Spatial analyzing in QGIS

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Vector analysis- todays main topic

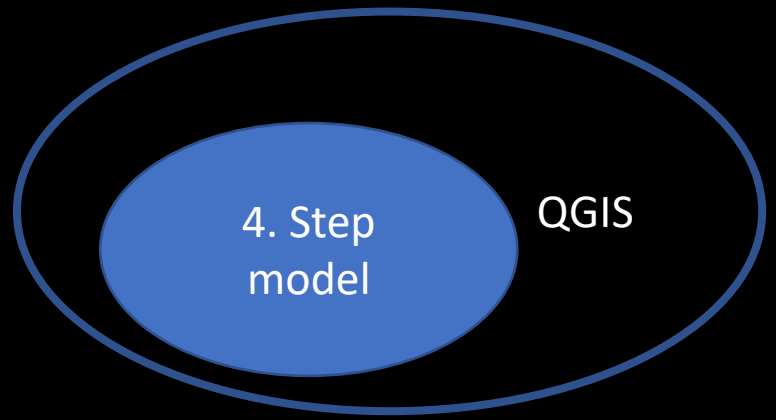
- It shows spatial relationships.
- One example- are two areas overlapping, difference etc.
- Statistics is also included- how many points are in a particular area, join attributes by location.

In teams

- Try to think about the last lecture and about the 4 steps traffic forecasting model.
- What are the steps?
- How to implement the Huff Gravity Model in a project?

Lets implement 4 step model

We try to solve 4. step traffic forecasting model inside QGIS



- First step is to have **input data**
  - Population for given area, school points
- **Extract** then useful areas
  - By maximum radius the students are willing to take by bicycle

QGIS problem solving steps

To solve big problem, you have to slice it into the smaller subproblems

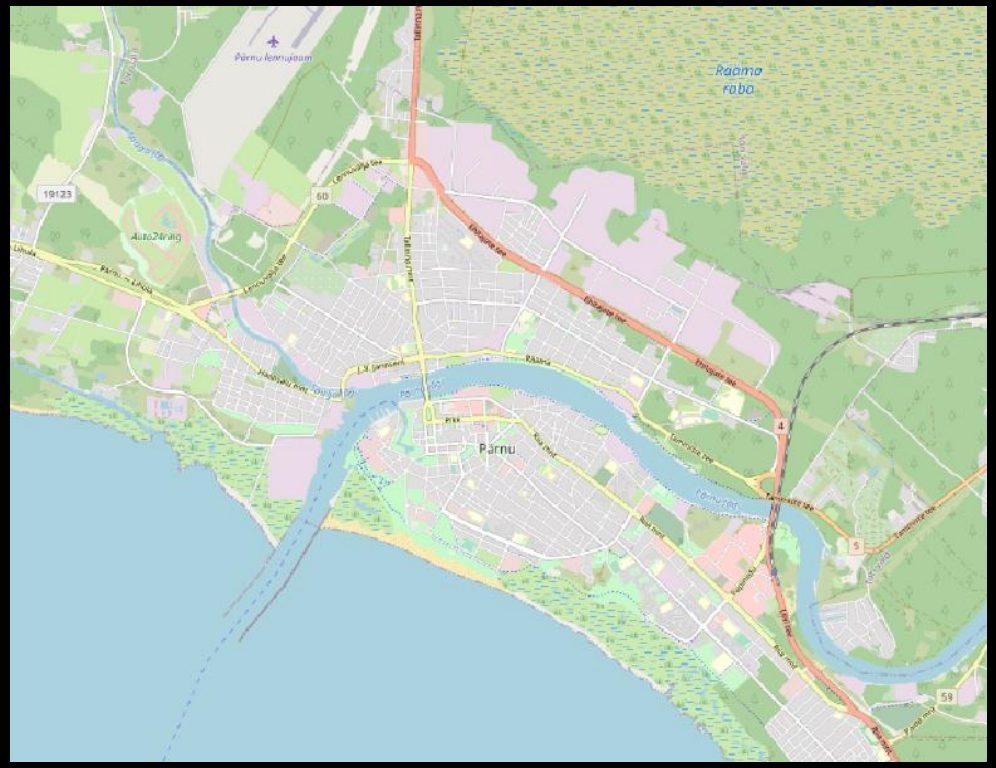
1. State the Problem
2. Get the Data
3. Analyze the Problem
4. Present the Results

Example- problem statement

- Our problem is to know how many students live inside the school's buffer area
  - Buffer 3000 meters from schools.

