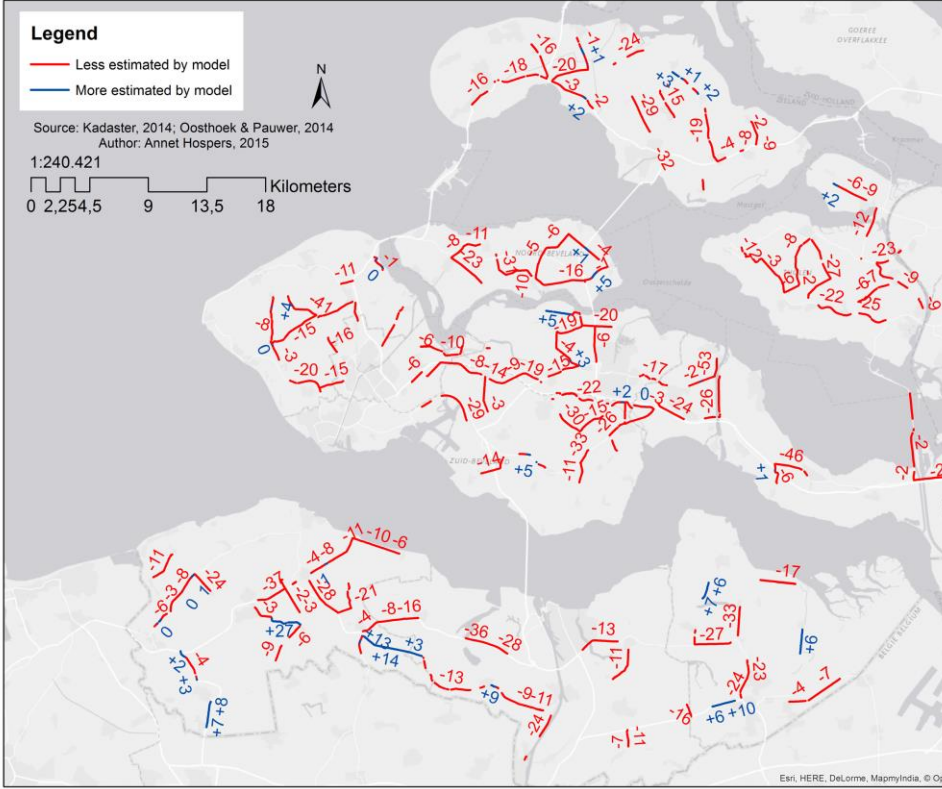
Discussion

- Limitations model:
  - Results are more complete with combination of information on land owner and land user
  - However, data on land users not always available
  - Mapped traffic distorted at boundaries area
  - Does not include all agricultural traffic, e.g. from employed contractors

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Conclusions

- Model is useful for quickly gaining information on spatial distribution and intensity of agricultural traffic in the area
- Other applications might be possible as well, e.g. for analyses of CO_2 emissions or traffic safety.

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✓ **Fee: 550 Euro**

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