

# Multimodal accessibility model for workplaces

## - a framework for integrated land use and transport development

### Background

Metropolitan areas all over the world are facing transport-related problems like congestion and pollution. Further growth brings up the question of where to create additional housing or where to develop workplaces. The spatial distribution of employment acts as a catalyst for transport activities and population growth. Due to this crucial role, planners need scientifically sound tools that help them develop sustainable employment-related land use and transport strategies.

### Accessibility

Accessibility is a concept that combines characteristics of land use and transport in order to describe the potential of opportunities for interaction from a given location, from an individual's perspective or at a certain time. Some accessibility tools already exist that offer the potential to support decision-making in spatial planning processes. These instruments and concepts will be adapted and expanded in order to shed light on options for future employment development from a sustainable mobility perspective.

### Objectives

Accessibility is a prerequisite for social interaction and economic prosperity. Thus, accessibility benefits are among the aims of spatial planning strategies. Accessibility increases with increasing proximity (as a result of increasing density and diversity), but also with increasing mobility. The negative consequences of excessive transport activities require appropriate solutions. Several existing studies focus on employment accessibility. However, a number of questions regarding the conceptualization of planning goals and the creation of a corresponding planning process are still open. This research aims to:

- Identify the influencing factors on employees' mobility behavior and explain the strength and direction of influence
- Develop an accessibility model that enables sustainable workplace development with respect to employees' mobility behavior
- Create an understanding of how accessibility analysis can enhance spatial planning processes and support the selection of appropriate accessibility indicators

### Expected Outcome

The main outcome of this research is a methodology for planning workplace development. The methodology will be realized by means of an accessibility model. The hypotheses are as follows:

1. The accessibility of workplaces has a significant influence on employees' mobility behavior.
2. The accessibility model is capable of highlighting specific development options for a variety of social, economic, and environmental goals.
3. The policy implications vary depending on the pre-defined planning goals, thus highlighting the importance of a clear definition and appropriate conceptualization of the objectives.

### Work program

The proposed work program includes the following steps:

1. Literature review: framework and concretization of methodological basis
2. Empirical analysis: identify influencing factors on employees' mobility behavior by comparing accessibility-related variables and realized behavior
3. Conceptualization: define planning goals (from the literature and discussions with political stakeholders) and develop an accessibility model based on the different goals
4. Application of the model in the Munich Metropolitan Region (see Figure 1a-c)
5. Reflection: discuss model results referring to overarching goal of sustainable mobility of employees; conclusion and outlook