Task- add data

- We will use OpenStreetMap as the basemap
- Add basemap as you have learned before
- Save project to the new folder
- Zoom to Pärnu city



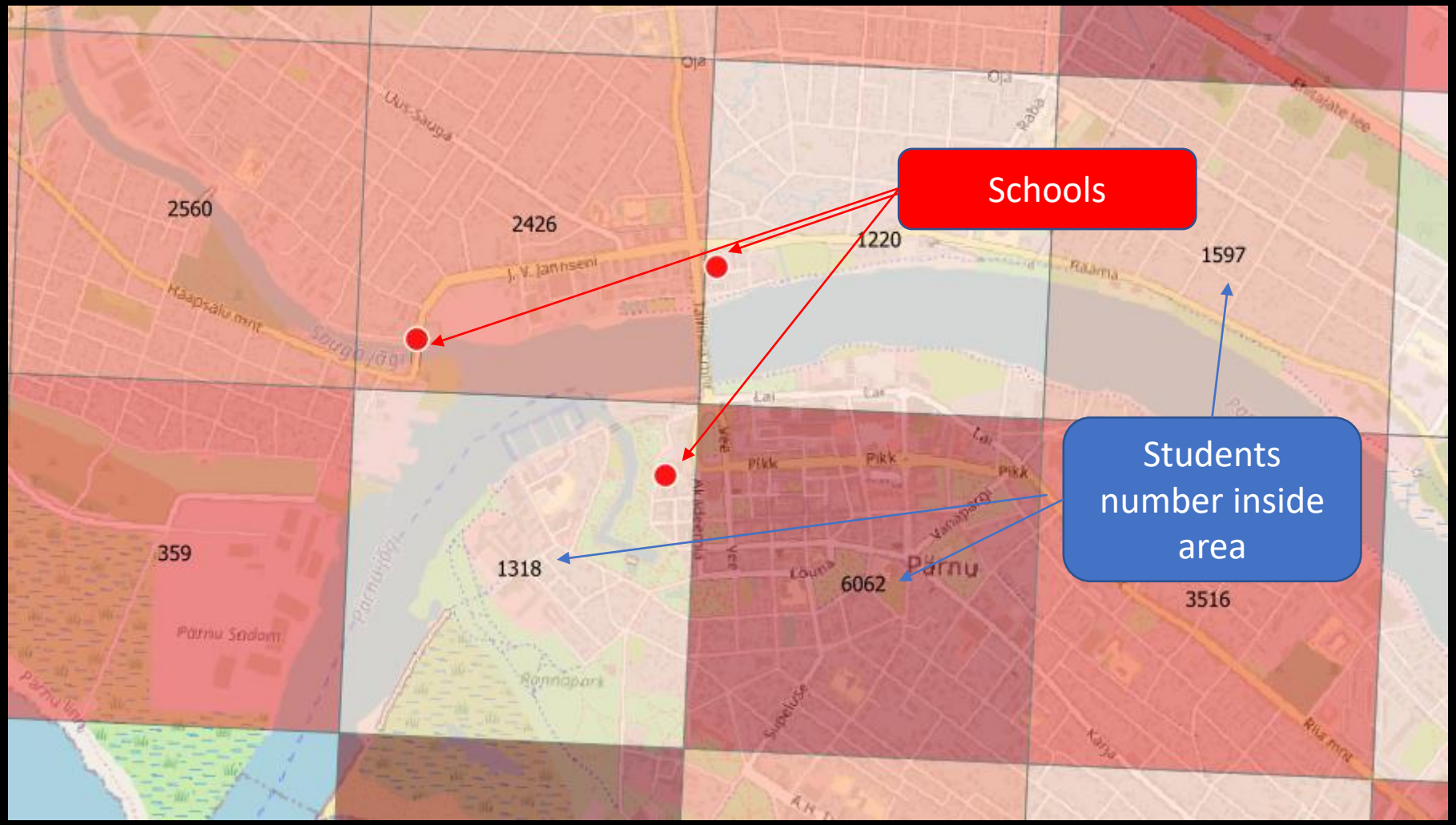
Task- add school points layer

- You will find a layer with school points from the QGIS data folder at Google Drive
- Add this layer to the project
- Export layer and save everything to the work folder
- School points are found in „Pärnu_schools“ layer

Task- add population data

- Add zones population data as 1km x 1km cells and every cell holding inhabitants number
- You will find this information from the QGIS data folder
- Students nr by area are in the „Males_and_females_10_14“ folder

School points and population layer together

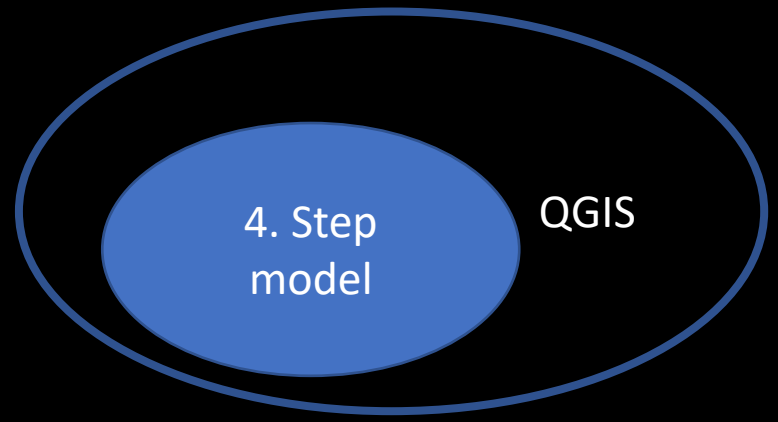


Where we are now?

- We have a **schools point layer added**
- We have a **student number per area**
- What we want to know next?

