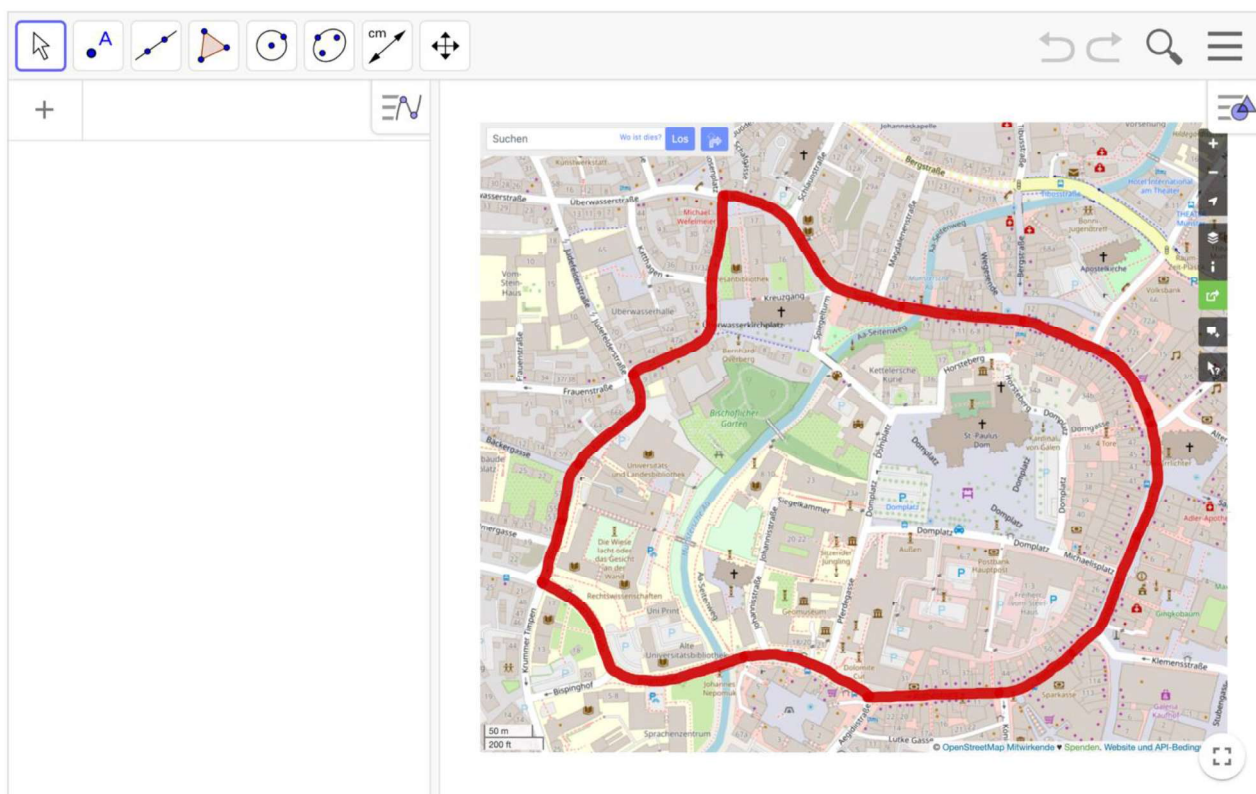


Example of tasks from the two treatments

Example task ‘Carnival’ (from treatment 1)

In Münster, a carnival parade takes place every year in February through the city center, and its route has to be planned well in advance. The question arises as to how many people can be present as spectators. Recently, Prince Mario I’s team has proposed an example route.

To ensure that the revelers can receive medical care in case of an emergency, medical teams are deployed. A team of two vehicles can operate within a radius of 160 meters, while a single vehicle can cover only a radius of 100 meters. Since injured individuals must be transported immediately, the vehicles must always be placed on access roads that lead out of the city center.



- How many people can watch the parade?
- How many ambulances are needed for medical care along the route?

The task ‘Carnival’, like the other tasks from Treatment 1, is worked on by the students on a tablet in GeoGebra.