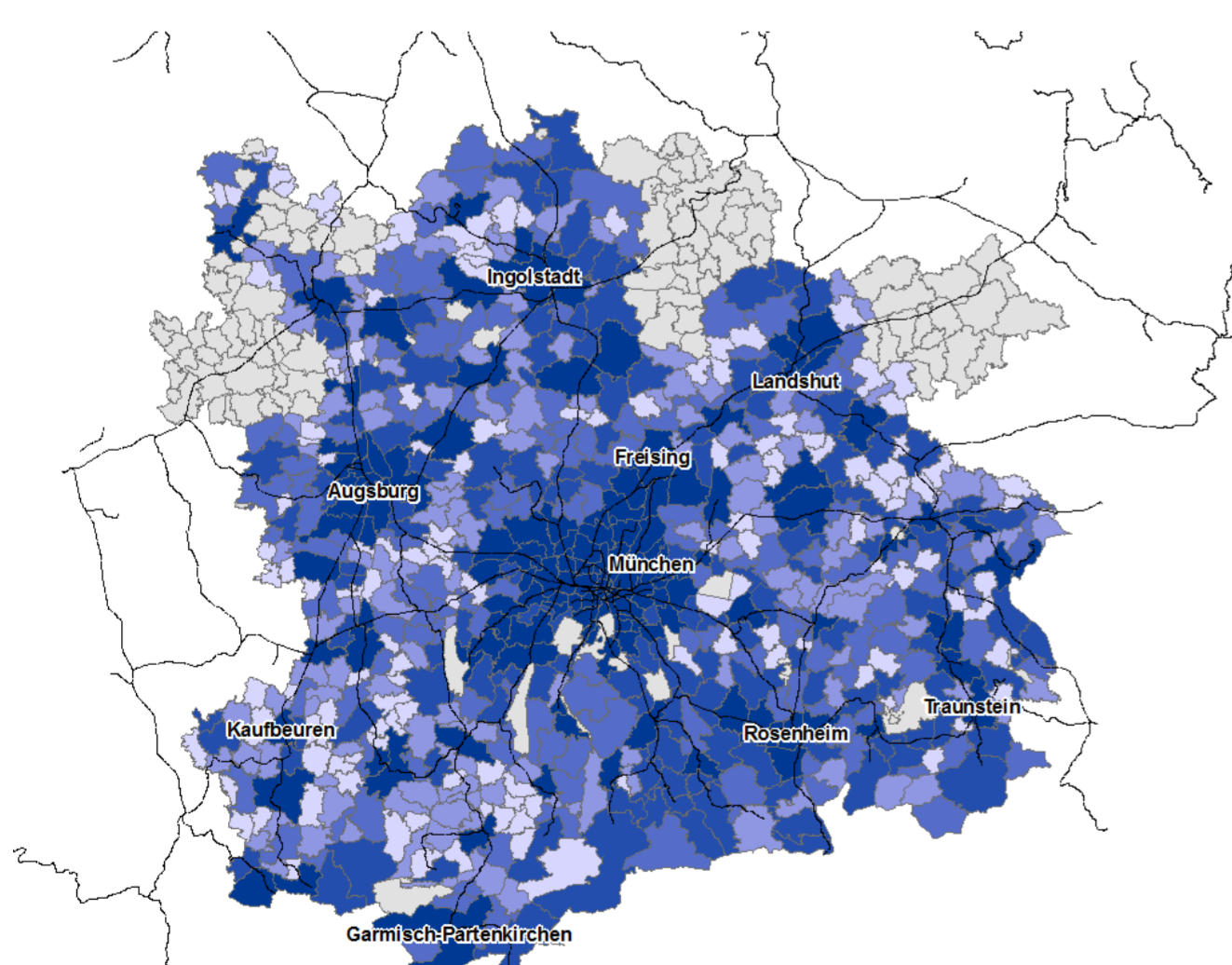


Figure 1a: Number of jobs per municipality

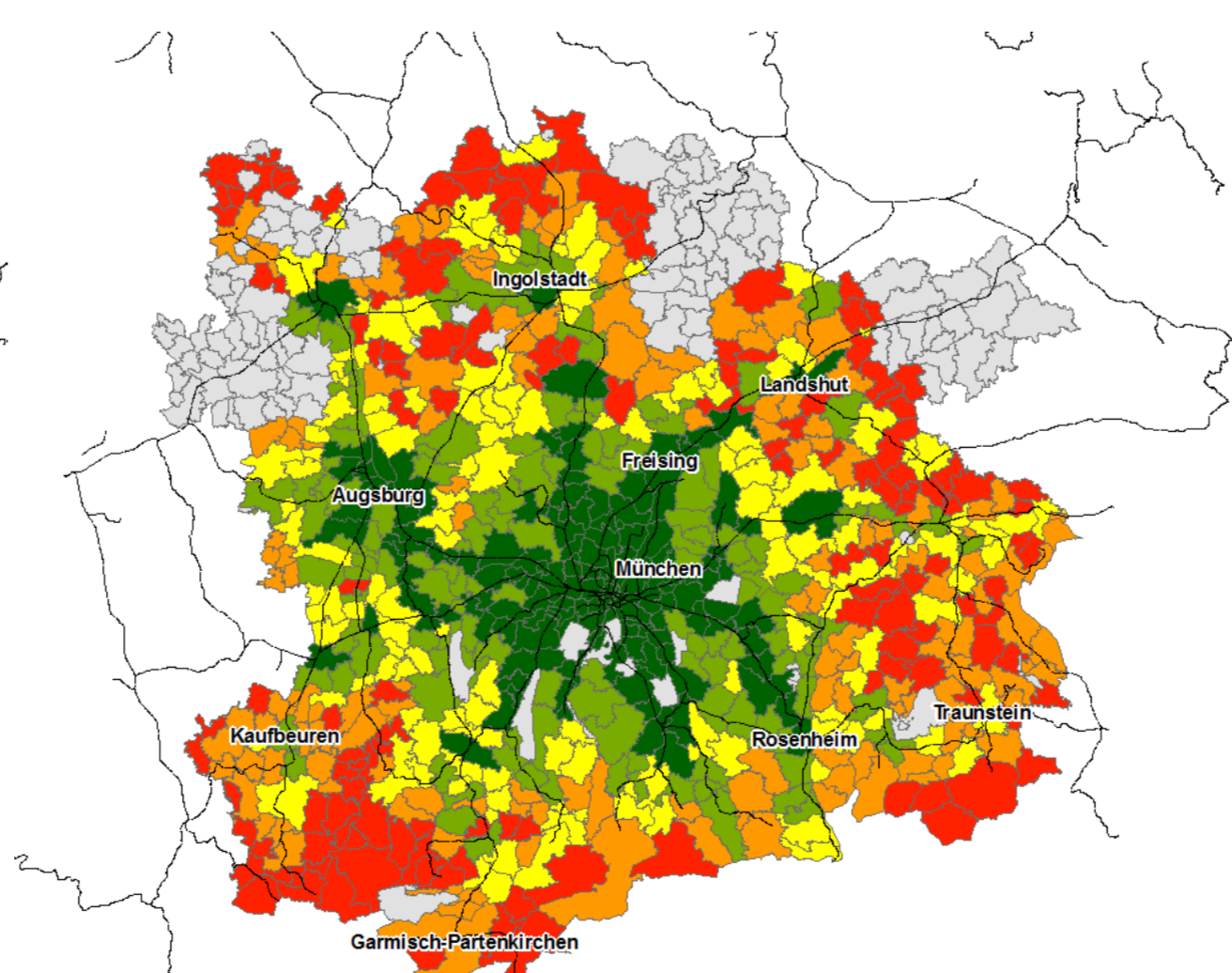