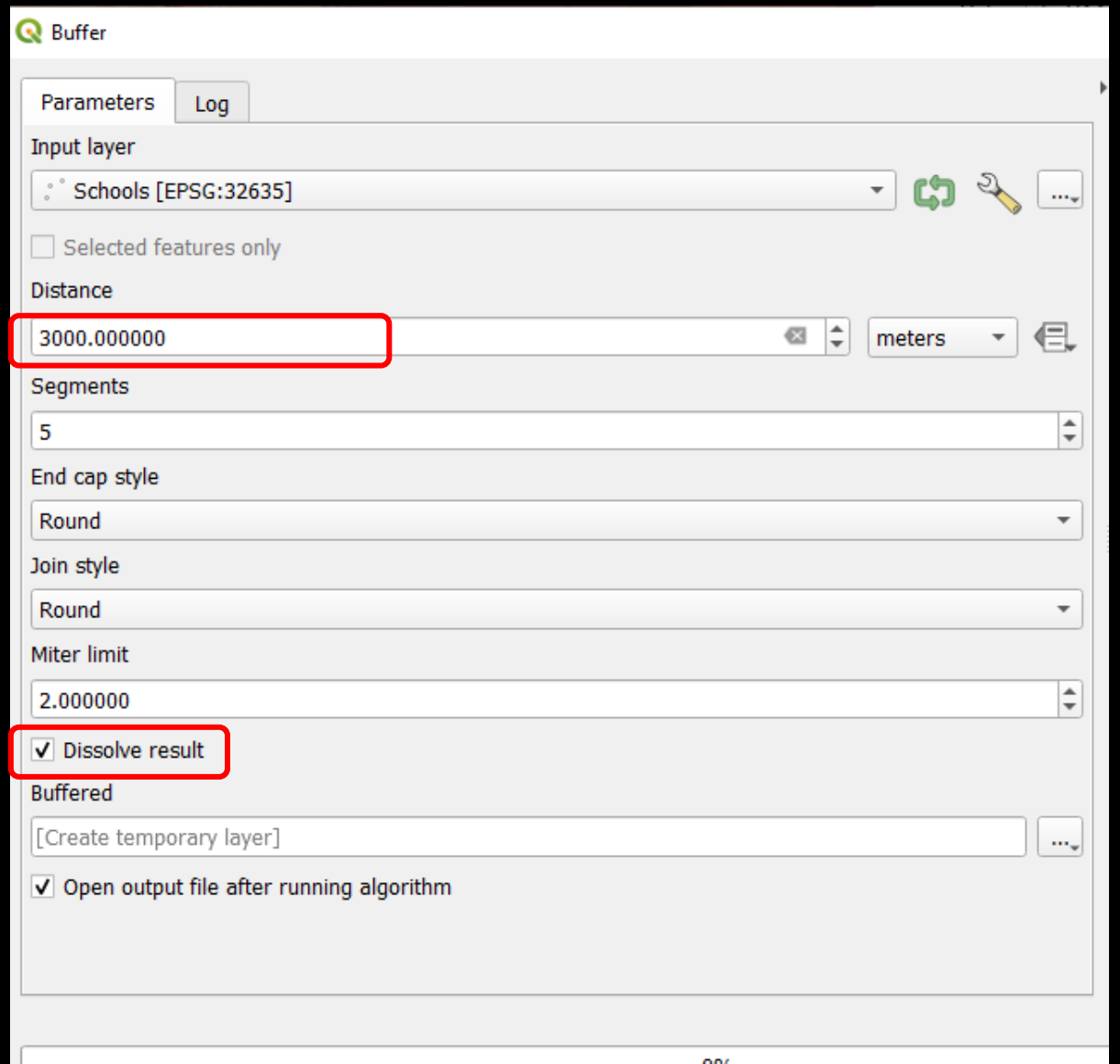
Lets implement 4 step model

We try to solve 4. step traffic forecasting model inside QGIS



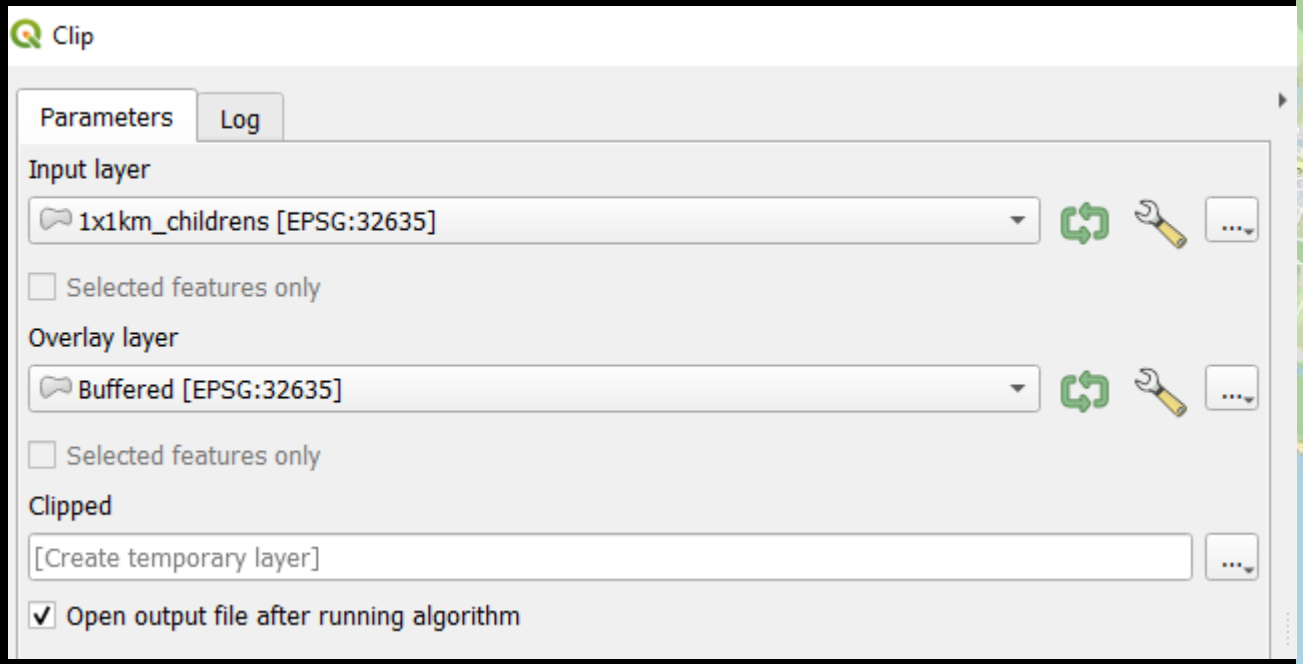
- ~~First step is to have input data~~
  - ~~Population for given area, school points~~
- Extract then useful areas
  - By maximum radius of students are willing to take by bicycle