Screenshot: © GeoGebra.org

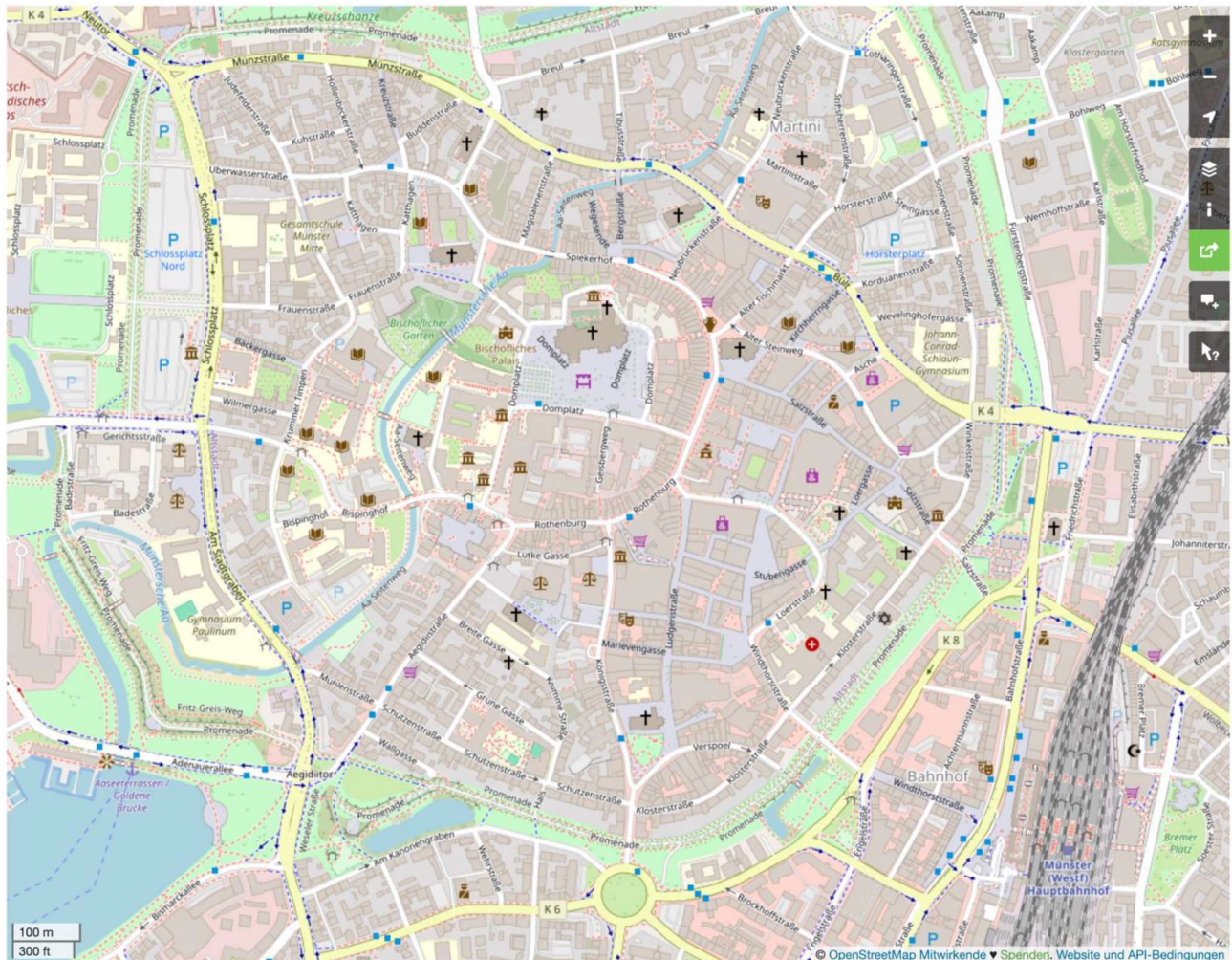
Map section: © Openstreetmap, <https://www.openstreetmap.org/copyright>

Source: Quarder, J. (2024). *Mathematisches Modellieren mit digitalen Werkzeugen in der Lehrkräftebildung. Konzeption und Evaluation eines Lehr-Lern-Laborseminars*. Springer Fachmedien Wiesbaden. <https://doi.org/10.1007/978-3-658-44996-4>

Note: The task was developed by pre-service teachers Simone Eßeling, Wiebke Haver and Marco Rinas as part of the treatment 1 in the summer semester of 2023.

Example task ‘WLAN’ (from treatment 2)

In the city center of Münster, there are several places offering free internet via WLAN hotspots for everyone. During major events, such as the Katholikentag, it was noticed that not everyone had access to WLAN at all locations. Therefore, the city of Münster wants to completely renew its WLAN coverage within the city center for future major events. Think about the number and locations of WLAN routers to ensure the best possible coverage. The cost factor naturally plays an important role.



The task ‘WLAN’, like the other tasks from Treatment 2, is worked on by the students on a sheet of paper with the help of pens, compasses and a set square.

Map section: © Openstreetmap, <https://www.openstreetmap.org/copyright>

Source: Wess, R. (2020). *Professionelle Kompetenz zum Lehren mathematischen Modellierens. Konzeptualisierung, Operationalisierung und Förderung von Aufgaben- und Diagnosekompetenz*. Springer Fachmedien Wiesbaden. <https://doi.org/10.1007/978-3-658-29801-2>