Figure 1b: Public transport accessibility to workers

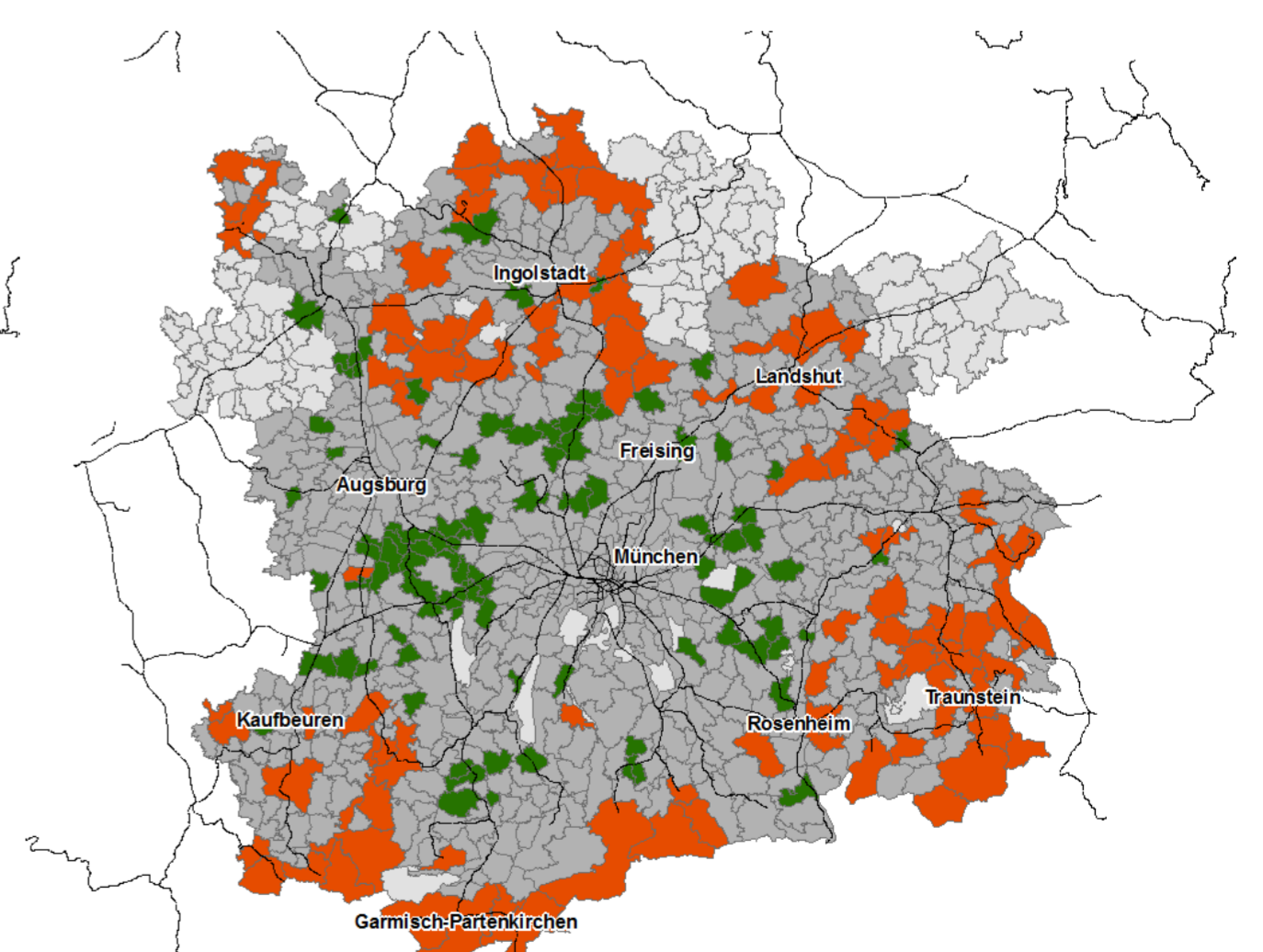


Figure 1c: Overlay of jobs and accessibility to workers