Task- spatial analyzing- a buffer tool

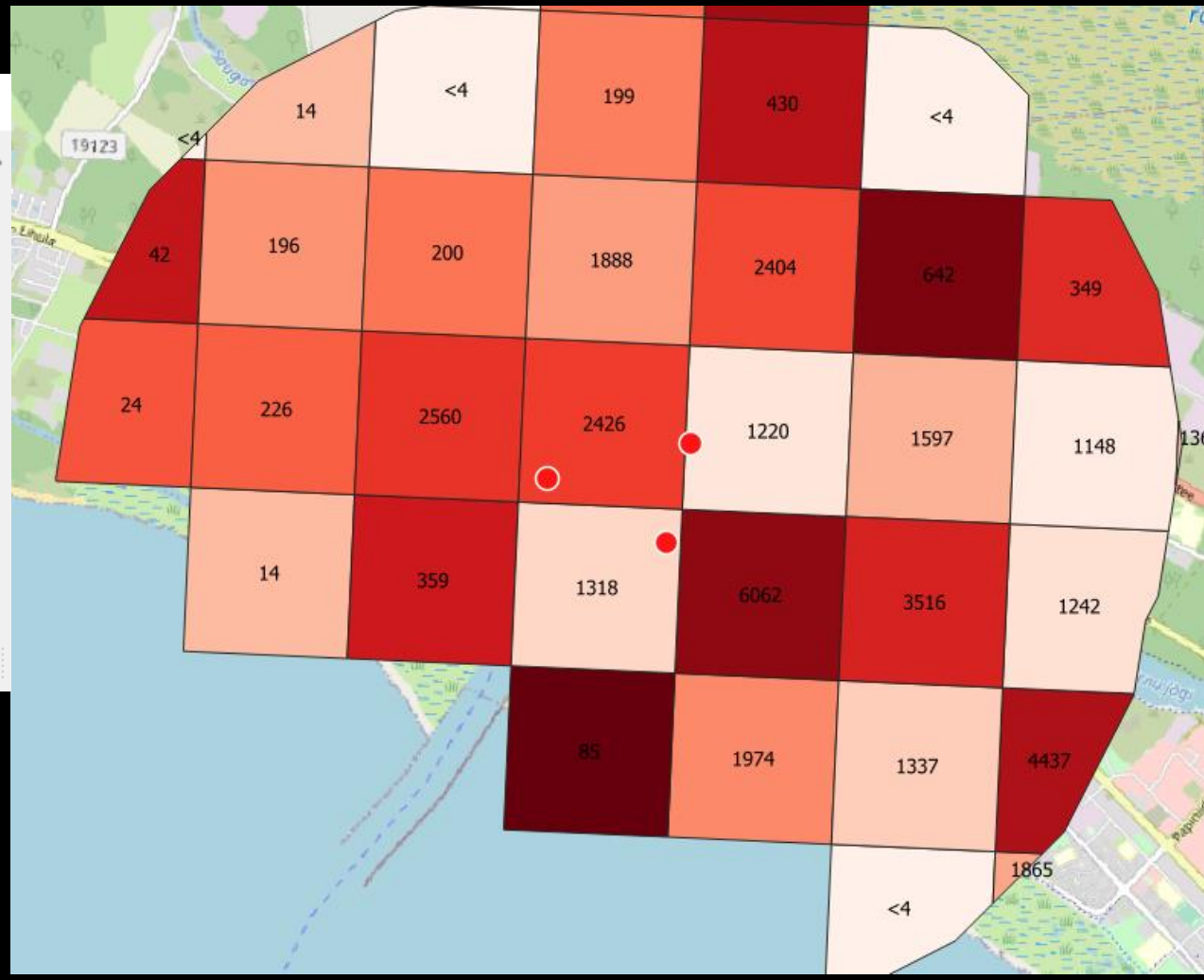


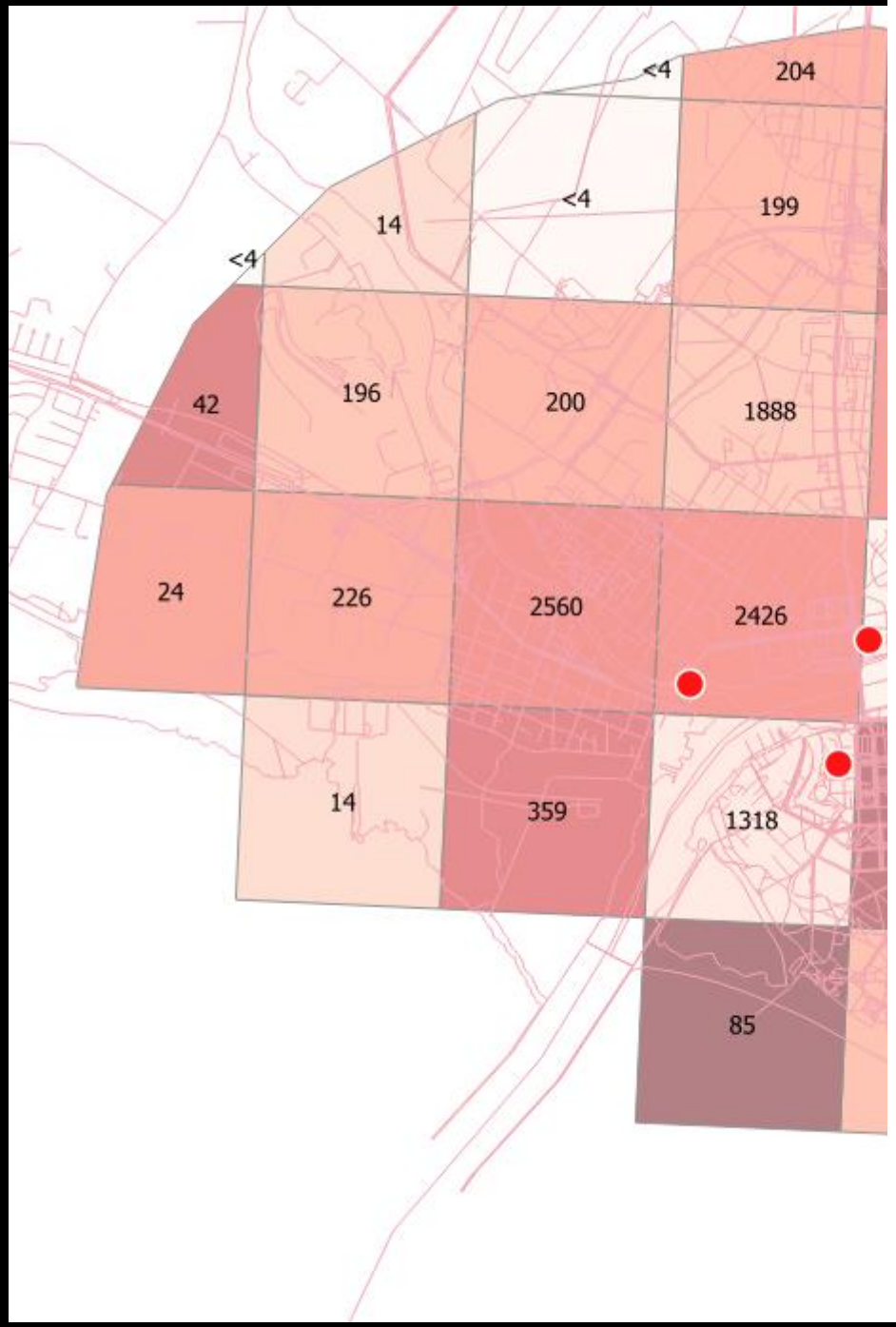
Add a buffer to the schools layer, so it will reflects the area where students are willing to go to school by bicycle

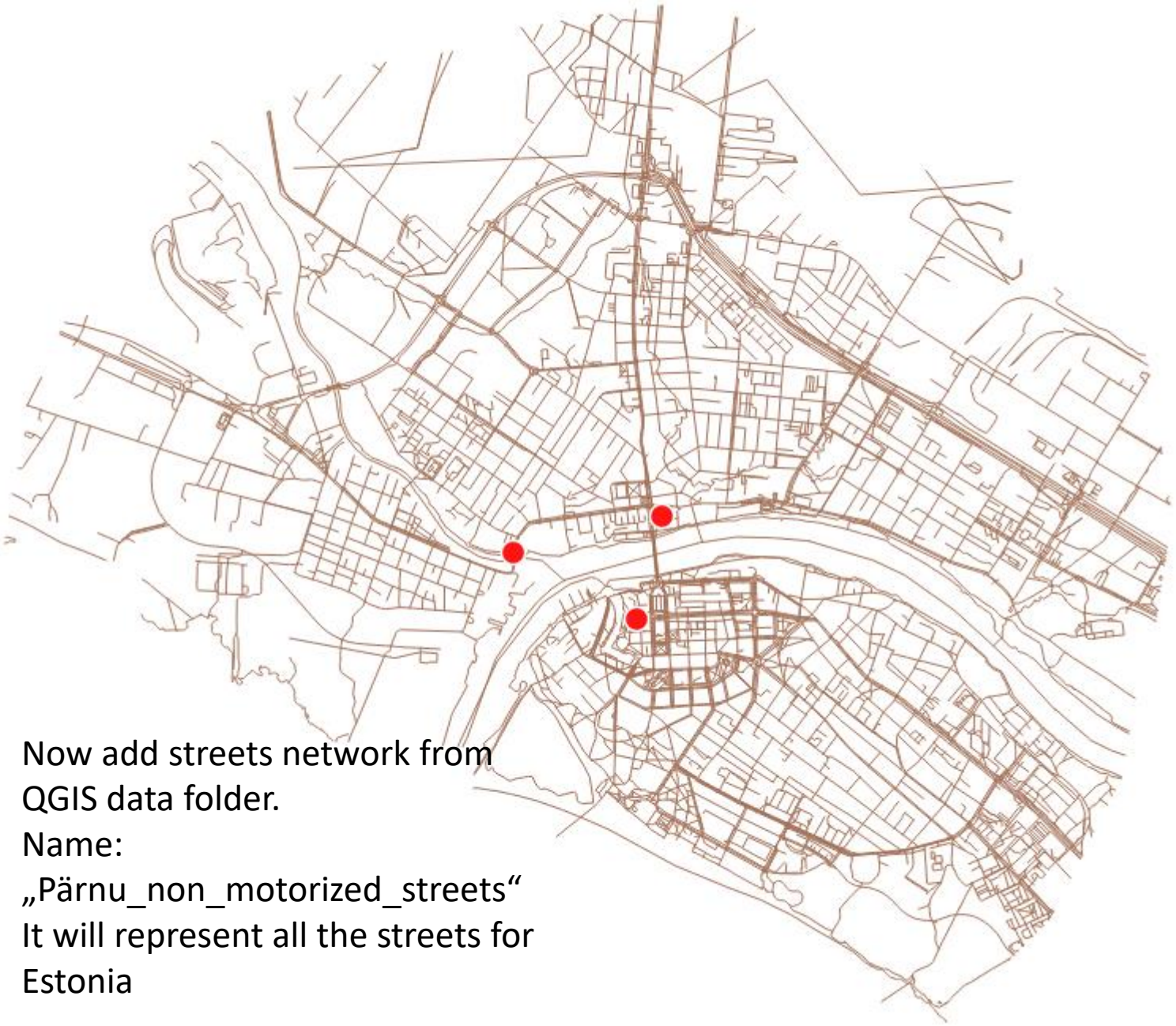
Task- spatial analyzing- a clipping tool



Here we will extract useful areas out of the map by comparing the population of students layer with schools buffer layer.



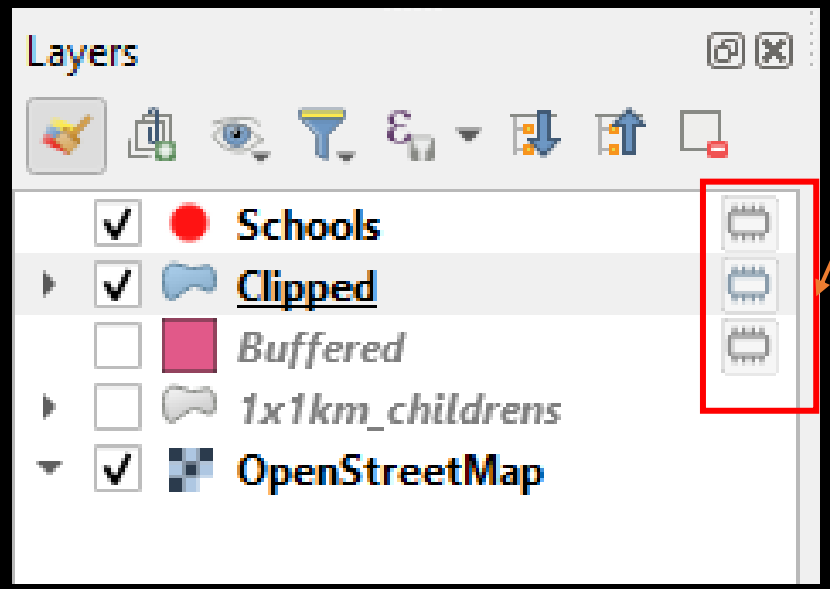




Now add streets network from QGIS data folder.
Name:
„Pärnu_non_motorized_streets“
It will represent all the streets for Estonia

Temporary layers- caution

- Every layer you want to save for afterward, should be saved as, otherwise it is a temporary layer and will get lost



Those are temporary layers

Right click on layer and export feature as.
Find just the right folder, coordinate system and type

Conclusion

- We started by outlining QGIS working steps
- First step is to state a problem
- We extracted areas that are really important to us
- Important to us are the areas of 3000 m from schools
  - In this range students are willing to use bicycles to go to school

Thank you for your attention!

Interreg Central Baltic Project: INTELTRANS – Intelligent Transport and Traffic Management study module.